FREIGHT DEMAND MODELLING

SIMTA

SYDNEY INTERMODAL TERMINAL ALLIANCE

Transitional Part 3A Concept Plan Application

June 2013

Hyder Consulting Pty Ltd
ABN 76 104 485 289
Level 5, 141 Walker Street
Locked Bag 6503
North Sydney NSW 2060
Australia
Tel: +61 2 8907 9000
Fax: +61 2 8907 9001
www.hyderconsulting.com

SYDNEY INTERMODAL TERMINAL ALLIANCE (SIMTA)

MOOREBANK INTERMODAL TERMINAL FACILITY (MITF)

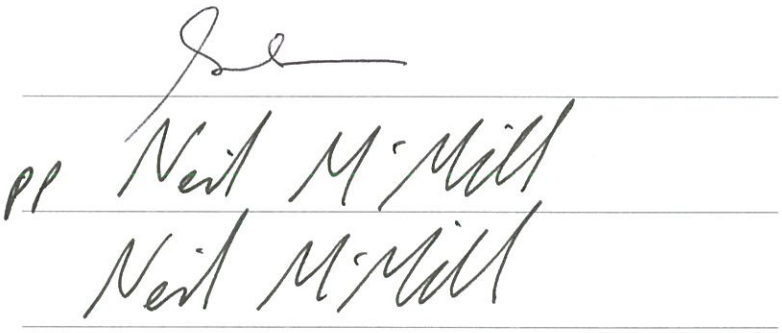
Strategic Needs for IntermodalTerminal (IMT) and Freight Demand

Freight Demand Modelling

Author Sally Manahan

Checker Phillip Rosser

Approver Neil McMillan



Report No 1

Date June 2013

This report has been prepared for SIMTA in accordance with the terms and conditions of appointment dated . Hyder Consulting Pty Ltd (ABN 76 104 485 289) cannot accept any responsibility for any use of or reliance on the contents of this report by any third party

This page has been left blank intentionally

CONTENTS

APPENDICES

This page has been left blank intentionally

1 INTRODUCTION

Hyder Consulting (Hyder) has prepared this technical note to determine the overall movement of container trucks to/from Port Botany and other intermodal terminals with and without SIMTA.

1.1 BACKGROUND

The Sydney Intermodal Terminal Alliance (SIMTA) is a joint venture between Qube Logistics and Aurizon (formerly QR National). The SIMTA Moorebank Intermodal Terminal Facility (SIMTA proposal) is proposed to be located on the land parcel currently occupied by the Defence National Storage and Distribution Centre (DNSDC) on Moorebank Avenue, Moorebank, south west of Sydney. SIMTA proposes to develop the DNSDC site into an intermodal terminal facility and warehouse/distribution facility, which will offer container storage and warehousing solutions with direct rail access to/from Port Botany. Construction of the rail connection from the SIMTA site to the Southern Sydney Freight Line (SSFL) will be undertaken as part of the first stage of works for the SIMTA proposal.

The SIMTA site, approximately 83 hectares in area, is currently operating as a Defence storage and distribution centre. The SIMTA site is legally identified as Lot 1 in DP1048263 and zoned as General Industrial under Liverpool City Council LEP 2008.

The parcels of land to the south and south west that would be utilised for a proposed rail link between the SIMTA facility and the South Sydney Freight Line (SSFL) are referred to as the rail corridor. The proposed rail corridor covers approximately 75 hectares and adjoins the Main Southern Railway to the north. The rail line is approximately 3.5 kilometres in length, 20 metres in width (variable width) and includes two connections to the SSFL, one south and one north. Existing land use includes vacant land, golf course, extractive industries, and a waste disposal depot.

The proposed rail corridor is owned by several third parties, including the Commonwealth of Australia, RailCorp, private owners and Crown Land held by the Department of Primary Industries, and would link the SIMTA site with the Southern Sydney Freight Line. Existing uses include vacant land, existing rail corridors (East Hills Railway and Main Southern Railway), extractive industries and a waste disposal facility. The rail corridor is intersected by Moorebank Ave, Georges River and Anzac Creek. Native vegetation cover includes woodland, forest and wetland communities in varying condition. The proposed rail corridor is zoned partly ‘SP2 Infrastructure (Defence and Railway)’ and partly ‘RE1 - Public Recreation’. The surrounding Commonwealth lands are zoned ‘SP2 Infrastructure (Defence)’.

The SIMTA site is located in the Liverpool Local Government Area. It is 27 kilometres west of the Sydney CBD, 16 kilometres south of the Parramatta CBD, five kilometres east of the M5/M7 Interchange, two kilometres from the main north-south rail line and future Southern Sydney Freight Line, and 600 metres from the M5 motorway.

Figure 1 shows the SIMTA proposal in the context of road and rail network.

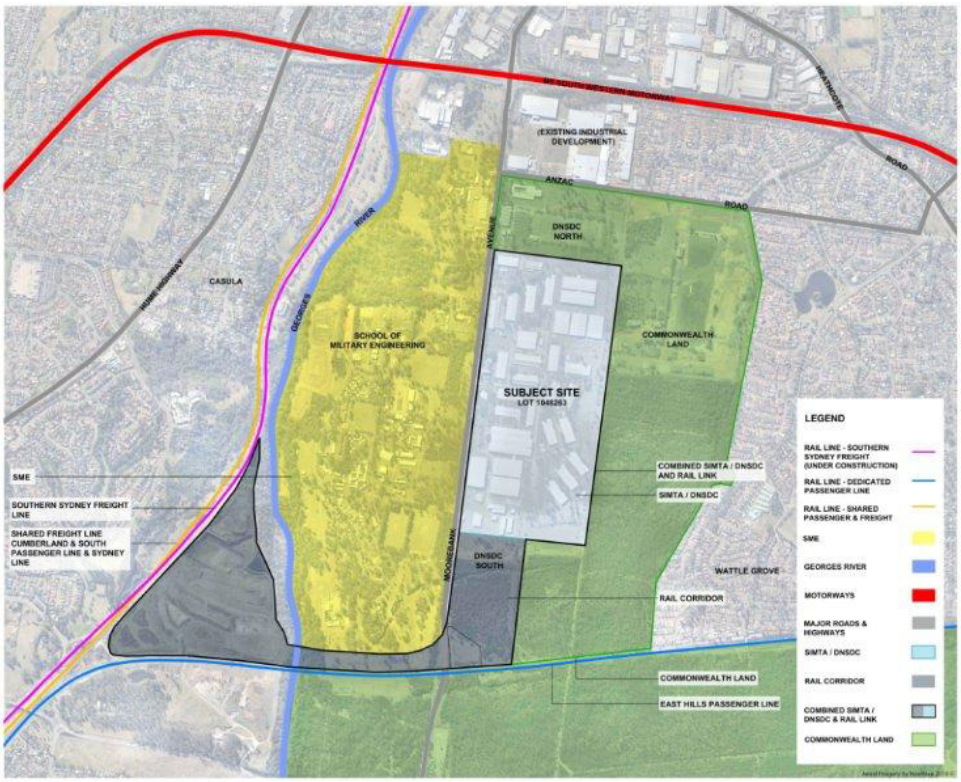


Figure 1 Moorebank Intermodal Terminal Site

The SIMTA proposal comprises the following key components:

- **Rail Link** – connecting the SIMTA site with the Southern Sydney Freight Line. The detailed design of the rail infrastructure comprising the rail link will be subject to a further application and approval process.
- **Intermodal Terminal** – proposed to include on-site freight rail sidings to accommodate local freight trains (shuttles) to/from Port Botany. Containerised import freight will arrive from Port Botany by rail and be transported to the warehouse and distribution facilities within the SIMTA site, or be directly loaded on to trucks for transport to warehouses and nearby logistics centres. Exports and empty freight containers will be transported to the facility by truck and then loaded onto rail for transport back to Port Botany. The terminal is expected to contain four rail sidings, with areas for container handling and storage, and is anticipated to have the capacity to handle a throughput of up to 1 million twenty foot equivalent units (TEUs) per annum.
- **Empty Container Storage** – will be provided within the site. Empty containers would either be packed on-site ready for transport to the port by rail, or trucked to off-site locations where they would be packed and returned to the SIMTA site to be loaded onto rail and transported to the port for export shipment.
- **Warehouse and Distribution Facilities** – approximately 300,000m2 of warehouses and ancillary offices will be constructed to the east of the intermodal terminal. These buildings are proposed to be constructed in stages in response to site servicing availability and market demands. It is expected that warehouses will range in size, depending on tenant needs.

- **Freight Village** – approximately 8,000m2 of support services will be provided on site. These may include site management and security offices, meeting rooms, driver facilities and convenience retail and business services.

The project will be undertaken as a staged development and it is intended that an overall Master Plan, for the entire site, be undertaken for the purpose of applying for Concept Plan approval under the Part 3A Transitional Provisions of the Environmental Planning and Assessment Act 1979.

1.2 PURPOSE OF REPORT

This report has been prepared to assist in addressing issues raised in the Director General's Requirements, particularly in regard to the container supply chain, both for import and export containers. This supply chain evaluation includes:

- demonstrating the overall market for the facility in the context of anticipated market growth and competing supply chains, and hence the catchment area expected to be served by the IMT
- quantifying the movement of containers by rail between the IMT and Port Botany
- quantifying the movement of containers by truck between the IMT and its regional customer base and defining the demand in a format suitable for use in the strategic traffic model (refer to Hyder's Main Traffic Report), and
- describing the movements of containers once they are unpacked, designated for export either as empty export or full export containers, with inputs suitable for traffic modelling as for import containers.

The quantification of the metropolitan container market has been controlled by the anticipated growth in trade through Port Botany. The location of container receival within the metropolitan area is somewhat more complex to define as it will be subject to many factors which are not fully established at this time, including:

- the location and capacity of as yet unplanned intermodal facilities
- the timing and capacity of transport infrastructure improvements (both road and rail) which would influence industry's locational decision.

In particular, the potential quantum of the shift in container unpacking and packing activities away from its current "home" in relatively close proximity to the port into western Sydney is not well quantified. It will certainly be influenced by the growth in intermodal terminals and rail services that will be essential to attract container traffic away from road transport and onto rail transport. The degree of this impact is yet to be established.

However, the primary purpose of this note is to derive a reasonable (and potentially conservative) estimate of the catchment that would be served by the SIMTA IMT. The assumption of no marked redistribution of the container's end market within Sydney will have no impact on the total throughput of the facility. The facility's road distribution catchment will be largest if the west and south west market share remains as it is today. If more containers are attracted into the western suburbs, for the same throughput the SIMTA catchment would contract.

Therefore, the assumption that container distribution follows current patterns has been made throughout this report and is considered to provide a conservative outcome in terms of the extent of road based traffic.

2 SIMTA NEEDS ASSESSMENT

PricewaterhouseCoopers (PwC) has undertaken the needs assessment for the SIMTA proposal on behalf of the SIMTA consortium. This report was made available to Hyder. This section summarises the findings and recommendations from the PwC report. Detailed PwC analysis can be found in **Appendix A.** PwC has undertaken the needs assessment that evaluates likely demand for the proposed SIMTA proposal and how the objectives for this facility relate to the NSW Government's Freight Strategy and Port Botany's Rail Strategy. The following sections analyse the future container freight needs of Port Botany and the resulting requirement for additional intermodal terminal (IMT) capacity in the Sydney region. The SIMTA proposal is particularly important in light of the NSW Government's objective to achieve a target of 28 per cent of container freight movement by rail out of Port Botany by 2016.

A separate assessment has also been undertaken by Hyder and is attached in **Appendix B**.

2.1 PORT BOTANY CONTAINER FREIGHT DEMAND

Projected growth in trade volumes through Port Botany will lead to an increase in freight movements across the Sydney metropolitan area. If the government rail target of 28 per cent is to be met, this will pose substantial challenges for the intermodal logistics chain in relation to Port Botany. To meet these challenges it is considered necessary to invest in new IMT capacity, to develop dedicated rail freight lines, to widen the orbital motorway and ideally to complete the missing links in the orbital motorway, and to improve the rail interface at Port Botany.

Port Botany accounts for almost the entire volume of containerised import/export (IMEX) trade throughput in NSW. Total container trade through Port Botany was 2.04 million twenty foot equivalent units (TEU) in 2011/12, up from 2.02 million in 2010/11.[1] Full container imports in 2011/12 were 1.02 million TEU, up nearly 2 per cent on 2010/11, while full container exports were 0.46 million TEU, unchanged from 2010/11. The export of empty containers increased by 2.3 per cent in 2011/12 to 0.55 million TEU.

The projected growth of container trade at Port Botany, of 6.7 per cent per annum based on Sydney Ports Corporation (SPC) planning assumptions, would result in trade throughput at the port reaching 4.7 million TEU by 2025.[2] Sydney Ports Corporation assess the fully developed Port Botany, including Terminal 3, will have a maximum throughput capacity of approximately 7.5 million TEUs p.a. As a key part of the recent Long-Term lease of Port Botany, the 3.2 million cap that was previously determined by the Minister of Planning in 2005 under the Environmental Planning and Assessment Act, has been removed.

A rail mode share of 28 per cent will mean that rail will have to transport approximately 1.4 million TEUs by 2025 and approximately 2.0 million TEUs once Port Botany is operating at full capacity.

(this figure reflects the now defunct 3.2m TEU planning cap)

[1] Sydney Ports Corporation, Trade Statistics 2009/10, December 2010.

[2] Sydney Ports Corporation data, as applied in the assessment for the NSW Government by SAHA International, NSW Container Freight Improvement Strategy Preliminary Economic Evaluation, August 2010

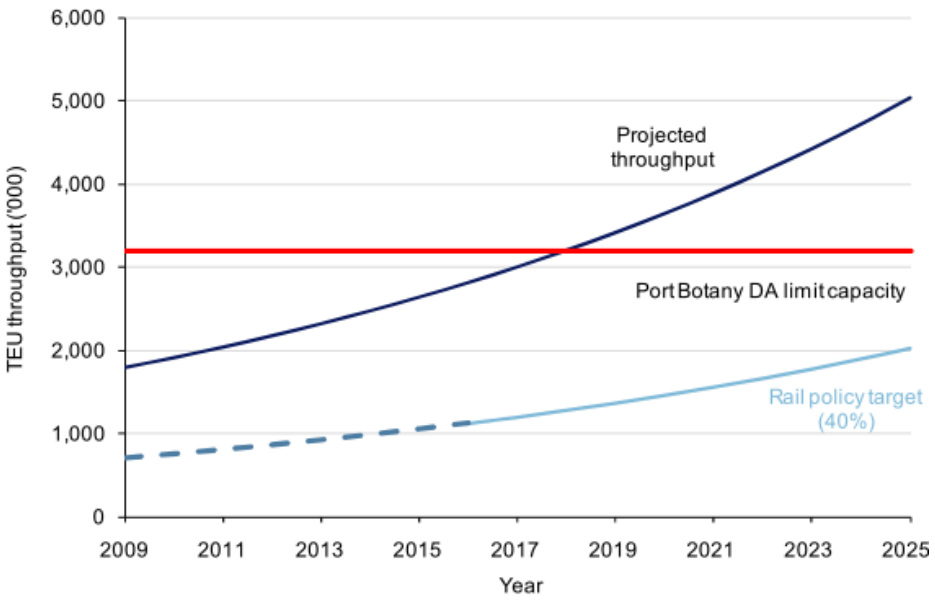


Figure 2 Container Trade Growth at Port Botany (import and Export), 2009-2015

Source of data used in this figure: SAHA International Limited (SAHA), NSW Container Freight Improvement Strategy Preliminary Economic Evaluation, August 2010 and the NSW Department of Planning.

For the purposes of estimating the distribution of containers shipping through the SIMTA proposal, the PWC forecasts have been adopted and tabulated below. As external forecasts extend only to 2025, the SIMTA forecasts are based on this year.

Table 2-1 Adopted Port Container Projection

Year	Import	Export full	Export MT	Total export	Total TEU
2004	696,000	341,000	339,000	680,000	1,376,000
2005	740,014	344,924	360,380	705,304	1,445,318
2009	976,215	442,567	508,725	951,292	1,927,507
2010	1,020,560	458,703	540,823	999,526	2.020,086
2011	1,027,445	455,359	553,338	1,008,697	2.036,142
2016	1,421,000	697,000	692,000	1,389,000	2,810,000
2017	1,517,000	744,000	738,000	1,482,000	2,999,000
2018	1,618,000	794,000	788,000	1,582,000	3,200,000
2019	1,725,000	846,000	839,000	1,685,000	3,410,000
2020	1,841,000	903,000	896,000	1,799,000	3,640,000
2021	1,962,000	962,000	955,000	1,917,000	3,879,000
2022	2,099,000	1,029,000	1,021,000	2,050,000	4,149,000
2023	2,236,000	1,096,000	1,088,000	2,184,000	4,420,000

Year	Import	Export full	Export MT	Total export	Total TEU
2024	2,387,000	1,171,000	1,162,000	2,333,000	4,720,000
2025	2,549,000	1,250,000	1,241,000	2,491,000	5,040,000

The proportion of import, full export and empty export containers has been based on recent historical data which has exhibited a consistent pattern over at least five years: imports 50.6%, full exports 24.8%, and empty exports 24.6%.

It is assumed that all import containers are unstuffed within the Sydney metropolitan area.

Of the full exports, about half (12% of all TEUs) are packed in the metropolitan area. The remainder are shipped to rural areas where they are stuffed and freighted directly to the port for export shipment.

2.2 NSW GOVERNMENT FREIGHT POLICY

The NSW Government has identified the importance of improving the performance of the NSW road network to grow Sydney's value and move commodities efficiently to assist the productivity of businesses.[3] To address this objective, the NSW Government has issued the following key policy documents relating to freight, which support an increase in rail freight in order to ease road congestion:

- NSW Government, State Infrastructure Strategy, June 2008.
- NSW Government, Action for Air, November 2009.
- NSW Government, Metropolitan Transport Plan, February 2010.
- NSW Government, NSW 2021: A Plan to Make NSW Number One, September 2011.
- NSW Transport, Container Freight Improvement Strategy, July 2010.
- NSW Government, Metropolitan Plan for Sydney 2036, December 2010.
- NSW Government, Draft Metropolitan Strategy for Sydney to 2031, March 2013.
- Transport for NSW, Long Term Transport Master Plan, December 2012.
- Infrastructure NSW, State Infrastructure Strategy 2011-2032, October 2012.
- Transport for NSW, Draft Ports and Freight Strategy, November 2012.

These NSW Government policies are complemented by the SPC document, the Port Botany Landside Improvement Strategy (PBLIS).

The above policies outline the importance of managing the expected increase in container freight in a manner that is sustainable and which minimises the effects of congestion.

Infrastructure Australia (IA) provides a priority list to guide proponents of infrastructure projects to present an economic and societal basis for their developments. The process involves a number of steps to define and assess economic monetised and non-monetised costs and benefits of projects that are to be pursued in the interest of national productivity. PwC have followed a similar process to IA in assessing the need for the SIMTA IMT and intermodal capacity more generally – through the processes of issue identification, issue assessment and

[3] NSW Government, NSW Container Freight Improvement Strategy, August 2010

analysis, consideration of the SIMTA IMT option and assessment of whether this option provides a solution to the problem identified (being the requirement for additional IMT capacity in Sydney).

In order to relieve congestion on the road network in Sydney, NSW 2021 sets out the specific target to increase the proportion of container freight movement by rail out of Port Botany to 28 per cent.[4] The targeted percentage reflects analysis and recommendations of the report, *Railing Port Botany's Containers: Proposals to Ease Pressure on Sydney's Roads*, released by the Freight Infrastructure Advisory Board in July 2005.

This target would be achieved through an investment in intermodal capacity within Sydney and through appropriate rail connections to Port Botany. Moorebank, in south-west Sydney, has been considered an appropriate site for IMT capacity by both the Commonwealth and NSW Governments since 2004. This is due to its location within close proximity to the motorway network, the Southern Sydney Freight Line and proximity to south west industrial areas and employment zones.

During 2011-12 only 14 per cent of the Port Botany IMEX container trade, of 2.0 million TEU, was transported by rail, with the rail mode percentage share being higher for exports and lower from imports due to diverse destination patterns.[5] The assessment contained in the NSW Government document, *NSW Container Freight Improvement Strategy Preliminary Economic Evaluation*, projects that total TEU demand will be around 2.6 million TEU by 2016.

If the NSW Government container rail freight policy objective of 14 per cent mode share new IMTs will be required, as well as a range of PBLIS reforms to boost the competitive proposition of rail.

2.3 BUSINESS AS USUAL-EXISTING CAPACITY VS. PORT BOTANY CONTAINER NEEDS

In 2008/09, total annual IMT container throughput capacity in Sydney was 0.37 million TEU, across the Yennora, Minto and Villawood IMTs.[6] Since that time, the Villawood IMT has ceased operations reducing IMT capacity to 0.32 million TEUs p.a. The Enfield IMT, which is nearing completion, will increase the network capacity by a further 0.3 million TEU, consistent with the approved throughput limit of that terminal, to 0.62 million TEU.

With annual throughput at Port Botany projected to increase to 2.6 million TEU by 2016, further additions to the capacity and efficiency of the freight and logistics network are needed to increase the share of rail container freight transport so that Sydney has over 0.73 million TEU of IMT capacity (2.6m TEUs x 28%) and 85 per cent of Port Botany volume originates or is delivered to a destination within 40 km of the Port. The development of the SIMTA IMT will be an important component in achieving that objective, by providing greater capacity to move freight by rail, potentially decreasing the distances freight is required to be transported by road, in addition to generally decreasing the need for road transport from Port Botany.

In the absence of the SIMTA IMT intermodal capacity in the Sydney region would be limited to 0.62 million TEU, comprising the aggregate capacity of the Enfield, Yennora, Minto and

[4] NSW Government, NSW State Plan 2010, March 2010

[5] NSW Government, NSW Container Freight Improvement Strategy, August 2010.

[6] SAHA, NSW Container Freight Improvement Strategy Preliminary Economic Evaluation, August 2010

Villawood intermodal facilities. The existing capacity would be unable to fulfil the policy target, of 28 per cent container freight movement by rail out of Port Botany by 2016.

Table 2-2 below compares the Sydney IMT capacity requirements to maintain the current 14 per cent rail mode share and achieving the Government's target of 28 per cent. It also summarises capacity of the existing IMT facilities (including the Enfield facility currently being completed) and to the capacity of those facilities plus the proposed SIMTA IMT.

Table 2-2 Capacity of Port Botany IMT Shuttle Network With and Without the SIMTA IMT

	2010	2016	2021	2025
	IMT Capacity (million TEU per annum)			
Existing Intermodal capacity				
Minto	0.15	0.15	0.15	0.15
Yennora	0.17	0.17	0.17	0.17
Enfield	0.00	0.30	0.30	0.30
Villawood	0.05	0	0	0
Total	0.37	0.62	0.62	0.62
Rail share at 14 per cent		0.35	0.50	0.65
Rail share at 28 per cent	0.44	71	1.00	1.3
Rail share at 40 per cent	0.76	1.00	1.43	1.86
SIMTA IMT	1.00	1.00	1.00	1.00
Total IMT capacity with SIMTA	1.37	1.62	1.62	1.62

Source of data used in this figure: SAHA, NSW Container Freight Improvement Strategy Preliminary Economic Evaluation, August 2010, PwC calculation of rail share values.

2.4 CONCLUSION

Under the 'business as usual' scenario, based on current Sydney region IMT capacity of 0.62 million TEU. Assuming that by 2016, the volume of containers moving by rail will increase beyond the current 14 per cent mode share, to a 28 per cent rail mode share, it is evident that without the SIMTA IMT, metropolitan Sydney will not have sufficient IMT capacity to meet government objectives. The SIMTA IMT will therefore be a key contributor in government policy objective being achieved, although this would also depend on related transportation initiatives.

In terms of catchment size, the SIMTA proposal has maintained the catchment area to be some 1.0 million TEUs. This is further backed up by extrapolating forecast Port Botany throughput and catchment share.

In 2011-12 Port Botany throughput was some 2.0 million TEUs. Sydney Ports are forecasting an annual growth rate of 6.7% which will see Port Botany reach capacity (7.5 million TEUs) by 2040. Even allowing for a more modest growth rate of 4.0% p.a. this will see throughput exceed 7.0 million TEUs by 2045. Of this total 3.5 million TEUs will be imports and 3.5 million TEUs exports. If the 28% rail modal share is reached, this amounts to 1.96 Million TEU's by rail to and fromsa the whole of metropolitan Sydney.

The South West / SIMTA catchment area with an import distribution share of 15.0% will thus have a potential of 525,000 TEUs import containers. Given each inbound trip generates a return

outbound trip, this equates to a potential catchment of 1.05 million TEUs. This remains in line with original forecasts.

The completion of the Stage 1 development of the SIMTA IMT in 2015 would provide an initial capacity for 250,000 TEU. Stage 2 will be completed in 2019 and will increase the SIMTA IMT capacity to 750,000 TEU while the final stage (Stage 3) will be completed in 2022 and will increase the SIMTA IMT capacity to 1.0 million TEU throughput for the Sydney network, bringing the total IMT capacity to 1.62 million TEU. This would represent around 46 per cent of the total projected TEU throughput of 3.5 million at Port Botany by 2022.

The SIMTA IMT is well-positioned in the centre of the logistics and warehousing precinct of south-west Sydney. The site is near the junction of the M5 and M7 motorways and the Southern Sydney Freight Line, giving excellent access to high capacity transport infrastructure. Figure 3 below depicts the networks of major arterial roads and rail links in the Sydney region, with the Moorebank site highlighted. It can be seen from Figure 3 that there is significant concentration of industrial activity along the south-west corridor and around the Moorebank site.

Figure 3 Metropolitan Road and Rail Links

Source: Sydney Ports Corporation, Logistics Review, Improving Our Supply Chain, 2008/09.

Achievement of the Government's policy objective will depend on related transportation initiatives, such as those included in the NSW Container Freight Improvement Strategy. The Strategy represents a package of projects to provide the infrastructure required to achieve and maintain the NSW State Plan target. The Strategy includes investments in intermodal facilities and port and rail efficiency enhancements to meet the rail target.

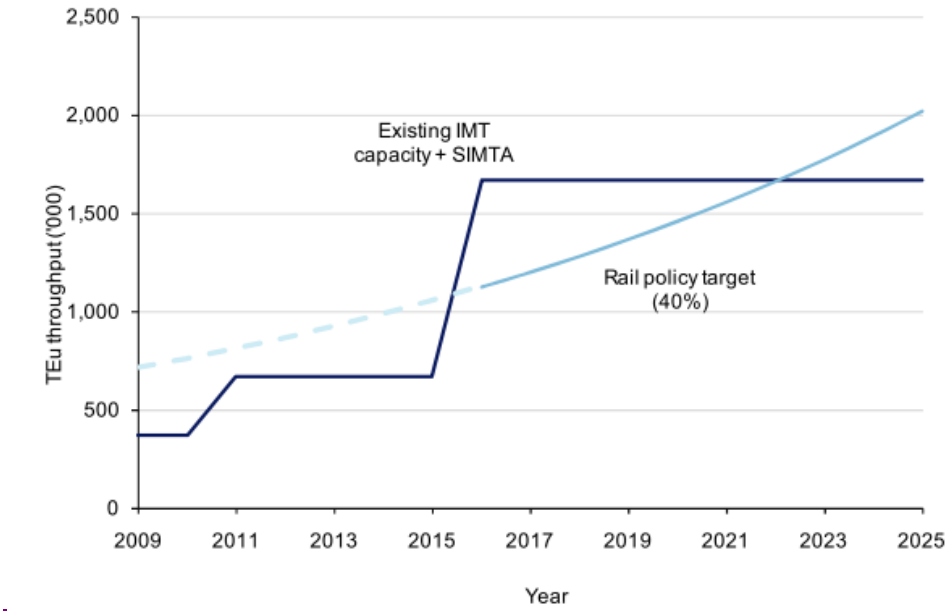


Figure 4 Capacity of IMT Network with the SIMTA IMT

Source of data used in this figure: SAHA, NSW Container Freight Improvement Strategy Preliminary Economic Evaluation, August 2010, the NSW Department of Planning, and SIMTA capacity data.

Based on the forecast 1.0 million TEU annual throughput of the proposed SIMTA IMT , this development has the potential to support NSW freight policy objectives. It will provide enough capacity to allow the 28 per cent target to be met beyond 2025. . It will improve container throughput, thus increasing productivity of freight rail and eliminate a significant number of truck movements from major arterial roads around Port Botany.

3 INTERMODAL TERMINAL (IMT'S) FREIGHT CONTAINER DISTRIBUTIONS WITHIN SYDNEY

Hyder has undertaken a strategic freight demand analysis for Sydney. This section summarises container supply chains, both for import and export containers to assist in addressing issues raised in the DGRs.

In general, the supply chain evaluation includes:

- Demonstrating the overall market for the facility in the context of anticipated market growth and competing supply chains, and hence the catchment area expected to be served by the Intermodal Terminals (IMT);
- Quantifying the movement of containers by rail between the IMT and Port Botany;
- Quantifying the movement of containers by truck between the IMT and its regional customer base and defining the demand in a format suitable for use in the strategic traffic model (see Section 5);

- Describing the movements of containers once they are unpacked, designated for export either as empty export or full export containers, with inputs suitable for traffic modelling as for import containers.

The quantification of the metropolitan container market has been controlled by the anticipated growth in trade through Port Botany. The primary purpose of this analysis is to derive a reasonable (and potentially conservative) estimate of the catchment that would be served by the SIMTA IMT. The assumption that container distribution follows current patterns is considered to provide a conservative outcome in terms of the extent of road based traffic.

Sources of information for current and future container movements through Port Botany are:

- Sydney Ports Annual Reports;
- Sydney Ports, Metropolitan Sydney International Container Origin/Destination Analysis, August 2000;
- Sydney Ports Corporation, Port Freight Logistics Plan A framework to improve road and rail performance at Port Botany June 2008;
- Freight Infrastructure Advisory Board, Railing Port Botany's Containers July 2005;
- SKM, Intermodal Logistics Centre at Enfield ENVIRONMENTAL ASSESSMENT, October 2005, Sections 3 and 8;
- Booz and Co for NTC, Capacity Constraints & Supply Chain Performance – Intermodal Working Paper #1 – Understanding the Intermodal supply chain, January 2008.

The following points are noted when various forecasts are compared:

- Sydney Port's own forecasts, used in the Enfield EA, are conservatively low, with the volume forecast for 2011 being lower than observed in 2010;
- Sydney Port's forecasts also appear to under-estimate the number of export containers;
- The Booz forecasts appear more reasonable in following historical trends and in representing the balance between import and export containers;
- The more recent forecasts used by PwC (and produced by SAHA) are slightly higher than the Booz forecasts, but also represent a reasonable trend;
- For the purposes of estimating the distribution of containers shipping through the SIMTA proposal, the PWC forecasts have been adopted.

3.1 INTERMODAL TERMINAL IN SYDNEY

The market catchment for distribution of containers through an IMT is largely a function of the total cost of the container supply chain. The location and capacity of all intermodal facilities therefore influences demand in each facility (assuming that facilities operate efficiently and in a competitive environment). Current and assumed future IMTs are shown in Table 3-1 below.

Table 3-1 Sydney Intermodal Terminals Capacity Assumptions

IMT location	Notional capacity (TEU pa)	Status
Camellia		Closed
Yennora	170,000	
Villawood	80,000	Now closed
Minto	150,000	
Enfield	300,000	Approved capacity, terminal under construction, expected to be fully operational by 2014
SIMTA/Moorebank	1,000,000	Notional capacity of the Moorebank facility
Western Sydney		Location, capacity and timing are uncommitted. Additional IMT capacity will be necessary somewhere in western Sydney in order to meet the 28 % rail mode share target

3.2 BASE YEAR DISTRIBUTION

The most recent data on the distribution of container activity within the Sydney metropolitan area is now quite dated, being based on a survey undertaken in March 2000. The survey sampled full container movements by road between the port and unpacking locations and between metropolitan packing locations and the port. The survey represented about 25 per cent of container road movements.

At the time of the survey, about 22 per cent of containers moved by rail, of which 40 per cent was destined for metropolitan Sydney.

Additionally, the survey included containers moved through Port Jackson and reported their destinations separately from Port Botany movements. As Port Jackson no longer handles containers, the distribution for Botany and Port Jackson combined has been used as input into the analysis, tabulated below.

Table 3-2 Container distribution from 2000 port OD survey

Reporting area[7]	% of metropolitan containers to/from region		
	Import	Export	All
Botany	14.1	39.5	21.8
City and East	0.3		0.2
South Sydney	6.1	8.8	6.9
Southern Suburbs	1.2	0.7	1.1
North Shore	4.7	0.6	3.4
NW Sydney	1.3	1.4	1.4

[7] Reporting areas are those used to document the Sydney Ports Container Survey, March 2000. See Appendix A for details.

Reporting area[7]	% of metropolitan containers to/from region		
Inner West	10.2	12.9	11
Central West	20	9.1	16.7
Industrial West	13.2	4.2	10.4
Blacktown	10.8	3.8	8.6
Penrith	3.2	0.4	2.4
Liverpool	8.7	1.8	6.6
South West	6.2	16.8	9.5
TOTAL	100	100	100

Note: Regions exclude some outer SLAs

The survey documented which SLAs are within each area but did not provide data for individual SLAs

3.3 FUTURE YEAR CONTAINER DISTRIBUTION

The precise future distribution of import and export containers within the metropolitan area will be determined by a complex series of factors, including the market's response to transport policy and the provision of port supply chain infrastructure.

Sydney's employment distribution is changing, with a distinct shift westwards as a consequence of population growth. A shift in the focus of employment opportunities could be sufficient to attract more container packing and unpacking in the western suburbs; intermodal movement of containers can support and reinforce this shift.

The precise distribution of container activity observed in 2000 will not prevail into the future. However, the extent to which a westwards shift will occur is unable to be quantified as all external market forces are not fully understood.

The process undertaken for the purposes of estimating the catchment and truck patterns to and from the SIMTA terminal is somewhat simplified, taking into account the current forecasts of changing employment types in Sydney, without considering any further attraction that may occur as a result of changes in the intermodal delivery system.

In summary:

- Port commodities 2006/7 (latest year of detailed data) allocated to first level ANZSIC categories of the receiving industry (manufacturing, wholesale, warehousing) to determine the proportion of containers destined for each of the three major employment categories (see Table 3-3)
- On average, 59 per cent of container tonnages are calculated to be destined for manufacturing employment, 28 per cent wholesale and 12 per cent warehousing.
- In order to derive regional distribution factors, volumes were allocated to each SLA according to the number of jobs in each category (from the 2006 Census).
- Volumes were then re-weighted on a regional basis to match the 2000 container survey destination pattern.

- This reweighting resulted in a set of "container attraction rates" based on employment type and varying by region within Sydney. These rates are proxies for proximity to the port, the efficiency of transport links and the nature of regional employment.
- As employment is expected to grow non-uniformly across the metropolitan area, these factors were then used to estimate the percentage of import containers that would be destined for each SLA in forecast years, with a summary of the container distribution shown in **Table 3-4** below.

Table 3-3 Current containerised import commodities

Import commodity	Tonnes (2006/07)	% of import commodities	% of commodity consumed by local employment type		
			Manufacturing	Wholesale	Warehousing
Machinery & Transport Equipment	1,045,639	15%	80%	20%	
Miscellaneous Manufactured Articles	1,096,033	15%		100%	
Chemicals	1,167,173	16%	80%		20%
Paper & Paper Products	920,665	13%	50%	50%	
Textile Fabrics & Yarns	266,018	4%	80%		20%
Non-metallic Minerals	314,534	4%	100%		
Food Preparations	387,364	5%	60%		40%
Iron & Steel	291,583	4%	80%		20%
Beverages & Tobacco	228,148	3%	60%		40%
Timber	150,485	2%	80%		20%
Other	1,315,044	18%	60%	20%	20%
TOTAL	7,182,686	100%	4,269,919	2,028,502	884,265
			59%	28%	12%

Table 3-4 Forecast import container distribution

Reporting area	% import containers			% export containers		
	2006	2016	2025	2006	2016	2025
Botany	14.1%	14.2%	13.6%	39.5%	38.6%	37.1%
City and East	0.3%	0.3%	0.3%	0.0%	0.0%	0.0%
South Sydney	6.1%	6.3%	6.3%	8.8%	8.7%	8.3%
Southern Suburbs	1.2%	1.1%	1.0%	0.7%	0.7%	0.6%
North Shore	4.7%	4.4%	4.1%	0.6%	0.6%	0.5%
NW Sydney	1.3%	1.2%	1.1%	1.4%	1.3%	1.3%
Inner West	10.2%	9.4%	8.6%	12.9%	12.2%	11.4%

Reporting area	% import containers			% export containers		
Central West	20.0%	18.8%	18.0%	9.1%	8.6%	8.2%
Industrial West	13.2%	13.3%	13.2%	4.2%	4.5%	4.7%
Blacktown	10.8%	11.5%	12.3%	3.8%	4.6%	5.6%
Penrith	3.2%	3.5%	3.7%	0.4%	0.5%	0.6%
Liverpool	8.7%	9.1%	9.6%	1.8%	1.9%	2.0%
South West	6.2%	7.0%	8.1%	16.8%	17.7%	19.7%
TOTAL	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

Adopting the assumption that container distribution will be a function of the redistribution of jobs, the change in employment contained in current government forecasts does not result in a major skewing of the distribution of container destinations within metropolitan Sydney. The south west and outer west regions could grow their share of the import container market from 18 per cent to about 21 percent with a decline in the inner west and port precinct.

Using the same analytic approach, full export containers follow a similar pattern in terms of a slight growth in the south west and outer west regions at the expense of slight contraction in inner area. However, with a higher number of import containers able to be made available in the western suburbs and with cost- and time- competitive rail options emerging, it is highly likely that Botany's key role in container packing will diminish significantly in future years. The movement of export containers is discussed later in this report.

As outlined in the introductory section of the Technical Note, the assumptions regarding the distribution of containers produces a conservative outcome in terms of the overall extent of truck movements within the catchment area of the SIMTA IMT.

3.4 FUTURE YEAR CONTAINER VOLUMES WITHIN METROPOLITAN SYDNEY

The above section outlines the overall proportion of container origins and destinations on a regional basis. In order to fully evaluate container movements at SIMTA, estimates were then derived of demand for containers at a fine geographic level using the modelling standard Travel Zones (TZs). TZs aggregate neatly into Statistical Local Areas (SLAs) which are reported in this and subsequent sections. Information at the finer TZ level has been produced as input into the regional traffic modelling.

In order to allocate containers to SLAs and TZs within each region, the regional demand was apportioned based on the small area employment forecasts produced by the Bureau of Transport Statistics. These forecasts measure blue collar, white collar and retail employment. To allocate containers, industrial (blue collar) employment was selected as the most appropriate available forecast variable against which to measure container activity.

Table 3-5 below summarises total annual import container demand by reporting areas and the same information is shown graphically on Figure 5. Details by SLA are tabulated in **Appendix C**. The full analysis for SIMTA has been undertaken at the very fine geographic level of TZ, which are too numerous to report herein.

Table 3-5 Import container forecasts by reporting region

Reporting area	Annual import containers (TEU)		
	2006	2016	2025
Botany	115,510	187,334	320,335
City and East	2,458	3,691	6,207
South Sydney	49,972	83,733	148,901
Southern Suburbs	9,831	14,316	23,386
North Shore	38,503	57,711	95,791
NW Sydney	10,650	15,734	26,560
Inner West	83,560	123,533	201,674
Central West	163,844	248,045	422,296
Industrial West	108,137	175,373	310,801
Blacktown	88,476	151,945	289,613
Penrith	26,215	45,706	87,685
Liverpool	71,272	220,827	424,479
South West	50,792	93,052	191,272
Grand Total	819,218	1,421,000	2,549,000

Note: Liverpool for 2016 and 2025 includes planned unpacking and warehouse activity on the SIMTA site, which is additional to the growth in containers derived from general employment growth.

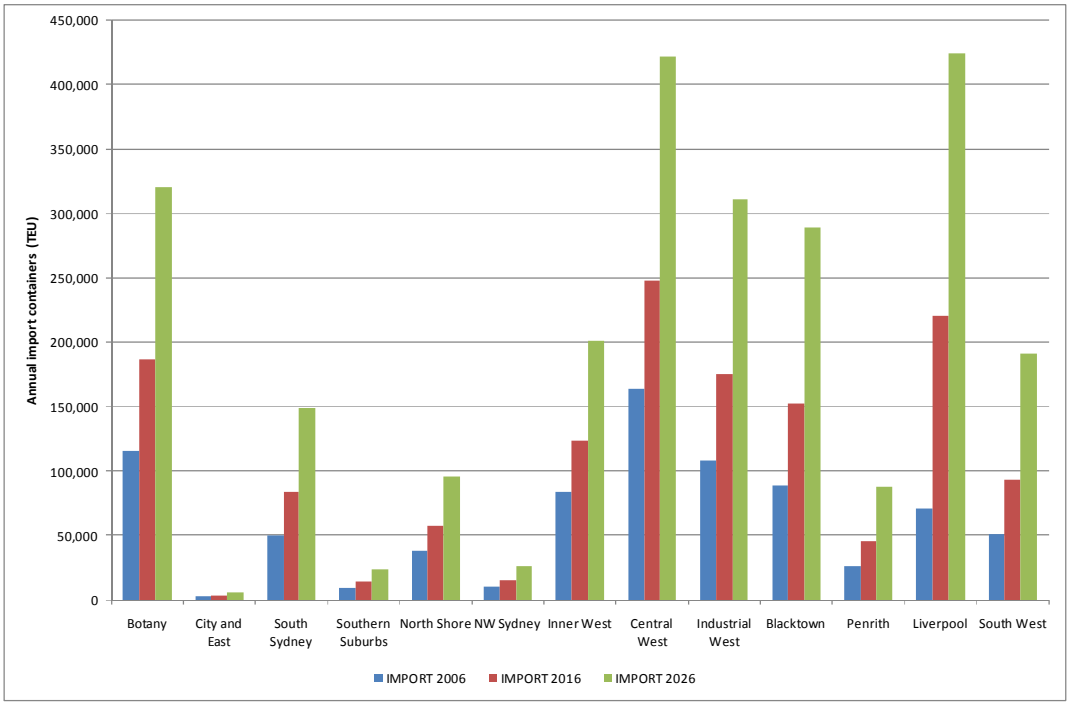


Figure 5 Import Container Forecasts by Reporting Region

4 INTERMODAL TERMINAL CATCHMENTS

The catchment area that will be served by SIMTA and other IMTs is a function of two factors:

- the demand for containers in each sub-region of the metropolitan area and
- the competing supply chains that serve the market.

This section outlines how the future catchment area for SIMTA has been estimated in the context of not only the total container market but the competing supply chains that are expected to be in place to service that market. These supply chains include all transport options between the port and the importer, the return of the empty container and the ensuing movement of containers to be packed for export.

For simplicity, the import supply chain is modelled in detail. The export supply chain, although it will differ slightly due to serving a different set of clients, is assumed to mirror the import supply chain operating through SIMTA.

A diagrammatic representation of the import-export container supply chain is shown in Figure 6 below.

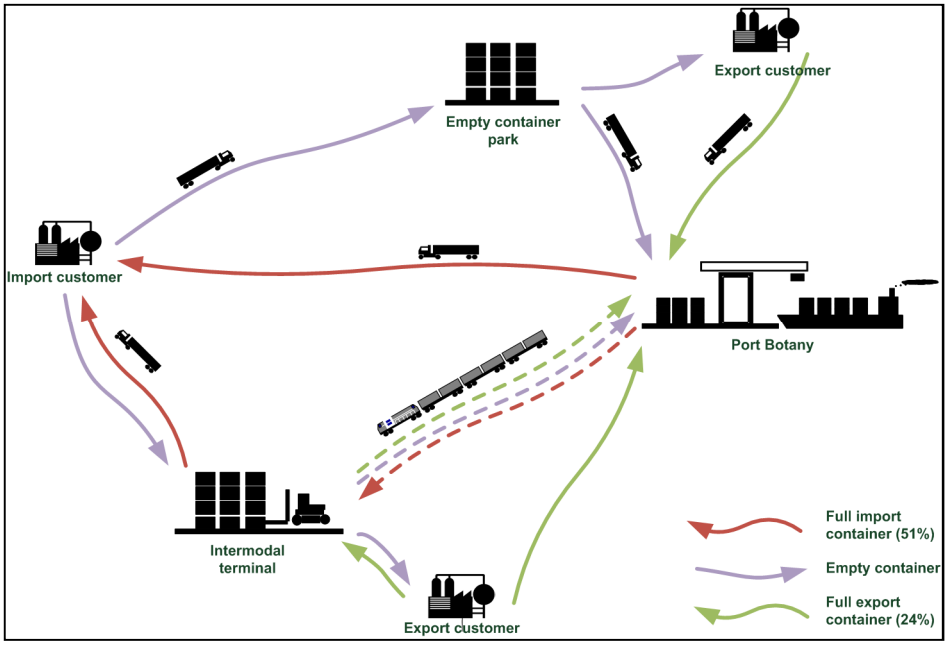


Figure 6 Container Supply Chain Diagram

The price structure for import container movements generally incorporates the cost of repositioning the empty container to the container park nominated by the shipping company that owns the container. It has the following key elements:

Table 4-6 Alternative supply chains

Container movement (notional market share)	IMT supply chain		Direct road supply chain
	MT to IMT	MT to container park	Mt to container park
Full import containers (51%)	Load at port	Load at port	Load at port
	Rail to IMT	Rail to IMT	Truck direct to unpacking location (import customer)
	Transfer to truck	Transfer to truck	
	Truck to unpacking location (import customer)	Truck to unpacking location (import customer)	
	Unload and unpack	Unload and unpack	Unload and unpack
Empty import container (51%)	Load onto truck	Load onto truck	Load onto truck
	Truck to IMT	Truck to empty container park	Truck to empty container park
Empty export container (25%)	Hold at IMT (normally short duration)	Hold at empty container park	Hold at empty container park
	Rail to port (in mixed run with full export containers)	Truck to port (normally as a bulk run)	Truck to port (normally as a bulk run)
	Unload at port	Unload at port	Unload at port
Export container – empty to exporter (24%)	Transfer to truck	Transfer to truck	Transfer to truck
	Truck to packing location (export customer)	Truck to packing location (export customer)	Truck to packing location (export customer)
	Unload and pack	Unload and pack	Unload and pack
Full export container (24%)	Truck to IMT		
	Transfer to rail		
	Rail to port	Truck to port	Truck to port
	Unload at port	Unload at port	Unload at port

Shaded activities are included in supply chain cost model.

4.1 SUPPLY CHAIN MODEL OVERVIEW

The supply chain is a competing set of options which includes direct trucking and railing via a choice of intermodal terminals. For strategic planning purposes, several simplifying assumptions were made regarding the choice of supply chain:

- in the long term, it is assumed that the choice of supply chain will be based purely on lowest cost
- direct road haulage to/from the port will only occur within the catchment for which it is the most cost competitive compared to rail

- intermodal terminals are each assumed to serve a discrete catchment, whereas in reality there would be a degree of overlap between the catchments of each terminal driven by commercial arrangements
- all intermodal terminals would, in the long-term, operate on a similar, efficient rail and road cost basis.

The catchment that is served by each IMT has been derived using a competitive haulage cost model, based on the cost of serving each travel zone (TZ) as follows:

- the cost of hauling a full import and empty export container was calculated between Port Botany and each TZ within the metropolitan area
- candidate supply chains included direct road as well as rail to an IMT and road haulage to the unpack location
- IMTs included in the model were each current and approved IMT, plus SIMTA/Moorebank and a notional western suburbs terminal in the Eastern Creek area was introduced for the last year of the forecast (2025).

This process defined the geographic area that would, in theory, be served by each IMT, disregarding any capacity constraints within the system.

In a second stage, the model then took account of the maximum throughput of each IMT. Using the forecast regional container demand documented in Section 3.4, the total uncapped demand for each IMT was derived for each forecast year.

Any demand in excess of the capacity of each IMT was redirected to the next most cost-effective supply chain. The locations that would be affected by the diversion were those closest to the boundary between the over-capacity IMT and the next best alternative.

The choice of supply chain forecast years is determined by other data used in the forecasts. In particular, the Sydney Ports trade forecasts extend only as far as 2025, at which time a total of over 5 million TEU is forecast. This year has been chosen to represent the situation in which SIMTA would operate at full capacity. The entire container supply chain, including planned and future IMTs and port throughput, is needed to determine IMT catchment boundaries. The resultant catchment served by SIMTA is valid for use in traffic impact analysis, notionally based on a forecast year of 2031.

4.2 RESULTING IMT CATCHMENT

The catchments that would be served by each location in the Container supply chain are documented in this section of the report for the forecast years 201 and 2025 (which notionally represents the year at which SIMTA would operate at full capacity). The values for 2025 have been applied to evaluate the road network impacts of SIMTA through to 2031.

Several key assumptions are repeated here to provide context for interpreting the forecasts:

- The total number of containers through Port Botany is assumed to be 2.5 million and 4.65 million in 2016 and 2025 respectively (see Section 2.1)
- The analysis has been based on estimating the destination of all import containers, which total approximately half of the total Port Botany throughput. Conversion to truck movements is undertaken as a final stage in the analysis.
- By 2025, the total capacity of current and known IMTs would be exceeded and it is assumed that an additional facility will be operating in the Eastern Creek area. The precise location of this facility is not determined, nor is it a committed project. However, if it is not in operation, then either current IMT's would need to have their capacity

increased, or more deliveries would be made by road direct from Port Botany in order to achieve the NSW government's mode share target of 28 per cent container movements on rail.

4.3 IMT CATCHMENT OUTCOMES

In this section, the results of catchment analysis are presented for two forecast years, 2016 and 2025, with four scenarios built up from two components:

- Without and with SIMTA, which demonstrates the impact of SIMTA, the key purpose of this analysis.
- Whether or not each IMT is subject to a cap on its capacity. No capacity constraint demonstrates the "natural" least cost options for servicing the metropolitan area, but is not a realistic scenario. Restricting the throughput of each IMT has the effect of redefining catchments or forcing direct service from the port by road. The latter (capacity constrained) values have been used in the SIMTA project evaluation.

Results of the forecasting are presented as follows:

- Firstly, a summary of the total import TEU assumed to pass through each metropolitan IMT for the forecast years 2016 and 2025 (Table 4-7)
- This table is followed by a more detailed quantification description of each of the four scenarios which includes regional TEU totals assumed to be served by each supply chain, using the Port Botany container survey regions (Table 4-8 and Table 4-9)
- Then follows detailed catchment maps for each of the four scenarios and the two forecast years (Figure 7 and Figure 8).
- Commentary on the forecasts follows the maps.

- Table 4-7 Overall IMT throughputs – summary values

Year	IMT constraint	With /without SIMTA	Port Botany	Villawood	Yennora	Minto	Enfield	SIMTA	Eastern Creekk	Total
2016	N	N	**638**	**6**	**451**	**97**	**229**			**1,422**
			45%	0%	32%	7%	16%			100%
		Y	**462**	**6**	**330**	**25**	**229**	**371**		**1,422**
			32%	0%	23%	2%	16%	26%		100%
	Y	N	**1,030**	**41**	**99**	**98**	**152**			**1,422**
			72%	3%	7%	7%	11%			100%
		Y	**557**	**39**	**85**	**89**	**153**	**499**		**1,422**
			39%	3%	6%	6%	11%	35%		100%
2025	N	N	**1,096**	**10**	**393**	**196**	**392**		**459**	**2,548**
			43%	0%	15%	8%	15%		18%	100%
		Y	**779**	**10**	**363**	**47**	**392**	**562**	**391**	**2,548**

Year	IMT constraint	With /without SIMTA	Port Botany	Villawood	Yennora	Minto	Enfield	SIMTA	Eastern Creekk	Total
			31%	0%	14%	2%	15%	22%	15%	100%
	Y	N	**1,382**	**52**	**84**	**75**	**153**		**801**	**2,548**
			54%	2%	3%	3%	6%		31%	100%
		Y	**1,022**	**39**	**87**	**132**	**151**	**512**	**608**	**2,548**
			40%	2%	3%	5%	6%	20%	24%	100%

Table 4-8 Import containers – 2016 ('000 TEU per annum)

	2016 No SIMTA, no IMT constraints							2016 with SIMTA, no IMT constraints							
	Port Botany	Villawood	Yennora	Minto	Enfield	SIMTA	Eastern Creek	Port Botany	Villawood	Yennora	Minto	Enfield	SIMTA	Eastern Creek	Total
Botany	187	0	0	0	0			187	0	0	0	0	0		187
City and East	4	0	0	0	0			4	0	0	0	0	0		4
South Sydney	84	0	0	0	0			84	0	0	0	0	0		84
Southern Suburbs	14	0	0	0	0			14	0	0	0	0	0		14
North Shore	55	0	0	0	3			55	0	0	0	3	0		58
NW Sydney	4	0	9	0	2			4	0	7	0	2	3		16
Inner West	67	0	0	0	57			67	0	0	0	57	0		124
Central West	47	6	28	0	167			47	6	28	0	167	0		248
Industrial West	0	0	175	0	0			0	0	167	0	0	9		175
Blacktown	0	0	152	0	0			0	0	107	0	0	45		152
Penrith	0	0	46	0	0			0	0	0	0	0	46		46
Liverpool	176	0	41	4	0			0	0	21	0	0	200		221
South West	0	0	0	93	0			0	0	0	25	0	68		93
Total	638	6	451	97	229			462	6	330	25	229	371		1,422
% of containers	45%	0%	32%	7%	16%			32%	0%	23%	2%	16%	26%		100%
	2016 No SIMTA, IMT constraints							2016 with SIMTA, IMT constraints							
	Port Botany	Villawood	Yennora	Minto	Enfield	SIMTA	Eastern Creek	Port Botany	Villawood	Yennora	Minto	Enfield	SIMTA	Eastern Creek	Total

	2016 No SIMTA, no IMT constraints							2016 with SIMTA, no IMT constraints							
	Port Botany	Villawood	Yennora	Minto	Enfield	SIMTA	Eastern Creek	Port Botany	Villawood	Yennora	Minto	Enfield	SIMTA	Eastern Creek	Total
Botany	187	0	0	0	0			187	0	0	0	0	0		187
City and East	4	0	0	0	0			4	0	0	0	0	0		4
South Sydney	84	0	0	0	0			84	0	0	0	0	0		84
Southern Suburbs	14	0	0	0	0			14	0	0	0	0	0		14
North Shore	58	0	0	0	0			58	0	0	0	0	0		58
NW Sydney	14	0	0	0	1			9	0	0	0	1	5		16
Inner West	106	0	0	0	17			89	0	0	0	35	0		124
Central West	102	12	0	0	134			80	29	22	0	117	0		248
Industrial West	63	17	95	0	0			0	0	62	0	0	113		175
Blacktown	152	0	0	0	0			32	0	1	0	0	119		152
Penrith	45	0	0	1	0			0	0	0	0	0	46		46
Liverpool	201	12	4	4	0			0	10	0	0	0	211		221
South West	0	0	0	93	0			0	0	0	89	0	5		93
Total	1,030	41	99	98	152			557	39	85	89	153	499		1,422
% of containers	72%	3%	7%	7%	11%			39%	3%	6%	6%	11%	35%		100%

Table 4-9 Import containers – 2025 ('000 TEU per annum)

	2025 No SIMTA, no IMT constraints							2025 with SIMTA, no IMT constraints							
	Port Botany	Villawood	Yennora	Minto	Enfield	SIMTA	Eastern Creek	Port Botany	Villawood	Yennora	Minto	Enfield	SIMTA	Eastern Creek	Total
Botany	320	0	0	0	0		0	320	0	0	0	0	0	0	320
City and East	6	0	0	0	0		0	6	0	0	0	0	0	0	6
South Sydney	149	0	0	0	0		0	149	0	0	0	0	0	0	149
Southern Suburbs	23	0	0	0	0		0	23	0	0	0	0	0	0	23
North Shore	91	0	0	0	4		0	91	0	0	0	4	0	0	96
NW Sydney	6	0	2	0	3		14	6	0	2	0	3	0	14	26
Inner West	107	0	0	0	95		0	107	0	0	0	95	0	0	202
Central West	77	10	45	0	290		0	77	10	45	0	290	0	0	422
Industrial West	0	0	218	0	0		93	0	0	214	0	0	7	89	311
Blacktown	0	0	66	0	0		223	0	0	66	0	0	0	223	290
Penrith	0	0	0	0	0		88	0	0	0	0	0	22	65	88
Liverpool	317	0	62	5	0		41	0	0	36	0	0	389	0	424
South West	0	0	0	191	0		0	0	0	0	47	0	144	0	191
Total	1,096	10	393	196	392		459	779	10	363	47	392	562	391	2,548
% of containers	43%	0%	15%	8%	15%		18%	31%	0%	14%	2%	15%	22%	15%	100%
	2025 No SIMTA, IMT constraints							2025 with SIMTA, IMT constraints							
	Port Botany	Villawood	Yennora	Minto	Enfield	SIMTA	Eastern Creek	Port Botany	Villawood	Yennora	Minto	Enfield	SIMTA	Eastern Ck	Total
Botany	320	0	0	0	0		0	320	0	0	0	0	0	0	320

	2025 No SIMTA, no IMT constraints							2025 with SIMTA, no IMT constraints							
	Port Botany	Villawood	Yennora	Minto	Enfield	SIMTA	Eastern Creek	Port Botany	Villawood	Yennora	Minto	Enfield	SIMTA	Eastern Creek	Total
City and East	6	0	0	0	0		0	6	0	0	0	0	0	0	6
South Sydney	149	0	0	0	0		0	149	0	0	0	0	0	0	149
Southern Suburbs	23	0	0	0	0		0	23	0	0	0	0	0	0	23
North Shore	96	0	0	0	0		0	96	0	0	0	0	0	0	96
NW Sydney	10	0	0	0	0		16	9	0	1	0	1	0	16	26
Inner West	202	0	0	0	0		0	196	0	0	0	6	0	0	202
Central West	225	21	6	0	153		16	195	39	37	0	144	0	8	422
Industrial West	0	14	50	0	0		247	0	0	32	0	0	100	179	311
Blacktown	0	0	0	0	0		290	0	0	0	0	0	0	290	290
Penrith	0	0	0	0	0		88	0	0	0	0	0	0	88	88
Liverpool	319	17	28	0	0		60	28	0	17	0	0	353	27	424
South West	32	0	0	75	0		84	0	0	0	132	0	59	0	191
Total	1,382	52	84	75	153		801	1,022	39	87	132	151	512	608	2,548
% of containers	54%	2%	3%	3%	6%		31%	40%	2%	3%	5%	6%	20%	24%	100%

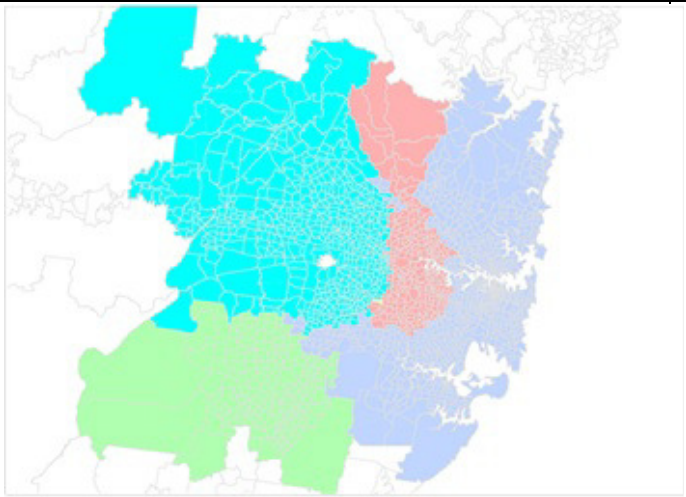
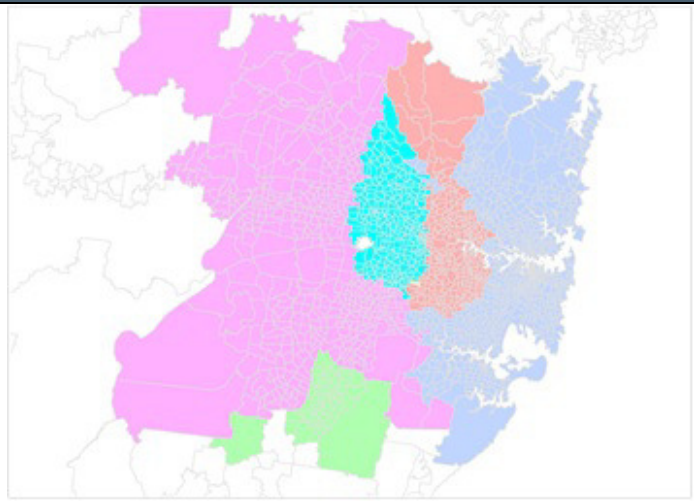
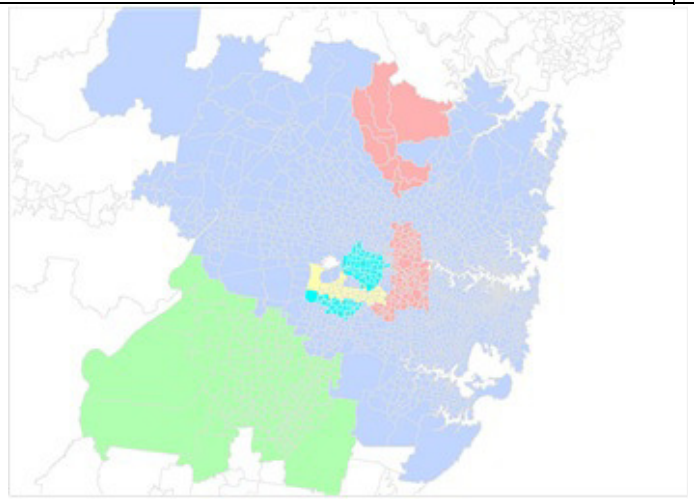
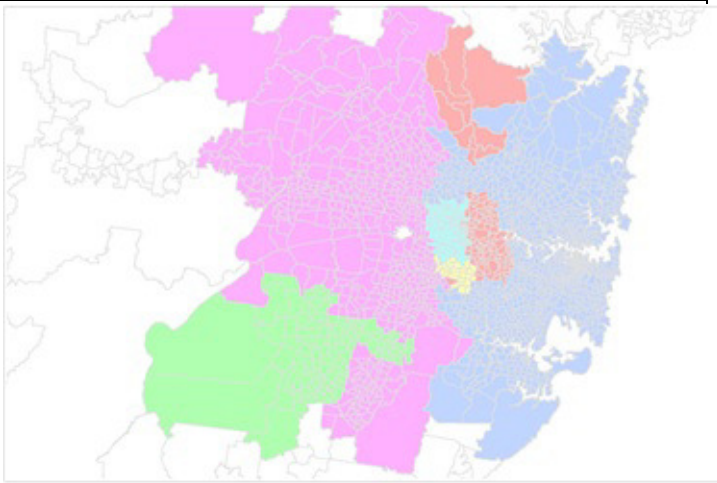
	Without SIMTA	With SIMTA
IMT capacities unconstrained Port Botany Villawood Yennora Minto Enfield SIMTA		
IMT capacities constrained Notes: Catchment boundaries are simplified and do not allow for overlap between IMT service areas. Boundaries are indicative, and assume "perfect" knowledge and decision-making.		

Figure 7 IMT Catchment Maps - 2016

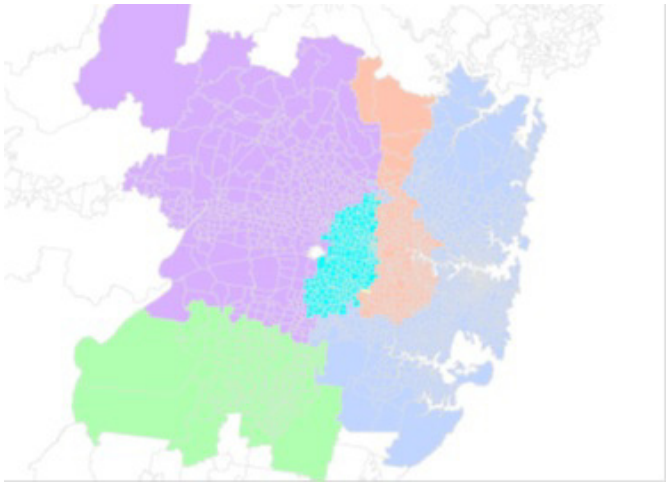
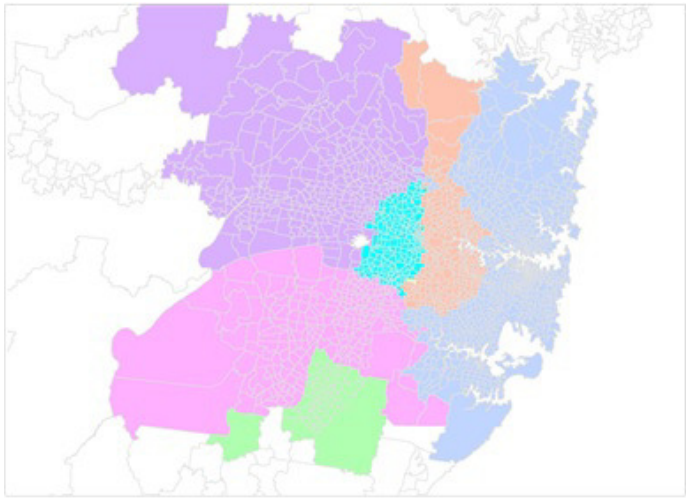
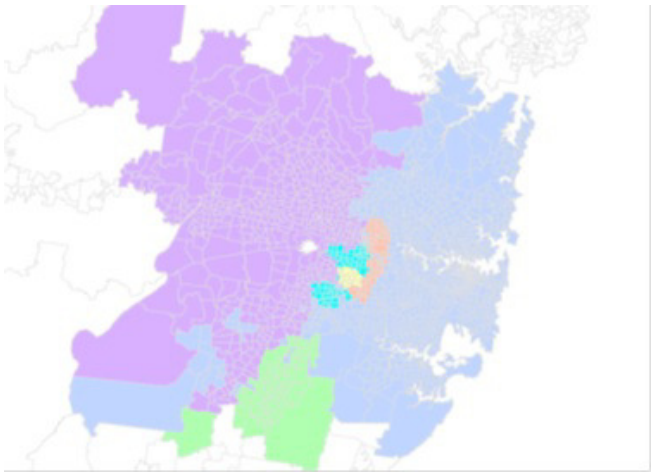
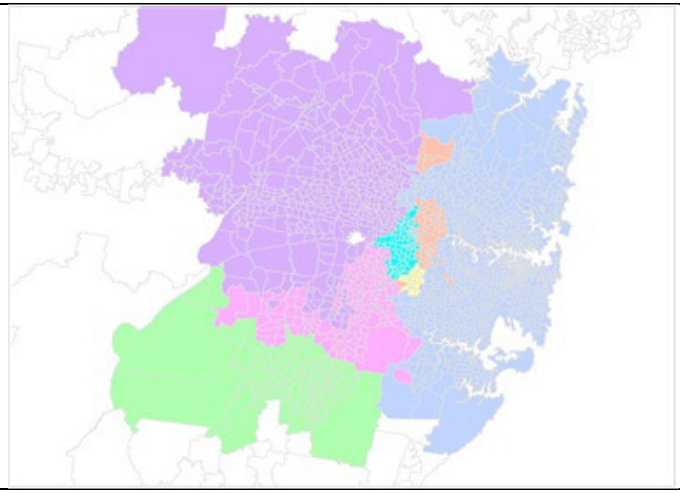
	Without SIMTA	With SIMTA
IMT capacities unconstrained Port Botany Villawood Yennora Minto Enfield SIMTA Eastern Ck		
IMT capacities constrained Notes: Catchment boundaries are simplified and do not allow for overlap between IMT service areas. Boundaries are indicative, and assume "perfect" knowledge and decision-making.		

Figure 8 IMT Catchment Maps - 2025

4.4 OBSERVATIONS FROM IMT CATCHMENT ANALYSIS

The impact of SIMTA on container movements in Sydney is shown clearly in the analysis. Key points to note are:

- The natural cost-competitive catchments of the current system of IMTs far exceed their capacity. This results in a contraction of the catchment of each and a consequent forced use of truck haulage from Port Botany into western Sydney;
- In 2016, if SIMTA is not operational, direct trucking from Port Botany would deliver over 70 per cent of the market, largely as a result of inadequate IMT capacity, not because they are uncompetitive in terms of supply chain costs;
- With SIMTA in operation, it has the capability to attract a significant proportion of the TEU market (up to 35 per cent), thus reducing the trucking demand from Port Botany to as little as 40 per cent of the total import market;
- Even in 2016, when SIMTA would still be in start-up mode, it is sufficiently cost-competitive to attract its long-term target throughput of 500,000 import TEUs per annum. The timing of the staged development of SIMTA may somewhat reduce its market capture in early years, but the latent demand nevertheless would still exist;
- By 2025, additional IMT capacity will be essential to deliver the forecast 4.6 million TEU through Port Botany. A location in west-northwest Sydney has been assumed;
- In 2025, SIMTA would attract containers from a reasonably clearly defined and localised catchment including Liverpool the South West and part of the Industrial West;
- Without SIMTA, much of Liverpool would be served by road direct from the Port;
- By 2025, the demand for containers in the South West would exceed the current capacity of Minto IMT. In the analysis it has been assumed that sufficient IMT facilities would be available to meet this demand, although none is currently being planned.

5 EVALUATION OF LOCAL ROAD NETWORK IMPLICATIONS

The primary purpose of the analysis documented in this report is to provide input into the evaluation of the traffic impacts of the SIMTA proposal. This evaluation was undertaken at two levels:

- the metropolitan-wide changes in truck movements, and resultant changes in vehicle kilometres of travel and other environmental indicators
- the additional truck traffic generated by container movements from and to the SIMTA proposal, including the number and geographic distribution of truck trips.

The container models developed provide data for Hyder's Strategic Road Network model of Sydney.

Annual container movements were converted into average truck movements per weekday. The following areas were quantified:

5.1 2031 CASE, WITHOUT SIMTA:

- An adjustment was made in the total truck trip generation of the Port Botany area, as the base model contained insufficient truck trips to represent the container movement task. This comprised additional trips between the two TZs representing Port Botany and all TZs in the metropolitan area.
- Additional truck trips were added to/from the Enfield IMT, as the base truck forecasts did not include any growth in trips to/from this area.
- IMT activity was added to the base industrial activity in the assumed Eastern Creek IMT TZ.

5.2 2031 CASE, WITH SIMTA:

- A reduction in trips to/from the two Port Botany TZs
- A reduction in trips to/from the Eastern Creek TZ
- A compensatory increase in trips to/from the SIMTA TZ
- Very small adjustments around Enfield, Yennora, Villawood and Minto were ignored, as they do not impact at all on the change in traffic surrounding SIMTA and would have virtually immeasurable metropolitan-wide impacts. The ignored trips amounted to 236 truck movements per day.

Table 5-10 Summary of truck trip table adjustments used in traffic model

Port/IMT	Sydney model TZ	2031 trip table adjustment (trucks per day, two-way trips)	
		Without SIMTA	With SIMTA
Port Botany	TZ426	878 total trips	-192 fewer trips
	TZ556	7936 total trips	-1739 fewer trips
Enfield	TZ1598	818 additional trips	0
Eastern Creek	TZ2189	4281 additional trips	-1040 fewer trips
SIMTA	TZ1120	-	2735additional trips

APPENDIX A

PWC NEEDS ASSESSMENT

whatwouldyouliketogrow.com.au

Sydney Intermodal Terminal Alliance

Moorebank Intermodal Terminal Facility

Needs Assessment for Moorebank Intermodal Terminal Facility

August 2011

What would you like to grow?

Disclaimer

This Report has been prepared by PricewaterhouseCoopers (PwC) at the request of Evans & Peck Pty Ltd on behalf of the Sydney Intermodal Terminal Alliance (SIMTA) in our capacity as advisors in accordance with the Terms of Reference and the Terms and Conditions contained in the Consultant Agreement between the SIMTA and PwC.

The information, statements, statistics and commentary (together the "Information") contained in this report have been prepared by PwC from material provided by the SIMTA, and from other industry data from sources external to the SIMTA. PwC may at its absolute discretion, but without being under any obligation to do so, update, amend or supplement this document.

PwC does not express an opinion as to the accuracy or completeness of the information provided, the assumptions made by the parties that provided the information or any conclusions reached by those parties. PwC disclaims any and all liability arising from actions taken in response to this report. PwC disclaims any and all liability for any investment or strategic decisions made as a consequence of information contained in this report. PwC, its employees and any persons associated with the preparation of the enclosed documents are in no way responsible for any errors or omissions in the enclosed document resulting from any inaccuracy, mis-description or incompleteness of the information provided or from assumptions made or opinions reached by the parties that provided Information.

PwC has based this report on information received or obtained, on the basis that such information is accurate and, where it is represented by the SIMTA as such, complete. The information contained in this report has not been subject to an Audit. The information must not be copied, reproduced, distributed, or used, in whole or in part, for any purpose other than detailed in our Consultant Agreement without the written permission of the SIMTA and PwC.

Comments and queries can be directed to:

Scott Lennon
Partner – PricewaterhouseCoopers
Ph: (02) 8266 2765
Email: scott.lennon@au.pwc.com

Contents

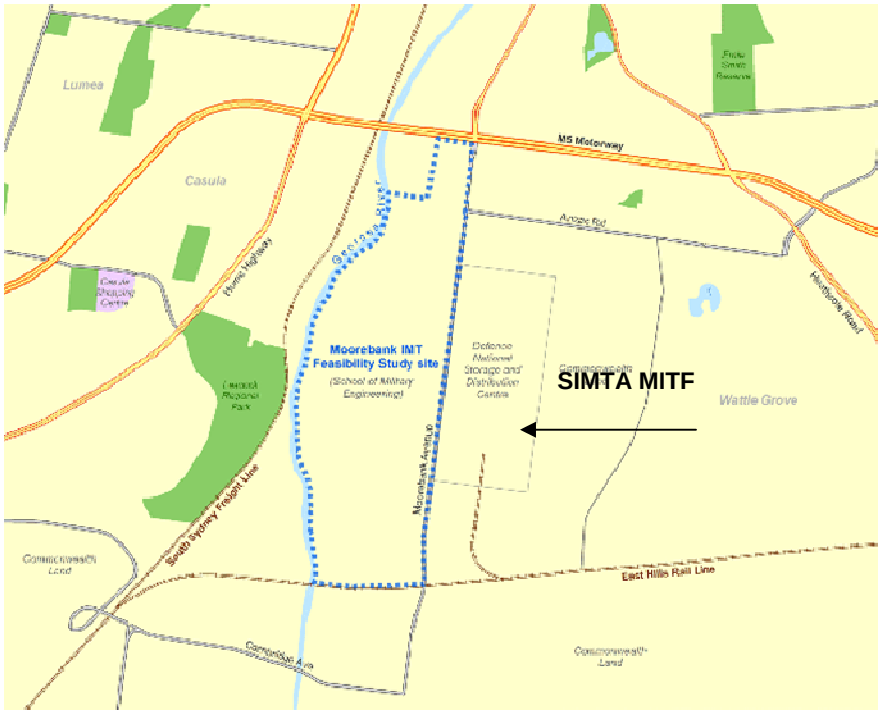
Executive Summary

Scope of Assessment

PricewaterhouseCoopers (PwC) was commissioned by Evans & Peck, acting on behalf of the Sydney Intermodal Terminal Alliance (SIMTA), to prepare a needs assessment that evaluates likely demand for the proposed SIMTA Moorebank Intermodal Terminal Facility (MITF) and how the objectives for this facility relate to the NSW Government's Freight Strategy and Port Botany's Rail Strategy. This report analyses the future container freight needs of Port Botany and the resulting requirement for additional intermodal terminal (IMT) capacity in the Sydney region. The SIMTA MITF is particularly important in light of the NSW Government's objective to achieve a target of 40 per cent of container freight movement by rail out of Port Botany by 2016.

The site of the proposed SIMTA MITF is at SIMTA-owned land at Moorebank which is currently occupied by the Defence National Storage and Distribution Centre (DNSDC). This report focuses on that site, but we note that there is a larger, adjacent Commonwealth Defence site which is also planned to be an IMT facility. The Commonwealth proposal is not as far progressed as the SIMTA MITF proposal and is not a subject of this assessment. The SIMTA MITF site and the Commonwealth Moorebank site (IMT Feasibility Study site) are shown in Figure ES.1 below.

Figure.ES.1: Schematic of proposed Moorebank intermodal terminals



Source of information used in this figure: Commonwealth Government, Department of Finance and Deregulation.

Port Botany container freight demand

Projected growth in trade volumes will lead to an increase in freight movements across the Sydney metropolitan area. This will pose substantial challenges for the intermodal logistics chain in relation to Port Botany. To meet this challenge it is considered necessary to invest in new IMT capacity, to develop dedicated rail freight lines, to widen the orbital motorway and ideally to complete the missing links in the orbital motorway, and to improve the rail interface at Port Botany.

Port Botany accounts for almost the entire volume of containerised import/export (IMEX) trade throughput in NSW. Total container trade through Port Botany was 1.9 million twenty foot equivalent units (TEU) in 2009/10, up from 1.8 million TEU in 2008/09, representing an increase of 8 per cent.[1] Full container imports in 2009/10 were 1.0 million TEU, up nearly 9 per cent on 2008/09, while full container exports were 0.4 million TEU, unchanged from 2008/09. The export of empty containers increased by over 16 per cent in 2009/10 to 0.5 million TEU, driven by the imbalance of imports over exports and the need to repatriate the empty containers.

The projected growth of container trade at Port Botany, of 6.7 per cent per annum based on Sydney Ports Corporation (SPC) planning assumptions, would result in trade throughput at the port reaching approximately 5.0 million TEU by 2025.[2] The fully-developed container throughput capacity of Port Botany, as determined by the Minister of Planning in 2005 under the *Environmental Planning and Assessment Act*, is 3.2 million TEU per annum. Whilst post the opening of Terminal 3, the Port Botany facility will have technical capacity of reportedly over 5.0 million TEU, going over 3.2 million TEU will be subject to further environmental assessment. The projected increase in the container trade at the port means that Port Botany is likely to reach 3.2 million TEU by around 2018.[3]

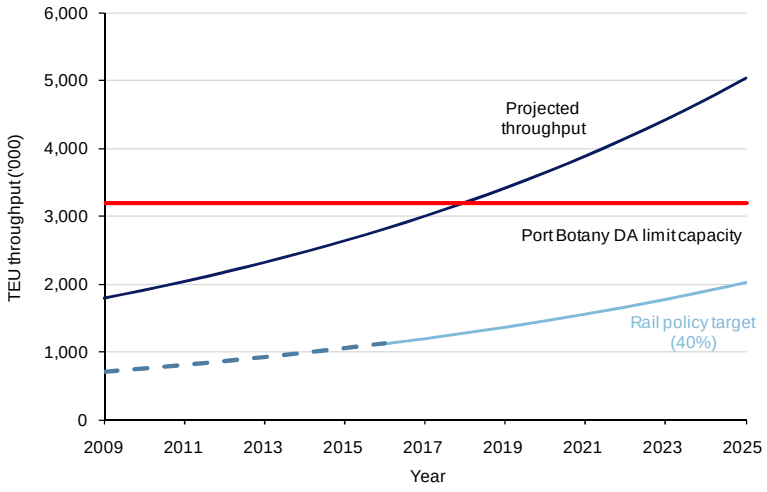
Figure ES.2 below shows the relationship between the fully developed container throughput capacity of Port Botany, the projected container trade throughput of the port and the NSW Government's policy target in relation to container freight movement by rail out of the port.

[1] Sydney Ports Corporation, Trade Statistics 2009/10, December 2010.

[2] Sydney Ports Corporation data, as applied in the assessment for the NSW Government by SAHA International, NSW Container Freight Improvement Strategy Preliminary Economic Evaluation, August 2010.

[3] Hyder 2011, Technical Note 1: Strategic Freight Demand, p.7

Figure ES.2: Container trade growth at Port Botany (import and export)



Source of data used in this figure: SAHA International Limited (SAHA), NSW Container Freight Improvement Strategy Preliminary Economic Evaluation, August 2010 and the NSW Department of Planning.

NSW Government freight policy

The NSW Government has identified the importance of improving the performance of the NSW road network to grow Sydney's value and move commodities efficiently to assist the productivity of businesses.[4] To address this objective, the NSW Government has issued the following key policy documents relating to freight, which support an increase in rail freight in order to ease road congestion:

- NSW Government, State Infrastructure Strategy, June 2008
- NSW Government, Action for Air, November 2009
- NSW Government, Metropolitan Transport Plan, February 2010
- NSW Government, NSW State Plan 2010, Investing in a Better Future, March 2010
- NSW Transport, Container Freight Improvement Strategy, July 2010
- NSW Government, Metropolitan Plan for Sydney 2036, December 2010.

These NSW Government policies are complemented by the SPC document, the Port Botany Landside Improvement Strategy (PBLIS).

The above policies outline the importance of managing the expected increase in container freight in a manner that is sustainable and which minimises the effects of congestion.

[4] NSW Government, NSW Container Freight Improvement Strategy, August 2010.

Infrastructure Australia (IA) provides a priority list to guide proponents of infrastructure projects to present an economic and societal basis for their developments. The process involves a number of steps to define and assess economic monetised and non- monetised costs and benefits of projects that are to be pursued in the interest of national productivity. In this report we have followed a similar process to IA in assessing the need for the SIMTA MITF and intermodal capacity more generally – through the processes of issue identification, issue assessment and analysis, consideration of the MITF option and assessment of whether this option provides a solution to the problem identified (being the requirement for additional IMT capacity in Sydney).

In order to relieve congestion on the road network in Sydney, the NSW State Plan 2010 sets out the specific target to increase the proportion of container freight movement by rail out of Port Botany to 40 per cent by 2016.[5] The targeted percentage reflects analysis and recommendations of the report, *Port Botany's Containers: Proposals to Ease Pressure on Sydney's Roads*, released by the Freight Infrastructure Advisory Board in July 2005.

This target would be achieved through investment in intermodal capacity within Sydney and through appropriate rail connections to Port Botany. Moorebank, in south west Sydney, has been considered an appropriate site for IMT capacity by both the Commonwealth and NSW Governments since 2004. This is due to its location within close proximity to motorways, the Southern Sydney Freight Line and proximity to south west industrial areas and employment zones.

During 2008/09, only 23 per cent of the Port Botany IMEX container trade, of 1.8 million TEU, was transported by rail, with the rail mode percentage share being higher for exports and lower from imports due to diverse destination patterns.[6] The assessment contained in the NSW Government document, *NSW Container Freight Improvement Strategy Preliminary Economic Evaluation*, projects that total TEU demand will be around 2.8 million TEU by 2016. Even if the rail mode share remains at the current level of 23 per cent, then existing Sydney IMT capacity would be exhausted around 2016. With growth forecast at 6.7 per cent per annum, a further 0.39 million TEU would be added by 2018, taking Port Botany close its approved 3.2 million TEU DA limit. If the NSW Government container rail freight policy objective is to be met, around 1.1 million TEU would need to be moved by rail by 2016. This represents approximately a threefold increase on the 2008/09 throughput level. To meet this rail percentage target, new IMTs will be required, as well as a range of PBLIS reforms to boost the competitive proposition of rail.

[5] NSW Government, NSW State Plan 2010, March 2010.

[6] NSW Government, NSW Container Freight Improvement Strategy, August 2010.

Business as usual - existing capacity vs Port Botany container needs

In 2008/09, total annual IMT container throughput capacity in Sydney was 0.37 million TEU, across the Yennora, Minto and Villawood IMTs.[7] The Enfield IMT, which is nearing completion, will increase the network capacity by a further 0.3 million TEU, consistent with the approved throughput limit of that terminal, to 0.67 million TEU. With annual throughput at Port Botany projected to increase to 2.8 million TEU by 2016, further additions to the capacity and efficiency of the freight and logistics network are needed to increase the share of rail container freight transport so that Sydney has over 0.95 million TEU of IMT capacity and 85 per cent of Port Botany volume originates or is delivered to a destination within 40 km of the Port. The development of the SIMTA MITF will be an important component in achieving that objective, by providing greater capacity to move freight by rail, potentially decreasing the distances freight is required to be transported by road, in addition to generally decreasing the need for road transport from Port Botany.

The SIMTA MITF is likely to increase employment opportunities in the west Sydney region, both directly related to the terminal and indirectly as a result of the new activities introduced to the region. Previous work undertaken by PwC for the SIMTA on the MITF indicated that approximately 213 direct positions would be supported during construction phase of the project.[8] Ongoing direct operational employment is estimated at a maximum of 2,223 positions supported, once the terminal reaches throughput of 1.0 million TEU per annum, with a further 5,136 jobs supported indirectly.[9] The staged development of the SIMTA MITF is expected to commence in 2013 and the first stage to be operational by 2016. [10]

In the absence of the SIMTA MITF, intermodal capacity in the Sydney region would be limited to 0.67 million TEU, comprising the aggregate capacity of the Enfield, Yennora, Minto and Villawood intermodal facilities. The existing capacity would be unable to fulfil the policy target, of 40 per cent container freight movement by rail out of Port Botany by 2016. The relationship between existing intermodal capacity in the Sydney region (business as usual) and the achievement of the policy target in the NSW State Plan is presented in Figure ES.3 below. Figure ES.3 shows the level of the 40 per cent policy target rate before 2016 as a dashed line, given that the target is to be achieved by 2016.

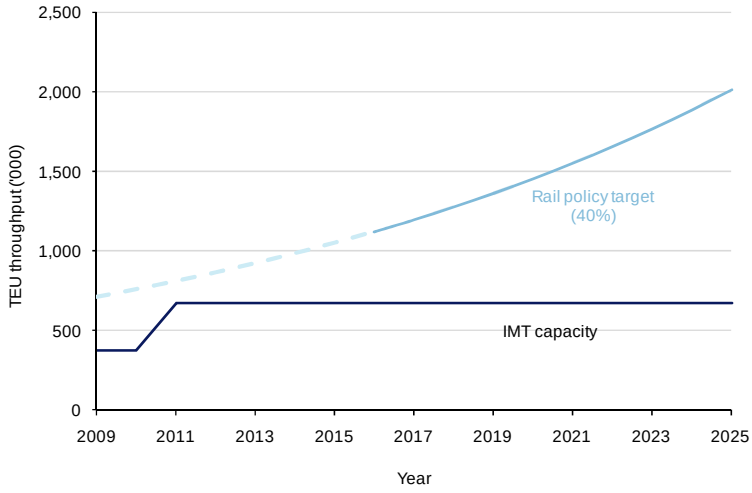
[7] SAHA, NSW Container Freight Improvement Strategy Preliminary Economic Evaluation, August 2010

[8] PwC, Employment Forecasts for the SIMTA Moorebank Intermodal Terminal, June 2010.

[9] Urbis 2010, Moorebank Intermodal Terminal: Economic Impact Assessment, p.36

[10] SIMTA, From road to rail: Planning for a new freight facility at Moorebank, July 2010.

Figure ES.3: Capacity of Port Botany IMT shuttle network without the MITF



Source of data used in this figure: SAHA, NSW Container Freight Improvement Strategy Preliminary Economic Evaluation, August 2010 and the NSW Department of Planning.

Table ES.1 below compares the Sydney IMT capacity requirements to maintain the current 23 per cent rail mode share and achieving the Government's target of 40 per cent. It also summarises capacity of the existing IMT facilities (including the Enfield facility currently being completed) and to the capacity of those facilities plus the proposed SIMTA MITF.

Table ES.1: Capacity of Port Botany IMT shuttle network with & without the MITF

	2010	2016	2021	2025
	IMT Capacity (million TEU per annum)			
Existing intermodal capacity				
Minto	0.15	0.15	0.15	0.15
Yennora	0.17	0.17	0.17	0.17
Enfield	0.00	0.30	0.30	0.30
Villawood	0.05	0.05	0.05	0.05
Total	0.37	0.67	0.67	0.67
Rail share at 23 per cent	0.44	0.65	0.89	1.16
Rail share at 40 per cent	0.76	1.12	1.55	2.01
Policy gap at 40 per cent *	0.61	0.55	0.12	-0.34
SIMTA MITF	1.00	1.00	1.00	1.00
Total with SIMTA MITF	1.37	1.67	1.67	1.67

Source of data used in this figure: SAHA, NSW Container Freight Improvement Strategy Preliminary Economic Evaluation, August 2010, PwC calculation of rail share values.

* The policy gap at 40 per cent is calculated based on Sydney IMT capacity inclusive of the SIMTA MITF.

Conclusion

Under the 'business as usual' scenario based on current Sydney region IMT capacity of 0.67 million TEU, it is estimated that only 24 per cent of containers would be transported by rail in 2016. The SIMTA MITF would allow the government policy objective to be achieved, although this would also depend on related transportation initiatives.

The commencement of the proposed SIMTA MITF in 2016 would provide capacity for an additional 1.0 million TEU throughput for the Sydney network, bringing the total IMT capacity to 1.67 million TEU. This would represent around 60 per cent of the total projected TEU throughput of 2.8 million at Port Botany by 2016. This compares to the NSW State Plan target objective of 40 percent of container freight to be moved by rail out of Port Botany by 2016. That is, around 1.1 million TEU would need to be moved by rail by that time for the policy objective to be achieved.

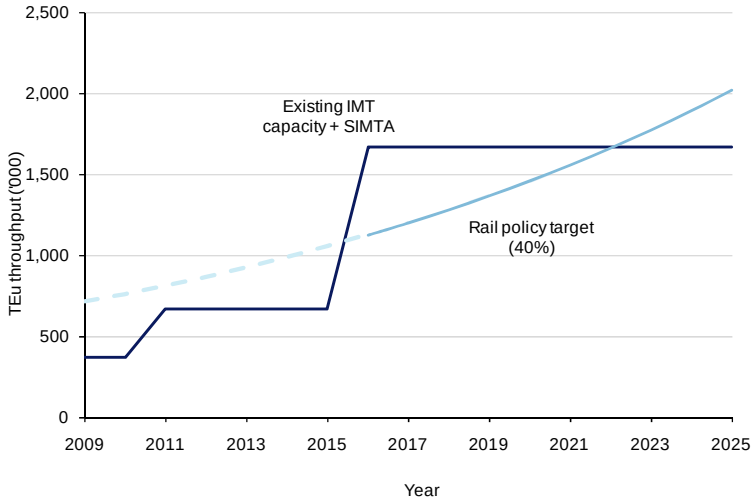
The SIMTA MITF site is well-positioned in the centre of the logistics and warehousing precinct of south-west Sydney. The site is near the junction of the M5 and M7 motorways and the Southern Sydney Freight Line, giving excellent access to high capacity transport infrastructure. Figure ES.4 below depicts the networks of major arterial roads and rail links in the Sydney region, with the Moorebank site highlighted. It can be seen from Figure ES.4 that there is significant concentration of industrial activity along the south-west corridor and around the Moorebank site.

Figure ES.4: Metropolitan road and rail links.

Source: Sydney Ports Corporation, Logistics Review, Improving Our Supply Chain, 2008/09.

Achievement of the Government's policy objective will depend on related transportation initiatives, such as those included in the NSW Container Freight Improvement Strategy. The Strategy represents a package of projects to provide the infrastructure required to achieve and maintain the NSW State Plan target. The Strategy includes investments in intermodal facilities and port and rail efficiency enhancements to meet the rail target. Figure ES.5 below shows the current TEU capacity in the Sydney region, the additional capacity which would be provided from 2016 by the SIMTA MITF and how this capacity compares to the NSW Government policy target.

Figure ES.5: Capacity of IMT network with the SIMTA MITF



Source of data used in this figure: SAHA, NSW Container Freight Improvement Strategy Preliminary Economic Evaluation, August 2010, the NSW Department of Planning, and SIMTA capacity data.

Based on the forecast 1.0 million TEU annual throughput of the proposed SIMTA MITF, this development has the potential to: support NSW freight policy objectives. It will provide enough capacity to allow the 40 per cent target to be met up to 2022. It will improve container throughput, thus increasing productivity of freight rail and eliminate a significant number of truck movements from major arterial roads around Port Botany. Even if the 40 per cent target is not met, increased capacity is still required by 2016 in order to maintain the current 23 per cent rail mode share.

1 Scope of the report

PwC was commissioned by Evans & Peck on behalf of the SIMTA to prepare a needs assessment in relation to the proposed SIMTA MITF to evaluate likely demand for this facility including how it relates to the NSW Government's Freight Strategy and Port Botany's Rail Strategy. This report analyses the future container freight needs of Port Botany and the resulting requirement for increased IMT capacity in the Sydney region. This report considers the particular role that may be performed by the SIMTA MITF in light of the NSW Government's objective to achieve a target of 40 per cent of container freight movement by rail out of Port Botany by 2016.

The SIMTA MITF site at Moorebank is well-positioned in the centre of the logistics and warehousing precinct of south-west Sydney. The site is near the junction of the M5 and M7 motorways and the Southern Sydney Freight Line, giving excellent access to high capacity transport infrastructure.

The M5 and M7 motorways are part of the Sydney–Melbourne corridor and are recognised as vital arteries in the national transport system. The M5 corridor connects the economic centres of Sydney's central business district, Sydney Airport and Port Botany with greater western Sydney. The area of greater western Sydney is Australia's third largest economy after the Sydney central business district and South East Queensland. The Moorebank site, near the M5 and M7 junction and the Southern Sydney Freight Line, is highlighted in Figure 1 below.

Figure 1: Sydney transport corridors and Moorebank site

Source: Roads and Traffic Authority, M5 West widening environmental assessment

Methodology

The approach undertaken in this report is to establish a 'business as usual' case to determine whether the NSW Government's policy target can be met in the absence of the SIMTA MITF. This report then assesses whether the development of the SIMTA MITF would allow the Government's policy target to be achieved.

This report also discusses the need for the MITF on a locality basis (ie the south-west subregion of Sydney) and notes the potential economic impacts from this project determined from previous work undertaken by PwC.[11]

Key data sources

This report uses existing information relating to current and projected freight throughput at Port Botany. In particular, we have applied data obtained from the following sources:

- SAHA, NSW Container Freight Improvement Strategy Preliminary Economic Evaluation, August 2010
- NSW Transport, Container Freight Improvement Strategy, July 2010
- Sydney Ports Corporation
- Information from SIMTA on the capacity of the MITF.

[11] PwC, Employment Forecasts for the SIMTA Moorebank Intermodal Terminal', June 2010.

2 Port Botany container freight needs

This chapter describes the container freight needs in NSW, based on projected demand for intermodal terminal capacity. It also describes the NSW Government freight policies and how they may impact on the needs of the State's freight sector. Chapter 3 following compares the existing intermodal terminal capacity with Port Botany container freight needs and, in Chapter 4, these needs are assessed against the additional IMT capacity to be provided by the proposed SIMTA development.

2.1 Port Botany container freight demand

Projected demand for container throughput at Port Botany

Port Botany accounts for almost the entire volume of containerised IMEX trade throughput in NSW. Total container trade, including import, export, empty and transhipment through Port Botany was 1.9 million TEU in 2009/10, up from 1.8 TEU in 2008/09, representing an increase of 8 per cent.[12] This annual rate exceeds the average growth in total throughput TEU over the past 20 years of around 7 per cent,[13] driven by strong domestic demand for overseas consumer imports.

Full container imports in 2009/10 were 1.0 million TEU, up nearly 9 per cent on 2008/09, while full container exports were 0.4 million TEU, unchanged from 2008/09. The export of empty containers increased by over 16 per cent in 2009/10 to 0.5 million TEU, driven by the imbalance of imports over exports and the need to repatriate the empty containers.

The future demand for container freight through Port Botany and the resulting freight task was analysed by SAHA its report, NSW Container Freight Improvement Strategy Preliminary Economic Evaluation, August 2010. The SAHA paper assessed the possible growth of container trade throughout at Port Botany and the intermodal infrastructure in south and western Sydney. SAHA estimated that the growth in throughput may follow one of three growth scenarios based on SPC planning assumptions, as follows:

- Low growth of 4.8 per cent per annum
- Likely growth of 6.7 per cent per annum
- High growth of 7.2 per cent per annum.

[12] Sydney Ports Corporation, Financial Year 2009/10 Trade Statistics Fact Sheet.

[13] SAHA, NSW Container Freight Improvement Strategy Preliminary Economic Evaluation, August 2010.

For the purpose of this needs analysis, we have adopted the 'likely growth rate' indicated above. This growth is conservative in light of the favourable economic outlook in the world economy (particularly in Asian economies) and in light of the historical long run average growth rate at Port Botany of approximately 7 per cent per annum over the 20 years to 2008/09.

The trade forecast presented in Figure 2 below was established based on the current level of trade throughput at Port Botany and escalated by the "likely" growth rate above. On this basis, the projected trade throughput at Port Botany may reach 5.0 million TEU by 2025, compared to the current level of 1.9 million TEU. We note that the new third container terminal at Port Botany will provide capacity to accommodate up to 3.2 million TEU annually. Trade above 3.2 million TEU may be shifted to the Port of Newcastle or potentially, to Port Kembla.[14] The maximum throughput of 3.2 million TEU was determined by the Minister for planning in 2005, based on the findings of an independent expert panel.[15] We understand that some port stakeholders may hold the view that the capacity of Port Botany could be up to twice the approved limit.

During 2008/09, around 23 per cent of the Port Botany IMEX container task, of 1.8 million TEU, was transported by rail.[16] SAHA projected that total TEU demand would be around 2.8 million TEU by 2016. Even if the rail mode share remains at the current level of 23 per cent, then existing Sydney IMT capacity would be exhausted around 2016. With growth forecast at 6.7 per cent per annum, a further 0.39 million TEU would be added by 2018, taking Port Botany close its approved 3.2 million TEU DA limit. If the NSW Government container rail freight policy objective is to be met, around 1.1 million TEU would need to be moved by rail by 2016. This represents approximately a threefold increase on the 2008/09 throughput level.

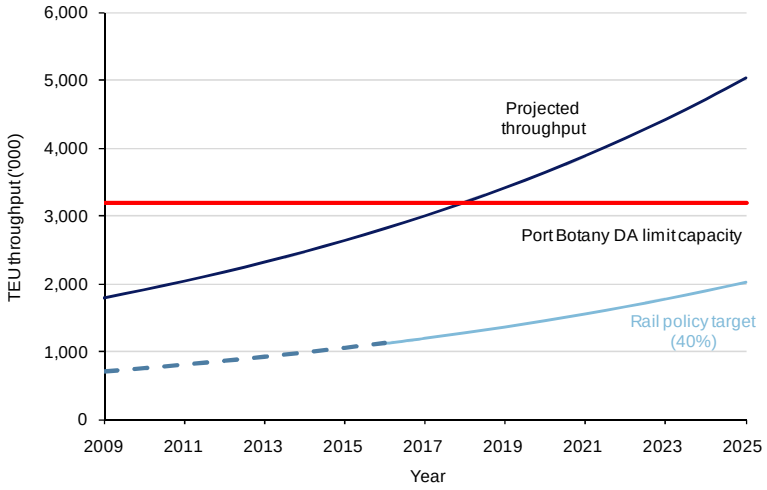
Figure 2 below shows the relationship between the 3.2 million TEU capacity of Port Botany, the projected container trade throughput of the port and the NSW Government's policy target of 40 per cent container freight movement by rail out of the port by 2016.

[14] NSW Government, NSW Container Freight Improvement Strategy Preliminary Economic Evaluation, August 2010.

[15] Finlay, Ron and Gillespie, Robert, Port Botany Expansion Stage 2, 'Independent Export Panel report', available at: http://www.planning.nsw.gov.au/asp/pdf/05_0047_final_report-090806.pdf.

[16] NSW Government, NSW Container Freight Improvement Strategy Preliminary Economic Evaluation, August 2010.

Figure 2: Container trade growth at Port Botany (import and export)



Source of data used in this figure: SAHA, NSW Container Freight Improvement Strategy Preliminary Economic Evaluation, August 2010 and the NSW Department of Planning.

Impact on the NSW economy from the Port Botany projected container demand

Port Botany is 15 km from the CBD. It is situated along an important economic corridor that includes Sydney airport. Congestion along the corridor has broad negative consequences for the NSW transport network and the NSW economy. During 2005, the cost of congestion in Sydney was estimated at $3.5 billion.[17] In particular, the M4, M5 and the M7 are heavily affected by road freight congestion during peak periods of the day. At Port Botany, average truck queue times are frequently above 30 minutes.[18]

The seaborne container freight task is expected to almost double by 2020.[19] Given this outlook, it will be important to minimise the impact on the already congested road network by reducing the road share of containerised freight transport from its 2009 level of 77 per cent.

The expansion of Port Botany Terminal 3 will create efficiencies for port stevedores and assist in catering for the projected two fold increase in the container freight task by 2020. The development of a more efficient IMT network can assist in optimising and extending the life of Port Botany infrastructure by dispersing the freight task more efficiently.

[17] NSW Government, Metropolitan Plan, February 2010.

[18] Sydney Ports Authority, Port Botany Road Taskforce, Daily Operation Report, 24 October 2010.

[19] NSW Government, NSW Container Freight Improvement Strategy Preliminary Economic Evaluation, August 2010.

Only 23 per cent of container freight was transported from Port Botany by rail during 2009[20]. Below are some of the possible causes of the disparity between road and rail transport of containers:

- Lack of access to intermodal facilities
- Stevedoring costs have tended to be higher for rail handing than for truck handling
- Transhipment associated with rail freight
- Destination diversity makes around 7 per cent of container transport less amenable to rail.

2.2 NSW Government freight policy related to Port Botany

The NSW Government identifies freight transport improvement as a key requirement to improve productivity of businesses.[21]

The Government's key policies relating to freight, which support an increase in rail freight to ease road congestion, are contained in the following:

a. NSW Government, State Infrastructure Strategy, June 2008
b. NSW Government, Action for Air, November 2009
c. NSW Government, Metropolitan Transport Plan, February 2010
d. NSW Government, NSW State Plan, Investing in a Better Future, March 2010
e. NSW Transport, Container Freight Improvement Strategy, July 2010
f. NSW Government, Metropolitan Plan for Sydney 2036, December 2010.

The main elements of these policies are discussed below.

a. State Infrastructure Strategy

In June 2008, the NSW Government released its State Infrastructure Strategy. The strategy links the 10-year State Plan and the 25-year metropolitan and regional strategies. The main project in the strategy related to freight is the Terminal 3 expansion to Port Botany.

b. Action for Air

In November 2009, the NSW Government released its 25-year air quality management plan for Sydney. The policy focuses on reducing vehicle emissions, as these make a large contribution to ozone formation in Sydney. The plan highlights the need to make better use of the rail network as a means for freight transport.

[20] Sydney Ports Corporation, Port Botany Landside Improvement Strategy Road Update, May 2010.

[21] NSW Government, NSW Container Freight Improvement Strategy Preliminary Economic Evaluation, August 2010, p ii.

c. Metropolitan Transport Plan

The NSW Government Metropolitan Transport Plan, released in February 2010, includes a number of freight objectives, acknowledges the efficient management of freight movements is vital to the growth of the economy.

The Transport Plan identifies the need to improve freight infrastructure across Sydney. In particular, the strategy highlights the potential for western Sydney as a growth centre, requiring efficient and reliable public transport to the region's centres and dedicated freight routes to employment areas.

d. NSW State Plan

NSW Government, NSW State Plan – Investing in a Better Future, released in March 2010, sets out the main area of planned investment in public infrastructure. The plan prescribes the NSW policy position of increasing the proportion of container freight movement by rail through Port Botany to 40 per cent by 2016.

The policy target is designed to promote an efficient and productive freight rail network in Sydney that encourages a modal shift to rail from road thereby reducing road congestion and its associated costs.

The basis of the 40 per cent target in the NSW State Plan was adopted from the analysis and findings of the report, Port Botany's Containers: Proposals to Ease Pressure on Sydney's Roads, released by the Freight Infrastructure Advisory Board in July 2005. That report recommended that IMT capacity should be located at Moorebank. The report is discussed further in section 4.1 below.

e. NSW Transport Container Freight Improvement Strategy

The NSW Container Freight Improvement Strategy is a package of projects to provide the infrastructure required to achieve and maintain the NSW State Plan target of a 40 per cent container freight rail share target for Port Botany by 2016. The strategy includes investments in intermodal facilities and port and rail efficiency enhancements to meet this rail target.

The first stage of the NSW Container Freight Improvement Strategy will provide an initial capacity boost to the network through the duplication of the Port Botany freight line. In addition, the completion of the Australian Rail Track Corporation Limited (ARTC) Southern Sydney Freight Line will improve the competitiveness of the metropolitan freight network by creating a dedicated freight line between Macarthur and Sefton in southern Sydney.

The second stage of the NSW Container Freight Strategy will be to build the western Sydney dedicated freight line to the planned Eastern Creek intermodal facility, to be operational by 2026.

f. Metropolitan Plan for Sydney

In December 2010, the NSW Government released its Metropolitan Plan for Sydney 2036. The Plan aims to strengthen the capacity at Port Botany to improve the efficiency of freight movements. The Plan states an intention to release a 25 year freight plan in 2011 which is to outline the projects and measures needed to ensure the transport system is able to accommodate the growing freight task into the future.

Additional to the government policies above the Sydney Ports Corporation's Port Botany Landside Improvement Strategy complements the NSW Container Freight Improvement Strategy and the NSW State Plan container freight objectives by seeking to improve efficiencies at the port interface. One of the key enhancements of the Sydney Ports' strategy will be the provision of rail sidings at the stevedore terminal which will accommodate 600m trains. Trains of 600m length currently account for 90 per cent of all rail services entering the port. [22]

2.3 Commonwealth Government policy related to freight

The Commonwealth Government freight policies that have bearing on freight strategy in NSW are set out in the following policies:

a. Commonwealth Government, Commonwealth National Port Strategy (Draft), December 2010
b. Commonwealth Government, National Land Freight Strategy (Discussion Paper), February 2011.

The above Commonwealth Government policies are described below.

a. Draft National Port Strategy

In December 2010 the Commonwealth Government developed the draft National Ports Strategy for consideration by the Council of Australian Governments (COAG). The purpose of the draft strategy is to "drive the development of efficient sustainable ports and related freight logistics that together balance the need of a growing Australian community and economy with the quality of life aspirations of the Australian people."[23] The impact of the Draft Strategy on Port Botany will be the need to develop long-term master plans of 15-30 years detailing expected growth in demand and the capacity that will be provided to handle that growth.

[22] Sydney Ports Corporation, Port Botany Landside Improvement Strategy Future Directions, May 2010.

[23] Commonwealth Government, National Ports Strategy cover note, December 2010.

b. National Land Freight Strategy

Infrastructure Australia released in February 2011 a draft discussion paper that lays out key priorities for a land freight network including indicative projects and programs. In particular, the discussion paper indentifies the need for intermodal capacity at Moorebank. As the strategy is developed, it will draw on various state government freight plans.[24]

[24] Commonwealth Government, Infrastructure Australia National Land Freight Strategy, Discussion Paper, February 2011.

3 Business as usual – existing capacity v's Port Botany container needs

This chapter describes the gap between NSW intermodal terminal capacity and the NSW Government's objective to achieve a target of 40 per cent of container freight movement by rail out of Port Botany by 2016. The 'business as usual' case has been defined in this report to establish whether current intermodal capacity within the Sydney network is sufficient to meet the future rail freight task and the NSW Government's policy objective.

The key assumptions of the business as usual case are:

- The current IMT capacity is the existing capacity across the Sydney freight network before the Enfield IMT comes on stream and excluding the planned SIMTA MITF (current IMT capacity is set out in column 3 of Table 1 below)
- The projected total container freight forecast to 2025 for Port Botany is sourced from the SAHA document, NSW Container Freight Improvement Strategy Preliminary Economic Evaluation, August 2010
- The current IMT capacity remains constant over the period to 2016.

Table 1 presents the IMT container capacity assumptions of the current IMT capacity and future capacity, representing the current IMT capacity plus that of the Enfield IMT and the planned SIMTA MITF (future capacity values are set out in column 4 of Table 1).

In 2008/09, total annual IMT container throughput capacity in Sydney was 0.37 million TEU, across the Yennora, Minto and Villawood IMTs. The Enfield IMT, which is nearing completion, will increase the network capacity by a further 0.3 million TEU, consistent with the approved throughput limit of that terminal. With annual throughput at Port Botany projected to increase to 2.8 million TEU in 2016, further additions to capacity and efficiency are needed to increase the share of rail container freight transport. As noted above, even if the rail mode share remains at the current level of 23 per cent, existing Sydney IMT capacity would be exhausted around 2016.

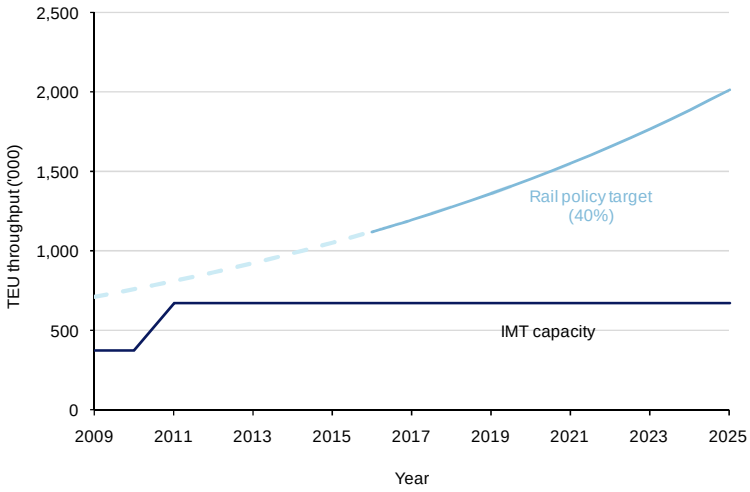
Table 1: Sydney IMT capacity (Port Botany shuttle capacity), million TEU per annum

Terminal	Sydney Region	2010 Capacity – bus. as usual TEU p.a.	Future Capacity – scenario TEU p.a.
Current and committed IMT			
Yennora Distribution Centre	Central west	0.17	0.17
Minto	Outer west (south)	0.15	0.15
Villawood	Central west	0.05	0.05
Enfield	Central west	0.00	0.30
Sub total		**0.37**	**0.67**
Planned IMT			
Moorebank (SIMTA)	Outer west (south)		1.00
Total		**0.37**	**1.67**

Source of data used in this table: SAHA, NSW Container Freight Improvement Strategy Preliminary Economic Evaluation, August 2010, PwC calculation of rail share values.

As shown in Table 1, the current IMT capacity in Sydney can accommodate up to a maximum of 0.37 million TEU (0.67 million TEU when Enfield comes on stream). Figure 3 and Table 2 below set out the gap between the current IMT capacity and the policy target prescribed in the NSW State Plan.

Figure 3: Business as usual - capacity of Port Botany IMT shuttle network without the MITF



Source of data used in this figure: SAHA, NSW Container Freight Improvement Strategy Preliminary Economic Evaluation, August 2010 and the NSW Department of Planning.

Table 2 below sets out the existing Sydney IMT capacity (including Enfield) and contrasts this to the capacity that would be required in order to continue to achieve the current 23 per cent rail mode share, and to achieve the government's target of 40 per cent rail mode share from Port Botany by 2016. It can be noted from the table that, aside from a potential alignment of capacity with the 23 per cent rail mode share at 2016, generally the existing IMT capacity would not be sufficient to achieve these targets from that date.

Table 2: Business as usual vs policy target, million TEU per annum

Year	TEU 'midrange' forecast	Existing IMT Capacity	Rail share (at 23%)	Gap (at 23%)	Rail Share (at 40% target)	Policy Gap (at 40% target)
2016	2.81	0.67	0.65	0.02	1.12	-0.45
2017	3.00	0.67	0.69	-0.02	1.20	-0.53
2018	3.20	0.67	0.74	-0.07	1.28	-0.61
2019	3.41	0.67	0.78	-0.11	1.36	-0.69
2020	3.64	0.67	0.84	-0.17	1.46	-0.79
2021	3.88	0.67	0.89	-0.22	1.55	-0.88
2022	4.15	0.67	0.95	-0.28	1.66	-0.99
2023	4.42	0.67	1.02	-0.35	1.77	-1.10
2024	4.72	0.67	1.09	-0.42	1.89	-1.22
2025	5.04	0.67	1.16	-0.49	2.01	-1.34

Source of data used in this table: SAHA, NSW Container Freight Improvement Strategy Preliminary Economic Evaluation, August 2010, PwC calculation of rail share values.

Without the SIMTA MITF, intermodal capacity in the Sydney region would be limited to 0.67 million TEU, comprising the aggregate capacity of the Enfield, Yennora, Minto and Villawood intermodal facilities. The existing IMT capacity would be unable to fulfil the NSW State Plan target, of 40 per cent container freight movement by rail out of Port Botany by 2016 and would not be able to support the maintenance of the current rail mode share of 23 per cent at that time. The relationship between the current IMT capacity in the Sydney region (business as usual) and the achievement of NSW Government policy target is highlighted in Figure 3 and in Table 2 above.

4 The SIMTA MITF - relationship to Port Botany container needs

This chapter assesses the need in the Sydney region for additional IMT capacity and for the proposed SIMTA MITF in particular.

4.1 Overview of the SIMTA MITF project

Proposed site

The site for the proposed SIMTA MITF is at Moorebank, 27 km south-west of the Sydney CBD and approximately 26 km west of Port Botany. The site is around 2 km to the south of the Liverpool CBD in Sydney's outer west (south) region. The site was purchased by Stockland in 2007 from the Commonwealth Government. The site is currently under lease to the Commonwealth and houses the Defence National Storage and Distribution Centre (DNSDC)..

The DNSDC provides direct supply support to many Australian Defence Forces (ADF) operations. The DNSDC facility directly employs approximately 400 permanent employees with extra 160 casual employees.[25] Should the re-development of this site proceed these jobs will not be lost. It is understood that the functions of the DNSDC, and the associated positions, would be transferred to other ADF sites in Sydney.

Proposed development

The SIMTA terminal would provide close access to the M5 and M7 and the Southern Sydney Freight line. The project has both Commonwealth and NSW Government support and will complement SPC's terminal strategy by promoting the efficient distribution of containers. The SIMTA terminal will allow for high economic value add operations to support freight and logistics employment.

25 Parliament of Australia, Audit report No.5, 2004-05 http://www.aph.gov.au/house/committee/jpaa/auditor_generals/report/chapter8.pdf.

Catchment area

The potential catchment area of the terminal has been estimated by Hyder Consulting.[26] The terminal appears to exhibit some of the characteristics of a regional hub - in addition to its key characteristics as a metropolitan hub. In this regard, we note the views of the Victorian Freight Logistics Council that generally, a metropolitan hub would have a catchment of around 10 kilometres from customers, although regional hubs can service areas of 100 kilometres. We also note the views of the Council that, as a minimum, a hub should have a committed freight task of greater than 10,000 TEU per annum, but some hubs - typically regional hubs - may have achieved sustainable operations with lower volumes.[27]

We note that the potential share of Sydney TEU volumes at the SIMTA MITF will be influenced the competing supply chains that are in place to service the container freight market. These supply chains include all transport options between the port and customer as well as empty container return and export movements.

Need for the MITF from a policy perspective

As discussed in chapter 2, the NSW Government aims to double the proportion of container movements though Port Botany by rail from the current level of 23 per cent to 40 per cent by 2016 (as outlined in the NSW State Plan, the NSW Container Freight Improvement Strategy and the Sydney Metropolitan Strategy). This target would be achieved through investment in intermodal capacity within Sydney and appropriate rail connections to Port Botany, particularly as specified in the NSW Container Freight Improvement Strategy.

Moorebank has been considered an appropriate site for IMT capacity by both the Commonwealth and NSW Governments since 2004 due to its location within close proximity to motorways, the Southern Sydney Freight Line and the south west growth centre.

As noted in section 2.2, the basis of the 40 per cent target in the NSW State Plan was adopted from the analysis and findings of the report, Port Botany's Containers: Proposals to Ease Pressure on Sydney's Roads, released by the Freight Infrastructure Advisory Board in July 2005.That report recommended that IMT capacity should be located at Moorebank and that the Moorebank site should be secured for an intermodal terminal to be development by the private sector

The Draft Subregional Strategy for the South West Subregion prepared by the NSW Government and released in December 2007 further outlined the strategic need for IMT capacity at Moorebank in order to connect to the Southern Sydney Freight Line and cater for the growing demands of freight movements in the west of Sydney. The Subregional Strategy sets out the need for 200 hectares of

[26] Hyder Consulting, Technical Note 1: Strategic Freight Demand, June 2011

[27] Victorian Freight and Logistics Council, A Toolkit for the Development of Intermodal Hubs in Victoria, May 2007.

land to be retained specifically for industrial purposes and recognises the opportunity that Moorebank offers to improve freight rail movements between ports, cities, suburbs and other destinations across the State.

Economic benefits from the development

Development of the Moorebank site is considered to provide several key benefits to stakeholders and the Sydney region:

- SAHA International estimated that the wider economic benefits associated with the construction of the proposed SIMTA MITF by 2016 represent a benefit: cost ratio of 2.2. The benefit: cost ratio represents the present value of the benefits of a project divided by the present value of its costs (a project is considered worthwhile if the ratio is greater than 1.0.).[28] Accordingly, the project is assessed to provide strong positive benefits
- increasing employment opportunities in the region, both directly related to the terminal and indirectly as a result of the new activities introduced at the site. Based on previous work undertaken by PwC for SIMTA on the MITF, it is projected that approximately 213 direct positions would be supported during construction phase of the project.[29] Ongoing direct operational employment is estimated at a maximum of 2,840 positions, supported, once the terminal reaches throughput of 1.0 million TEU per annum. with a further 4,260 jobs supported indirectly
- introducing efficiencies into Sydney's supply chain logistics activities, providing greater capacity to move freight by rail, potentially decreasing the distances the freight is transported by road and the need for road transport from Port Botany
- facilitating competition in the downstream logistics sector which, amongst other things, could be expected to narrow the cost gap between road and rail freight transport
- assisting stevedores to balance activities over 24 hour /7 days per week operations
- allowing greater movement of freight from Port Botany[30] and removing a significant number of trucks from major arterial roads around Port Botany
- facilitating efficient utilisation of the investments made on the Terminal 3 expansion at Port Botany.

4.2 The SIMTA MITF contribution to NSW IMT capacity

The construction of SIMTA's MITF would provide additional capacity to the network of 1.0 million TEU. Incorporating the existing and committed IMT, the capacity of the Sydney network would achieve 1.67 million TEU on construction of the MITF in 2006.

---

[28] SAHA, NSW Container Freight Improvement Strategy Preliminary Economic Evaluation, August 2010.

[29] PwC, Employment Forecasts for the SIMTA Moorebank Intermodal Terminal', June 2010.

[30] PwC, Employment Forecasts for the SIMTA Moorebank Intermodal Terminal', June 2010.

This chapter compares the SIMTA MITF to the objective in the NSW State Plan to increase the proportion of container freight movement by rail out of Port Botany to 40 per cent by 2016.

The NSW Government has identified potential IMT capacity at Eastern Creek as part of its Container Freight Improvement Strategy. It is understood that development would not proceed until after completion of the Western Sydney Freight line in 2031. The Commonwealth Government has also identified IMT potential at Moorebank adjacent to the SIMTA site. Analysis of the potential throughput at the Commonwealth Moorebank defence site and at the NSW Government Eastern Creek site has not been undertaken as part of this review.

The SIMTA MITF will chiefly accommodate port shuttle services whereas the Commonwealth Moorebank would be developed to accommodate longer trains than the MITF and, as such, is considered to be more suited to interstate freight. Accordingly, the Commonwealth site may not materially affect Port Botany Shuttle Capacity due to a potential focus on domestic transport.

In its report accompanying the NSW Government's 2010 submission to Infrastructure Australia, SAHA recommend that the introduction of the SIMTA MITF is preferable during 2016.[31]

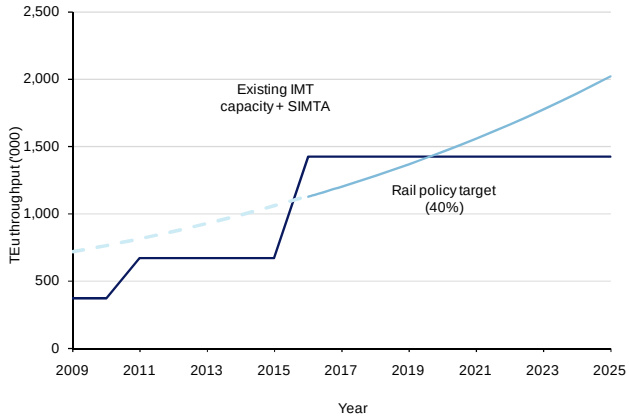
Assuming the proposed stage 1 of SIMTA MITF commences from 2016 and reaches full capacity by 2025, Figure 4 presents the total network capacity incorporating the MITF.

As shown in Figure 4, the commencement of stage 1 of the proposed SIMTA MITF in 2016 would provide capacity for an additional 750,000 TEU throughput for the Sydney network, bringing the total IMT capacity to 1.42 million. This would represent around 51 per cent of the total projected TEU throughput of 2.8 million at Port Botany by 2016. This compares to the NSW State Plan target objective of 40 percent of container freight to be moved by rail out of Port Botany by 2016. That is, around 1.1 million TEU would need to be moved by rail by that time for the policy objective to be achieved.. The potential 0.3 million capacity surplus provided by the MITF could provide a contingency should container throughput at Port Botany grow at a faster rate than the projected 'likely' growth rate of 6.7 per cent per annum.

This additional capacity would diminish over time under the medium growth forecast as container growth through Port Botany increases over time. This is shown in Figure 4 and the additional capacity is set out in Table 3.

[31] SAHA, NSW Container Freight Improvement Strategy Preliminary Economic Evaluation, August 2010.

Figure 4: Capacity of IMT network with the SIMTA MITF



Source of data used in this figure: SAHA, NSW Container Freight Improvement Strategy Preliminary Economic Evaluation, August 2010, the NSW Department of Planning, and Hyder Consulting, Technical Note 1: Strategic Freight Demand, June 2011.

Table 3 below shows the Sydney IMT capacity (in terms of existing capacity plus the capacity of the proposed SIMTA MITF) and whether that capacity would support ongoing achievement of the current 23 per cent rail mode share, and achievement of the Government's target of 40% rail mode share from Port Botany by 2016. It shows that the expanded IMT capacity would enable these targets to be achieved (in the case of the Government's target, this is until 2022).

Table 3: Capacity of Port Botany IMT shuttle network with the SIMTA MITF, million TEU per annum

Year	TEU 'midrange' forecast	Existing IMT + SIMTA MITF	Rail Share (at 23%)	Gap (at 23%)	Rail Share (at 40% target)	Policy Gap (at 40% target)
2016	2.81	1.42	0.65	1.02	1.12	0.55
2017	3.00	1.42	0.69	0.98	1.20	0.47
2018	3.20	1.42	0.74	0.93	1.28	0.39
2019	3.41	1.42	0.78	0.89	1.36	0.31
2020	3.64	1.42	0.84	0.83	1.46	0.21
2021	3.88	1.42	0.89	0.78	1.55	0.12
2022	4.15	1.42	0.95	0.72	1.66	0.01
2023	4.42	1.42	1.02	0.65	1.77	-0.10
2024	4.72	1.42	1.09	0.58	1.89	-0.22
2025	5.04	1.42	1.16	0.51	2.01	-0.34

Source of data used in this figure: SAHA, NSW Container Freight Improvement Strategy Preliminary Economic Evaluation, August 2010, Hyder Consulting, Technical Note 1: Strategic Freight Demand, June 2011, PwC calculation of rail share values.

As shown in Figure 4, the capacity provided by the proposed SIMTA MITF would allow the network capacity to meet the initial policy target in 2016. Given a projected growth rate of 6.7 per cent, the SIMTA MITF could provide seven years of capacity before the policy target again exceeds the network capacity. Accordingly, while the SIMTA proposal forms only part of the overall IMT capacity requirements in Sydney over the long term, it would be able to play an important role assisting the NSW Government to achieve its target for freight rail mode share in the medium term.

Furthermore, the potential capacity of 1.0 million TEU at the SIMTA development would potentially remove a significant number of trucks from major arterial roads around Port Botany, in support of NSW Government objectives to reduce urban traffic congestion.

5 Conclusion

Under the 'business as usual' scenario based on current Sydney region IMT capacity of 0.67 million TEU, it is estimated that lack of IMT capacity would mean less than 24 per cent of containers would be transported by rail in 2016, well below the government policy target of 40 per cent.

The commencement of the proposed SIMTA MITF in 2016 would provide capacity for a potential additional 1.0 million TEU throughput for the Sydney network, bringing the total IMT capacity to 1.67 million TEU. This would represent around 60 per cent of the total projected TEU throughput of 2.8 million at Port Botany by 2016. This compares to the NSW State Plan target objective of 40 per cent of container freight to be moved by rail out of Port Botany by 2016. That is, around 1.1 million TEU would need to be moved by rail by that time for the policy objective to be achieved. Even if the 40 per cent target is not met, increased capacity is still required by 2016 in order to maintain the current 23 per cent rail mode share.

Based on the forecast 1.0 million TEU annual throughput of the proposed SIMTA MITF, the development has the potential to: support NSW freight policy objectives by providing enough capacity to ensure the 40 per cent target can be achieved up to 2022; improve container import and export throughput to increase the productivity performance of freight rail; and eliminate a significant number of truck movements from major arterial roads around Port Botany. The latter potential outcome from the development is important in view of the findings of the Freight Infrastructure Advisory Board report, Railing Port Botany's Containers: Proposals to Ease Pressure on Sydney's Roads, which presents that:

> "*Unless there is a significant shift to rail, annual container truck volumes on the M5 Motorway are likely to increase by more than 150 per cent by 2021. Even with a 40 per cent rail share, container truck volumes on the M5 are projected to increase by approximately 75 per cent*."[32]

The proposed SIMTA development, given its potential to assist in moving container freight from road to rail, would provide support to the Government's broader objectives to reduce urban traffic congestion.

[32] Freight Infrastructure Advisory Board, Railing Port Botany's Containers: Proposals to Ease Pressure on Sydney's Roads, June 2005, p.28.

pwc.com.au

© 2011 PricewaterhouseCoopers. All rights reserved. In this document, “PwC” refers to PricewaterhouseCoopers, which is a member firm of PricewaterhouseCoopers International Limited, each member firm of which is a separate legal entity

APPENDIX B

MOOREBANK CATCHMENT AREA MEMO - TFNSW

MEMORANDUM

Date	23rd April 2013
To	Steve Ryan; Neil McMillan, Greg Huzij, Mukit Rahman
From	Phil Rosser
Subject	SIMTA catchment area

Re: Preferred Project Report for SIMTA Intermodal Facility

We refer to recent correspondence with regard to the above, namely the letter to the Department of Planning and Infrastructure from Transport for NSW dated 29.11.2012 and the letter from Department of Planning and Infrastructure to Qube Logistics C/-Urbis dated 28.2.2013.

This memorandum responds specifically to the two key issues of 'catchment' and 'cumulative impact'.

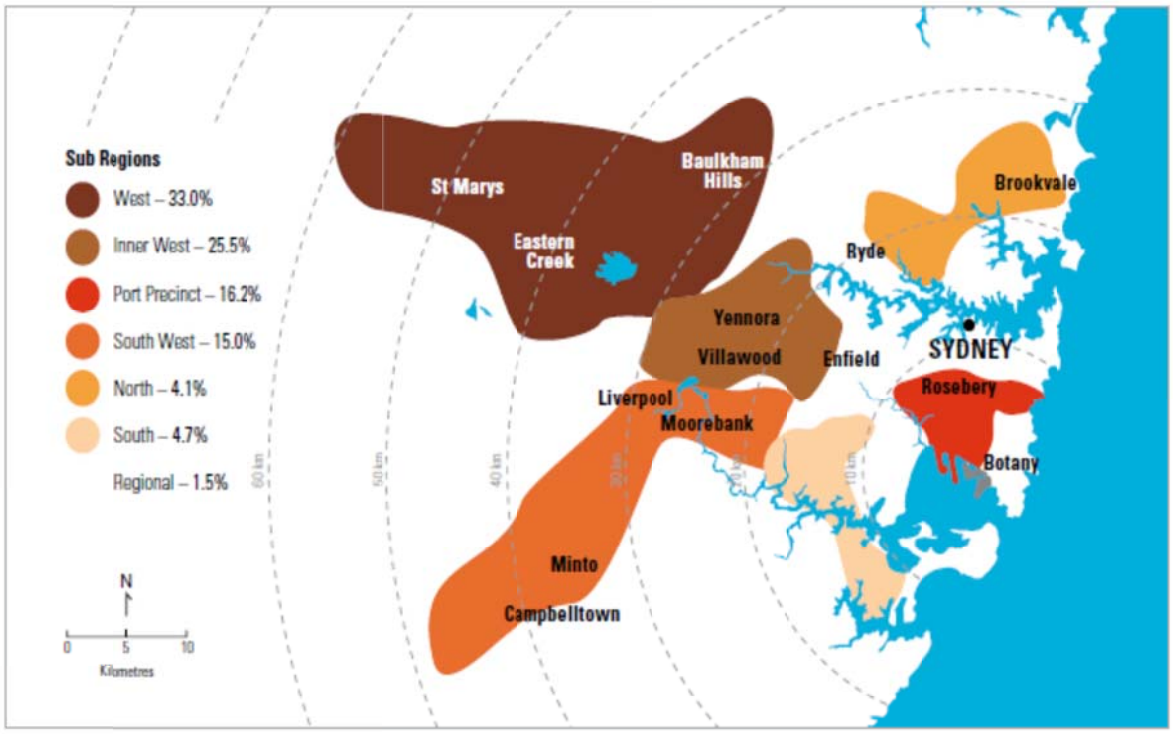
CATCHMENT

It is our view, and that of others (e.g. Sydney Ports Corporation) that a Moorebank terminal and an Eastern Creek terminal will cater for completely different catchment markets:

Of critical importance in planning and developing intermodal terminals, is ensuring terminals are located in proximity to catchment markets, of sufficient size to ensure viability of the development. Definition of the major catchment areas serving Port Botany have been identified from numerous "Origin/Destination Studies" which essentially plots the locations where export containers are loaded (Origin) and import containers are unloaded (Destination).

A number of such Origin/Destination Studies have been conducted since 2000 by Sydney Ports Corporation and the (then) NSW Seafreight Council, the latest being conducted by Sydney Ports in 2011 and depicting metropolitan Sydney's major catchment areas, as shown in the following figure:

FIGURE 1 SYDNEY METROPOLITAN AREA IMPORT DESTINATIONS (AS AT 2009)



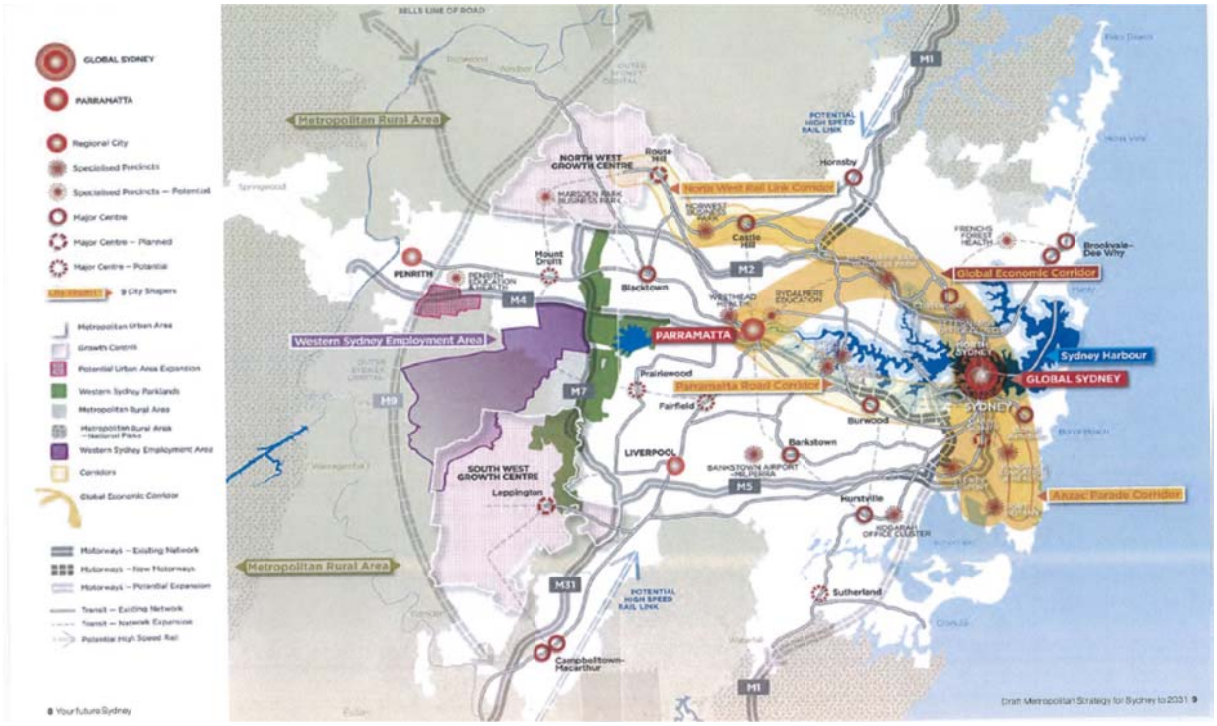
SYDNEY PORTS CORPORATION LOGISTICS REVIEW 2010/11

Source: Sydney Ports Corporation

As the figure illustrates, the import market served by Port Botany (imports dominate over exports) has four major catchment areas, of which one, the Port Precinct, will not be served by any intermodal terminal. Therefore the three major catchment areas that warrants intermodal terminal development are:

- Inner West 25.5%
- South West 15.0%
- West 33.0%

This is further defined when comparing with Sydney's proposed North West and South West Growth Centres, as shown in the following figure:



Source: Planning NSW

In its report to the NSW Government in 2005, the Freight Infrastructure Advisory Board (FIAB) *Railing Port Botany's Containers* made a number of recommendations, key of which were:

- A rail mode share target be set at 40 per cent
- An intermodal terminal be established at Enfield to cater for the Inner West catchment area
- An intermodal terminal at Moorebank be developed to cater for the South West catchment area, and
- Government investigate the establishment of an intermodal terminal at Eastern Creek to cater for the West catchment area

Since that time, SPC is in the process of developing the Enfield Intermodal Logistics Centre, plans for an intermodal terminal at Moorebank are underway and the rail mode share target has been revised to 28%.

In terms of catchment area, each intermodal facility would serve a distinctly different area:

Moorebank – predominantly serving South West Sydney including Moorebank, Liverpool, Prestons, Ingleburn, Minto, Campbelltown, Camden as well as the future South West Growth Centre centred on Leppington

- Eastern Creek – predominantly serving West and North West Sydney including Eastern Creek, Huntingwood, Wetherill Park, Blacktown, Arndell Park, Baulkham Hills, Castle Hill, Buena Vista, Glendenning, St. Mary's as well as the future North West Growth Centre centred on Marsden Park Business Park

Whilst there may be some contestability in areas between the two terminals, such as Bossley Park and Horsley Park, we do not agree with the view that in the absence of an Eastern Creek terminal, its catchment will fall within that of Moorebank.

For an intermodal terminal to be commercially viable, it must be able to offer a door to door delivery price, inclusive of its bundled costs, that can compete with the cost of direct road delivery from the port. This

bundle of costs include rail handling at port, rail transfer from port to intermodal terminal and delivery cost from intermodal terminal to delivery point, including container return intermodal terminal..

Accordingly, the further the delivery point is away from the intermodal terminal, the less competitive it becomes against the cost of direct road delivery. Current road transport costs are highly competitive, hence it's market dominance (86%) and price sensitivity, as described would not make it commercially viable for any intermodal terminal to attract containers not belonging in its natural catchment area, i.e. a Moorebank intermodal terminal would not serve the West Sydney catchment area in the absence of any Eastern Creek development. This catchment area would continue to be served by road, even more so once WestConnex is built.

In terms of catchment size, the SIMTA proposal has maintained the catchment area to be some 1.0 million TEUs. This is further backed up by extrapolating forecast Port Botany throughput and catchment share.

In 2011-12 Port Botany throughput was some 2.0 million TEUs. While Sydney Ports are forecasting an annual growth rate of 6.7% which will see Port Botany reach capacity (7.5 million TEUs) by 2040. Even allowing for a more modest growth rate of 4.0% p.a. will see throughput exceed 7.0 million TEUs by 2045. Of this total 3.5 million TEUs will be imports and 3.5 million TEUs exports.

The South West / SIMTA catchment area with an import distribution share of 15.0% will thus have a potential of 525,000 TEUs import containers. Given each inbound trip generates a return outbound trip, this equates to a potential catchment of 1.05 million TEUs. This remains in line with original forecasts.

Further, using the NSW quoted target of 28 % rail mode share, this equates to a rail target by 2045 of 1.96 million TEUs (28% of total Port Botany forecast throughput of 7.0m TEUs). By our estimates and knowledge of the Sydney Metropolitan Freight Network, 1.96 million TEUs is at the upper limit of rail capacity serving Port Botany – capacity not throughput, i.e. 48 train paths per day = 96 trains x 84 TEU train capacity, x 80% train utilisation x 364 days – 15% redundancy = 1.996 million

This 1.96 million TEU rail capacity is the total for Metropolitan Sydney and regional NSW. We would consider it highly unlikely that at any point in the future, the entire Port Botany rail capacity would be taken up by two intermodal terminals in effectively the same location at Moorebank.

CUMULATIVE IMPACT

Based on our estimation of the SIMTA catchment being 1.0 million TEUs of Port Botany Import/Export container flows, this will form the basis of our cumulative impact assessment.

It is our assertion is that the 1.0 million TEUs Moorebank catchment will service one intermodal terminal, be that the SIMTA proposal or that proposed by the Moorebank Project Office (MPO) (or any proposed intermodal terminal within the catchment area). The catchment for import/export containers will not support two such terminals, and the development of two 1.0 million TEU facilities will deliver significant over-capacity.

Both proposals anticipate that a proportion of the 1.0 million TEUs will be unpacked/packed on site at internal warehouses. The SIMTA proposal anticipates that at full operation, some 600,000 TEUs (60%) will be transported to and from the site as full container loads for delivery/collection within the catchment area. This will be undertaken by container carrying vehicles, predominantly semi-trailers and B-Doubles.

The balance of 400,000 TEUs (40%) will be internalised i.e. unpacked/packed at warehouses within the facility with delivery/collection of unpacked/packed freight within the catchment area undertaken by rigid trailer, flat-bed trucks, vans, utilities etc.

The MPO proposal, to the best of our knowledge will be based on a similar business proposition, although the *Moorebank Intermodal Terminal Project – Detailed Business Case* (6 February 2012) contains little or no detail of intended business breakdown between external full delivery/collection and internal warehousing unpack/pack, although it is not anticipated the proposition would differ greatly from that put forward by the SIMTA consortium.

Interstate business at the MPO facility will only be developed 'when justified by market conditions, but estimated to commence operations in 2030' (*MPO Detailed Business Case).* On the basis of this timeframe we would be unable to include any interstate related traffic within any cumulative impact assessment.

Based on the aforegoing we reiterate that both proposals will be undertaking a very similar business proposition aimed at the same market base, effectively one proposal is competing for the same business as the other. Accordingly, the cumulative impact will need to account for one proposal or the other, not both.

It is therefore our assertion that the cumulative impact assessment undertaken as part of the SIMTA original Concept Plan remains valid. The traffic modelling undertaken assessed the total catchment demand of 1.0 million TEUs of import/export containers and as such assessed the traffic impact from the potential cumulative impact of the SIMTA/SME site, as known at the time (2011) as well as background traffic including employee trip generation and traffic generated by various known developments including the Goodman Fielder Bakery to the north of the site.

However, it was noted in the Traffic and Transport Report of the Concept Plan dated August 2011, that “at the time of undertaking this traffic assessment, actual information on the size and potential traffic generation from the SME site was not available”. Indeed, the Detailed Business Case for the MPO proposal was only released in February 2012 and still does not provide any breakdown other than a forecast maximum annual throughput of 1.2 million TEUs and that the site will accommodate some 97,400 sqm of warehousing.

Hereby, we reconfirm our assessment of the catchment remains as 1.0 million TEUs p.a. and that accordingly our cumulative impact assessment has been based on this figure. We would request confirmation and/or comment on the proposed catchment and cumulative assessment undertaken for the Concept Plan Environmental Assessment for the SIMTA Proposal.

APPENDIX C

FORECAST IMPORT CONTAINER DISTRIBUTION BY SLA

Reporting area	SLA	Annual import containers (TEU)		
		2006	2016	2025
Botany	Botany Bay	115,510	187,334	320,335
Botany Total		115,510	187,334	320,335
City and East	Sydney - East	276	385	599
	Sydney - Inner	1,725	2,657	4,542
	Sydney - West	278	414	694
	Waverley	107	142	226
	Woollahra	71	93	146
City and East Total		2,458	3,691	6,207
South Sydney	Randwick	14,141	21,684	38,183
	Rockdale	5,476	9,342	15,990
	Sydney - South	30,356	52,707	94,728
South Sydney Total		49,972	83,733	148,901
Southern Suburbs	Hurstville	2,899	4,304	7,046
	Kogarah	369	499	773
	Sutherland Shire - East	4,852	6,958	11,425
	Sutherland Shire - West	1,711	2,556	4,141
Southern Suburbs Total		9,831	14,316	23,386
North Shore	Hunters Hill	356	549	937
	Ku-ring-gai	1,281	1,788	2,974
	Lane Cove	3,746	5,580	9,274
	Manly	465	615	986
	Mosman	181	245	397
	North Sydney	3,812	5,148	8,017
	Pittwater	2,786	4,310	7,364
	Ryde	10,081	16,023	26,756
	Warringah	9,326	14,117	23,721
	Willoughby	6,468	9,336	15,366
North Shore Total		38,503	57,711	95,791
NW Sydney	Baulkham Hills - Central	3,761	5,718	9,949
	Baulkham Hills - North	515	836	1,545
	Baulkham Hills - South	649	898	1,445

Reporting area	SLA	Annual import containers (TEU)		
		2006	2016	2025
	Hawkesbury	1,997	2,881	4,733
	Hornsby - North	1,850	2,741	4,594
	Hornsby - South	1,878	2,660	4,295
NW Sydney Total		10,650	15,734	26,560
Inner West	Ashfield	1,500	1,979	3,002
	Burwood	1,500	2,054	3,191
	Canada Bay - Concord	8,159	12,950	21,203
	Canada Bay - Drummoyne	2,608	3,794	6,235
	Canterbury	16,023	23,736	38,371
	Leichhardt	8,480	13,782	22,489
	Marrickville	22,405	31,741	50,915
	Strathfield	22,885	33,498	56,268
Inner West Total		83,560	123,533	201,674
Central West	Auburn	52,679	82,236	147,241
	Bankstown - North-East	13,138	20,205	34,497
	Bankstown - North-West	25,785	39,015	64,687
	Bankstown - South	24,416	37,257	61,703
	Parramatta - Inner	29,290	43,077	71,166
	Parramatta - North-East	9,340	13,208	21,826
	Parramatta - North-West	4,384	6,357	10,321
	Parramatta - South	4,812	6,690	10,855
Central West Total		163,844	248,045	422,296
Industrial West	Fairfield - West	47,705	83,177	154,565
	Holroyd	60,432	92,196	156,236
Industrial West Total		108,137	175,373	310,801
Blacktown	Blacktown - North	7,464	14,513	31,752
	Blacktown - South-East	60,306	98,599	178,946
	Blacktown - South-West	20,706	38,833	78,915
Blacktown Total		88,476	151,945	289,613
Penrith	Penrith - East	16,422	30,533	61,833

Reporting area	SLA	Annual import containers (TEU)		
		2006	2016	2025
	Penrith - West	9,793	15,173	25,853
Penrith Total		26,215	45,706	87,685
Liverpool	Fairfield - East	16,146	25,283	43,506
	Liverpool - East	45,798	179,374	345,488
	Liverpool - West	9,328	16,170	35,484
Liverpool Total		71,272	220,827	424,479
South West	Camden	20,560	42,345	96,039
	Campbelltown - North	24,983	41,741	78,534
	Campbelltown - South	5,248	8,966	16,699
South West Total		50,792	93,052	191,272
Total		**819,218**	**1,421,000**	**2,549,000**

Note: Liverpool - East for 2016 and 2025 includes planned unpacking and warehouse activity on the SIMTA site.