Intermodal Logistics Centre at Enfield Environmental Assessment

CHAPTER 3

PROJECT NEED AND ALTERNATIVES

- October 2005

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3. Project Need and Alternatives

This chapter addresses the Director-General's requirement for justifying the proposal (demonstrating the need for the project), taking into account container trade numbers at international, national and state levels, future trends in container origin / destination and intermodal capacity and demand. It places the project into planning context in terms of the NSW Ports Growth Plan and the Port Freight Plan for Sydney. The chapter also addresses the recommendations of the Independent Review undertaken by The Hon Milton Morris AO.

The requirements of EP&A Regulation are addressed, in that all feasible alternatives are considered, along with the consequences should the project not proceed.

3.1 Trade Demand and Port Related Freight

3.1.1 Importance of Sydney's International Container Trade

Shipping containers provide the universal, standard and efficient means of transporting many cargoes on all trading routes around the world. Trading patterns are driven by global economics and result in the movement of cargo from production to manufacture and from manufacture to consumption. Trade in containers is, to a large extent, driven by consumer demand. Australia, as a developed and strong consumer market, is dominated by inbound trades, especially those from Asia which represents over 60% of container trade volume.

About 98% of Australia's international trade is undertaken by sea and provision of adequate port facilities and associated trade logistics is vital for the continued growth of the NSW economy. Sydney's sea ports are a focal point of a network of sea, road and rail links connecting importers and exporters of NSW with international markets. Growth in the container trade is strongly linked to economic growth and annual growth rates for Sydney's container trade are predicted to be between 4.8 and 5.6% per year for the next 20 years (see **Figure 3-1**). Port Botany's container trade is forecast to increase from approximately 1.3 million TEUs per year to 1.75 million TEUs by 2011 and more than 3 million TEUs per year by 2025. This forecast is a reduction on actual growth rates which have averaged 7.4% growth per annum over the past thirty years and 40% growth in the past three years.

The concentration of Australia's population is in its capital cities, resulting in the international trade routes servicing each city separately. The cost of sea versus land distribution, given the 1000 km separation between the east coast cities of Melbourne, Sydney and Brisbane, means that almost without exception international cargo is shipped directly to the city for which it is destined. The alternative would be, for example, cargo arriving in Brisbane and being moved on rail or by road to Sydney – a concept referred to as landbridging. The limited amount of landbridging along Australia's east coast tends to occur when specific shipping services do not call at a particular port.

The limited amount of landbridging should not be confused with the significant amount of interstate cargo movements. This cargo is a mix of both domestic trade and international trade that has been

blended with other cargo. For example, a retail distributor may have mixed both domestic and international goods at its distribution centre for on supply to its outlets.

Sydney's sea ports constitute a significant asset, handling approximately $50 billion worth of trade in 2003/2004. Approximately 45% of the cargo by volume and 80% by value handled through Sydney's sea ports is containerised cargo. Containers carry a broad range of primary products, manufactured items and consumer goods which are distributed widely within metropolitan Sydney. More than 97% of this volume is handled at Port Botany and over 85% of these are containers packed or unpacked within the greater metropolitan area of Sydney. Due to its proximity to the Sydney market, Port Botany is and will remain the primary port for the import and export of containerised cargo in NSW (see **Figure 3-2**).

3.1.2 Landside Freight Operations

An efficient transport system in a capital city such as Sydney depends on the effective integration of the various components within the transport chain. As such, the port's area of influence and involvement extends beyond the traditional confines of the maritime activities and port operations and into the area of landside logistics and supply chains. Sydney is a heavily import dominant port. For every two containers that arrive with cargo, one returns empty. The export trade is split equally between regional (primary) product and metropolitan manufactured goods. This means that within the metropolitan area the ratio of full import to full export containers is in the order of 4:1, as shown in **Figure 3-2.** The inbound supply chain for containers is almost exclusively restricted to the Sydney metropolitan area, with containers being unpacked in warehouses across the city. However, there are four concentrated areas, shown in **Figure 3-3,** for industrial distribution. These are Port Botany, inner and middle west, south west and far west.

The logistics chain for the transfer of container cargo through ports is shown in **Figure 3-4**. It operates in two ways:

- Road based – where containers are transported directly by truck to importers warehouses and distribution centres for unloading. Containers are returned to the port empty or sent to another warehouse for packing with export goods and transported to the port for shipment off-shore; and
- Road and rail based – where containers are transported by rail to intermodal terminals close to the market being served and unloaded for transport by truck to warehousing and distribution areas within that market area. This process reduces the trucking distance involved and will improve the reliability in delivery times. Empty containers can make the return journey via the intermodal terminals, or be sent to exporters' warehouses for packing with export goods and returned to the port via the intermodal terminal.

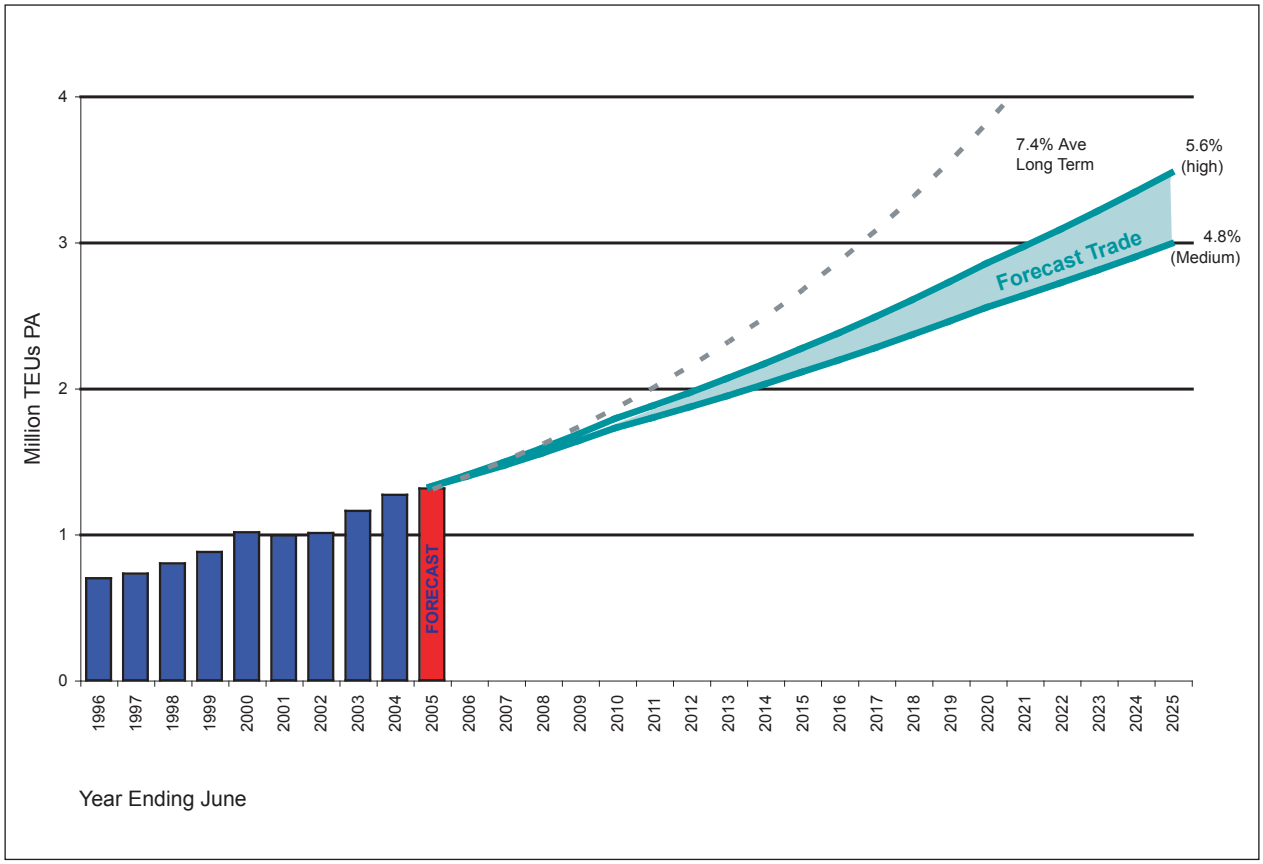

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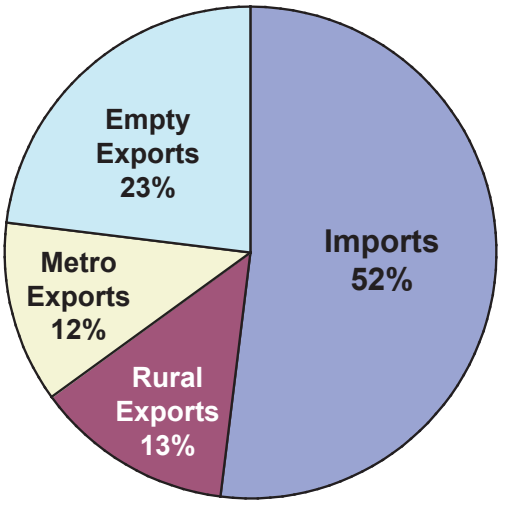
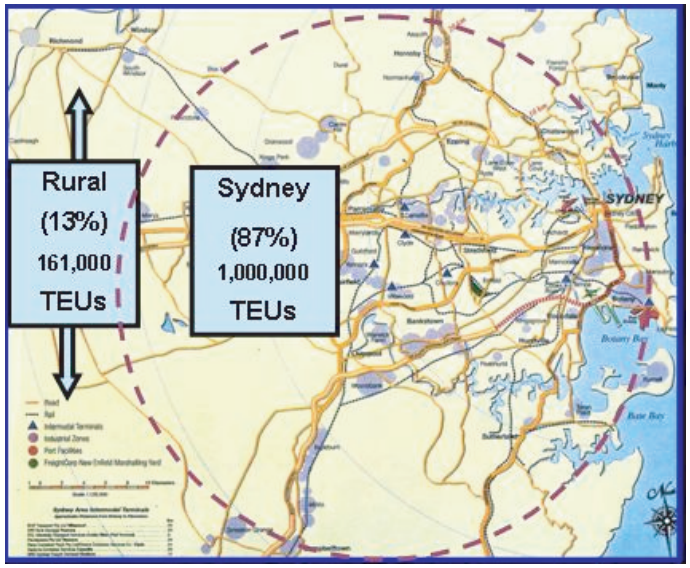
Figure 3-1
Forecast Container Growth in Sydney





1,161,000 TEUs
SPC: 2002/03

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Figure 3-2
Annual Distribution of Containers in NSW

Sydney's Market Areas:

- Port Botany
- Inner & Middle West
- South West
- Far West

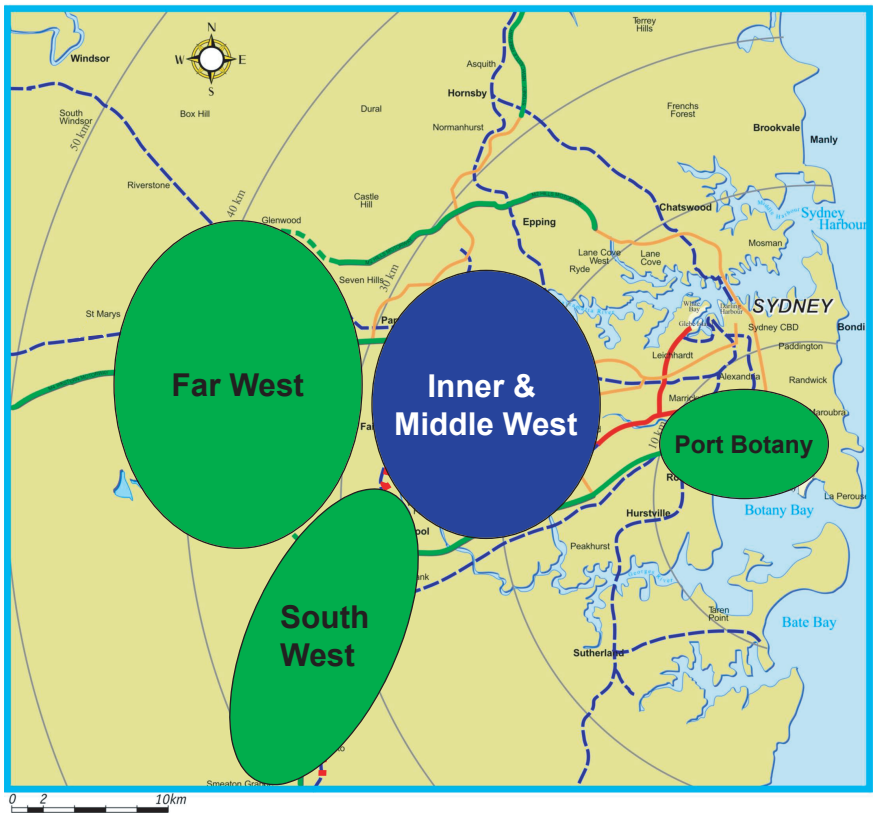

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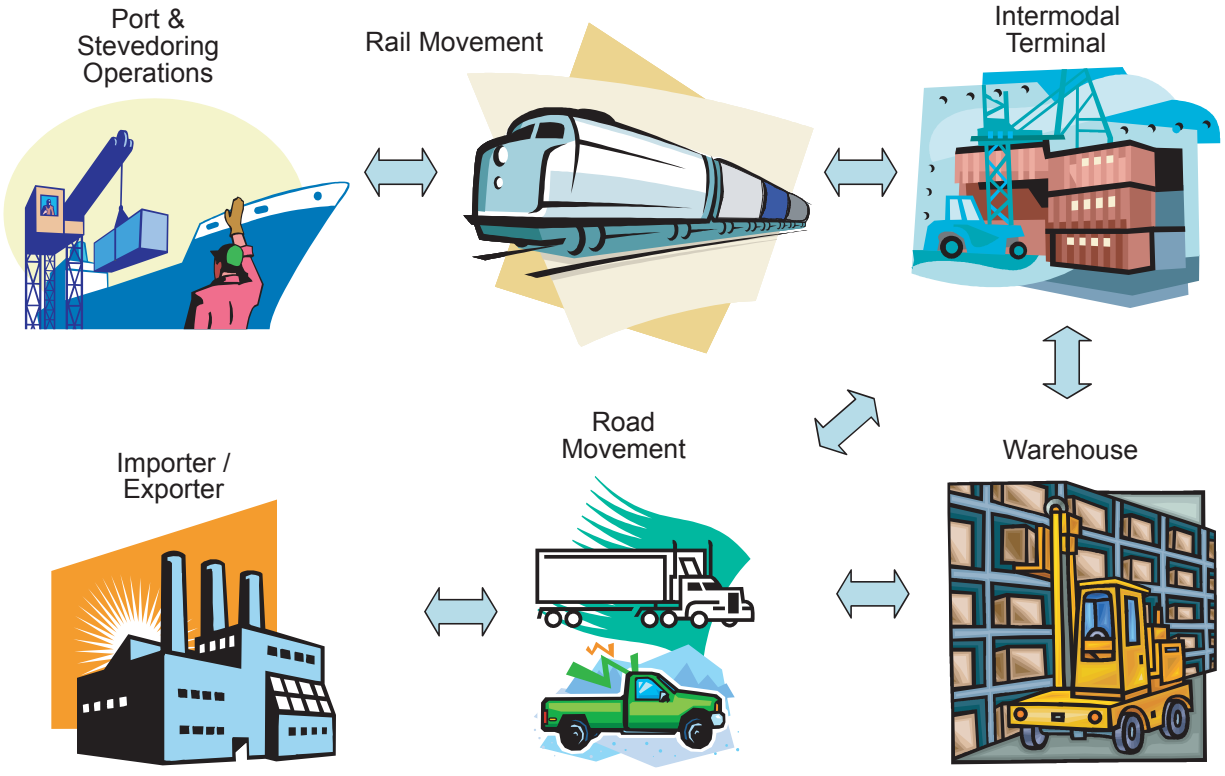
Figure 3-3
Sydney Container Market Catchments

Transport Chain Using Intermodal Logistics Centre



Intermodal Logistics Centre at Enfield

Figure 3-4
Logistics Chain for Road/Rail Based Transfer of Containers

3.2 Requirement for Increased Freight to be Transported by Rail

3.2.1 Predictions of Growth in Freight

This growth in container freight has a number of planning implications, and these have been acknowledged by the NSW Government in the development of strategies for port freight growth (see Section 3.3).

These planning implications include the need to balance NSW's economic drivers and the aspirations of a consuming population with the environmental and social consequences of increased growth in road freight traffic through metropolitan Sydney. Traffic congestion, air pollution and noise impacts are all issues in which there is a community expectation for integrated planning. To manage this rate of growth and its consequences, the government has sought to increase the use of rail to carry containers from Port Botany to the distribution centres in metropolitan Sydney. A goal has been set of 40% of freight containers to and from Port Botany to be carried by rail by 2011.

For the NSW Government to achieve its goal of 40% of containers carried by rail through the port by 2011, then 700,000 TEUs will need to be carried on rail. Similarly, by 2016 the total TEUs through the port will be about 2.2 million TEUs, and 40% rail share will be approximately 880,000 TEUs, by 2021 the numbers will be 2.6 million TEUs and 1.04 million TEUs respectively, and by 2025 they will be 3.2 million TEUs and 1.28 million TEUs respectively (refer **Table 3-1**).

Table 3-1: Projected Container Volumes by Rail - Target 40%

Year	Port Botany Volume (TEUs) (million)	Approximate Volume on rail (TEUs)	Percentage on rail
2005	1.3	275,000	21%
2011	1.75	700,000	40%
2016	2.2	880,000	40%
2021	2.6	1.04million	40%
2025	3.2	1.28million	40%

3.2.2 Existing Freight Lines and Intermodal Terminals

The key requirements for the future growth of container rail freight is the provision of an adequate freight rail system and a network of intermodal terminals for the loading and unloading of the containers and their distribution within the relevant catchment areas.

A dedicated rail freight line exists between Port Botany and Enfield / Chullora, a distance of approximately 18km. There is also a freight rail link to the port at White Bay which joins the main Botany-Enfield line at Wardell Junction in Marrickville, although this line is currently not heavily used.

A freight line extension extends from Chullora to Sefton Junction (about 2.5km) to the west. From Sefton Junction to the Macarthur Region freight trains traverse and share the passenger network on the main southern line. A proposed dedicated rail freight line from Sefton Junction to Macarthur is subject

to investigation at present and an Environmental Assessment (EA) for the proposed Southern Sydney Freight Line is currently being prepared by Australian Rail Track Corporation (ARTC). A further freight line extension runs from Enfield to Flemington Junction, Strathfield and North Strathfield (about 5 km) to the north, where freight trains then share the passenger network on the main northern line to Hornsby via Epping.

Freight trains travelling (from Enfield/Chullora) to Sydney's west and to western NSW share the passenger rail network on the main western line from Lidcombe to St Marys and beyond. Intermodal terminals serviced by these lines via dedicated freight or shared lines are at:

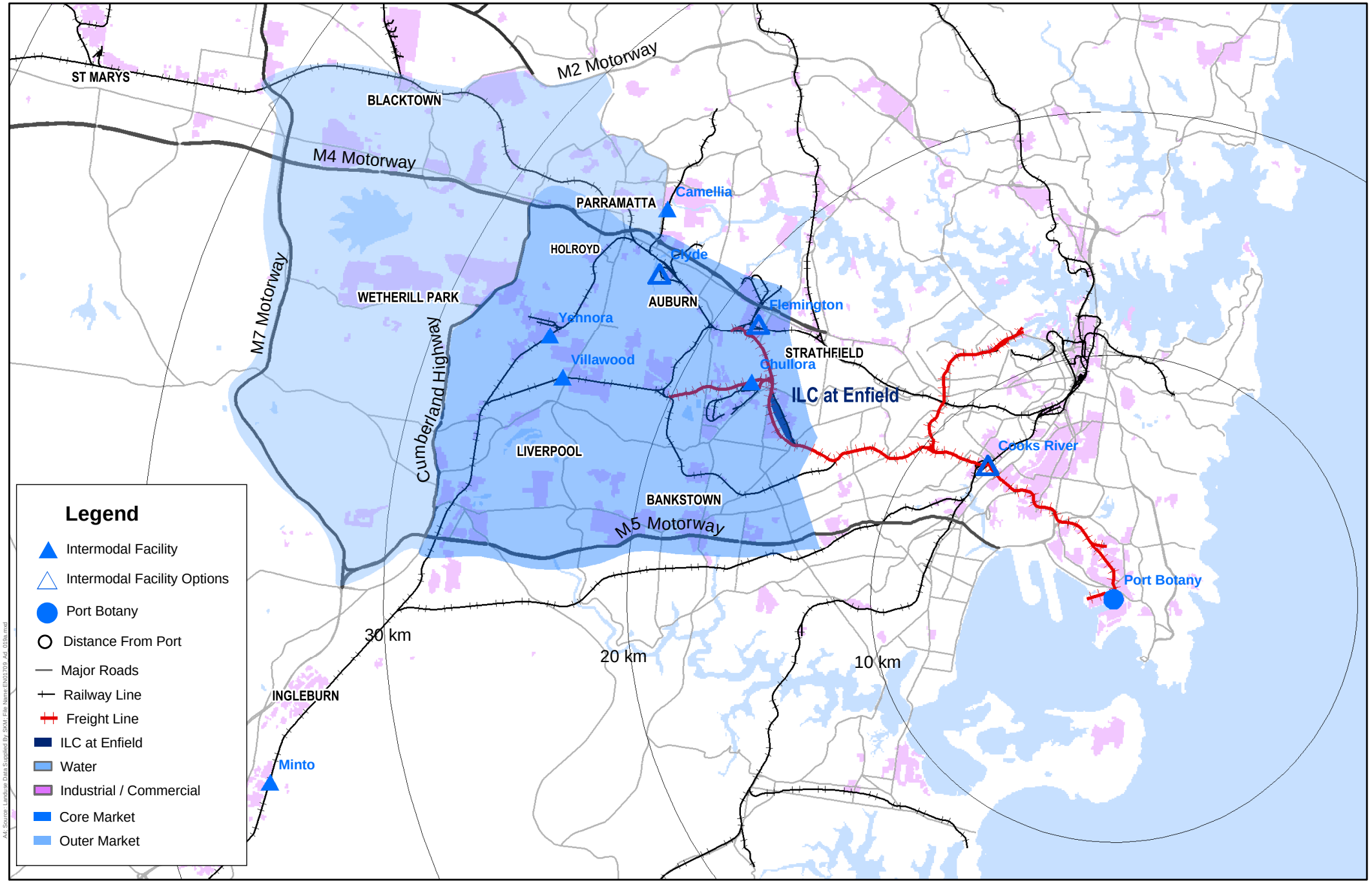
- Minto, near Macarthur. Access from Port Botany is via the shared passenger rail network after Chullora;
- Camellia. This is located near Parramatta and rail access from Port Botany is restricted to outside morning and afternoon peak passenger hours;
- Yennora. This is on the main southern line, and rail services to Port Botany are restricted to outside the morning and afternoon peak passenger periods; and
- Leightonfield/Villawood. This is located to supply its main market of Smithfield and Wetherill Park. Rail access to the port is restricted as freight rail shares the passenger network after Lidcombe.

In addition there are approvals in place or under consideration for intermodal terminal developments in the south west at both Minto (Austrak) and Ingleburn (Patrick). The completion of the Southern Sydney Freight Line would improve freight rail access to both Minto and Leightonfield/Villawood.

Other intermodal facilities include:

- Cooks River, near St Peters. This site is predominantly used for the storage of empty containers. It is on the dedicated freight line to Port Botany, and is about 7 km from the port; and
- Chullora, north west of Enfield. Owned by Pacific National this is Sydney's principal interstate freight terminal and is not currently used for the transport of international import or export containers. Interstate rail volumes are forecast to increase between two and fourfold in the next twenty years. It is therefore unlikely that Chullora will have the potential to form part of the intermodal network servicing international trade through Port Botany.

Freight rail connections and existing intermodals are shown in **Figure 3-5**. It should be noted that, with the exception of Minto which was built as an intermodal terminal, all other sites are adaptations of old rail sidings and are limited in their opportunities for expansion due to constraints in siding lengths or area for expansion.



Intermodal Logistics Centre at Enfield

Figure 3-5
Freight and Rail Network, Intermodal and Market Catchment for Proposed ILC at Enfield

3.3 Policy Context

3.3.1 Port Freight Plan

In October 2003, the NSW Government announced the Ports Growth Plan. The plan provides a framework within which the Government, industry and the community will work to ensure growth and development of port capacity in NSW. One of the core directions of the plan is the requirement to examine how to increase the proportion of containers moved by rail from the ports to intermodal terminals in the Sydney metropolitan area and regional NSW. To this end, in December 2004 the NSW Government announced the first stage of the Port Freight Plan (PFP) for Sydney. The key objective for the PFP is to develop ways by which freight volumes on rail could be increased as a means to manage the growth of road freight. The Government has set a target of 40% of freight containers into and out of Port Botany to be carried by rail by 2011. As the number of freight containers handled through the port will have grown to about 1.75 million TEU by 2011, achieving the goal of 40% would reduce the growth of truck movements on the road by 300-400,000 per annum by 2011.

A part of the PFP was the establishment of the Freight Infrastructure Advisory Board (FIAB) in February 2005 to provide advice to the Government on:

- The options for a Freight Infrastructure Charge with the objectives of encouraging the use of rail and funding freight infrastructure projects;
- The design of an intermodal terminal network to improve freight distribution;
- The infrastructure required to service the intermodal network; and
- Potential changes to work practices to maximise the efficiency of truck haulage and other strategies to minimise unnecessary movements of containers across the city.

The FIAB (2005) report has been released by the NSW Government and is currently on public exhibition for comment.

3.3.2 Intermodal Network Concept Development

The concept of a network of terminals to serve the Sydney market balances the needs for scale and efficiency at any one terminal with the preference to locate terminals close to the market, thus reducing the trucking distance to and from the terminal to the distribution points.

The NSW Government has identified key areas that require further intermodal development to support specific market catchments. These are the outer west, south west and inner west. The FIAB has indicated that, as part of the existing intermodal system, larger terminals in western and south western Sydney will be needed and a number of locations, close to the Sydney Orbital road network, are being considered. One option identified to service western Sydney was in the Eastern Creek / Ropes Creek area. Another option to service south western Sydney was for development on Defence land at Moorebank. Both of these areas are experiencing significant industrial growth. Proposals also exist for further development at Minto and new development at Ingleburn (in the south west).

The FIAB also indicated that, notwithstanding the industrial growth in the west and south west, there is a need for an intermodal facility in the central western Sydney industrial area to meet local and sub-regional requirements, and that the proposed site at Enfield should be developed for that purpose.

3.4 Proposed Intermodal Terminal at Enfield

3.4.1 Development of the Enfield Intermodal Concept

Sydney Ports has been actively involved in land logistics developments for several years. This interest has focussed on improving the road interface and promoting the use of rail to/from the port. In 1995 13% (79,000 TEUs) of the trade was moved by rail, in 2003 this had grown to nearly 25% (255,000 TEUs). However, whilst the absolute volumes have remained static the rail mode share has fallen away in the last two years to 21%, due to the significant growth in port trade. Static rail volumes also mask two issues being continued growth in the important metro rail market and a drought related decrease in regional exports. Achieving 40% on rail by 2011 will only happen through growth in the metropolitan rail market. Sydney Ports purchased and consolidated the Enfield site progressively from 2001, with the view to developing an intermodal terminal capable of serving the inner western area of Sydney. The site was selected due to:

- Its direct connection by dedicated freight line to Port Botany;
- Other linkages to the rail network, and ultimately to Newcastle and Port Kembla;
- It could be developed to handle long trains (up to 1,500 metres);
- Its proximity to the catchment market;
- It had good connections to the metropolitan road network (Roberts Road and Hume Highway); and
- It was of a suitable size, zoned for rail use, and available for redevelopment.

The original concept developed by Sydney Ports in 2001 included:

- An intermodal terminal capable of handling 500,000 TEUs per year;
- Six rail sidings, on both the eastern and western sides of the site;
- Two road access points; and
- Limited warehousing, administration and container storage areas.

Sydney Ports commenced the preparation of an EIS for this project in 2001. The EIS was suspended in March 2002 following a decision by the then NSW Government Minister for Transport to hold an independent review of the proposal. The review was conducted by The Hon Milton Morris AO and he provided his report to the NSW Government in February 2003.

3.4.2 Independent Review of the Proposed Enfield Intermodal Terminal

The terms of reference for the Independent Review of the Proposed Enfield Intermodal Terminal undertaken by The Hon Milton Morris AO (referred to as Milton Morris (2003)) were:

- To review the background for the Sydney Ports' proposal;

- To identify community concerns related to the proposed development and prioritise key issues; and
- To advise the NSW Government over the suitability of the site and alternative sites, taking into account community and economic considerations.

Milton Morris (2003) concluded:

- Sydney is facing rapidly growing container trade demand and there is a need for additional intermodal terminal capacity in Sydney. This capacity needs to be well planned;
- The principle of intermodal terminals demands that there should be numerous small facilities spread across the metropolitan areas in order to maximise the distance containers travel by rail and minimised the distance travelled by road. A major reassessment of intermodal demand and potential sites is required; and
- The development of the Enfield site as proposed in 2001 would constitute an overdevelopment, and should not proceed.

Sydney Ports support the principles contained in the Milton Morris (2003) review. Consistent with the concept of a network of intermodal terminals in the Sydney Metropolitan Area, Sydney Ports has instead sought approval for the development of a terminal with a throughput 40% smaller than that previously proposed in 2001. This will supplement the existing intermodal network within Sydney and at the same time form part of a larger intermodal network throughout the metropolitan region.

The new proposal for the site at Enfield fits within a likely pattern of approximately three, larger intermodal facilities to complement the existing smaller intermodal facilities. This fits within the framework of the conclusions to the Milton Morris (2003) review and at the same time provides the required volume to achieve an increase in the transfer of freight to rail from the road network. It further reduces external impacts by providing for warehouses on the site, thereby internalising the movement of a significant proportion of full containers from the rail and loading point to the warehouse.

The proposed Sydney Intermodal Logistic Centre (ILC) at Enfield is described in detail in Chapter 4 – Project Description but the following features should be noted in the context of the previous proposal and the Milton Morris (2003) review:

- The scale of the intermodal area in its capacity has been reduced from previous proposals, providing the land to serve a specific catchment within the Sydney metropolitan area as part of a larger network of intermodals serving the Sydney region;
- A significant proportion of the containers will be taken to warehouses on site, unpacked and the goods sent by light commercial vehicle to receivers in the catchment area. This will eliminate a significant number of container movements on the road. The warehouses will be developed on the site as required and as the growth of trade in the area continues; and
- Provision is made for empty container storage on the site. This will provide the storage areas for containers from the warehouses before they are repacked and returned to the port, returned to the port empty or reused elsewhere in the catchment for the transport of goods to the port for export.

The new proposal ensures that the proposed ILC supports only a subregional catchment rather than the entire metropolitan region and through the provision of on-site warehousing, reduces external impacts of heavy vehicles transferring containers from the rail and loading point to warehouses. At the same time it provides a size and critical mass to support the achievement of the 40% rail mode share goal.

3.5 Market Catchments for Container Distribution

3.5.1 Distribution of Containers

Analysis undertaken in recent years suggests that there are four main markets for container movements to and from the port (see **Figure 3-3**). These are the Port Botany area itself, the inner and middle west, south west and far west. The Port Botany market is one that will always be served by truck directly due to its proximity to the port facilities. However, the other three areas all have the potential to increase rail utilisation. They each have distinct market areas and this drives the concept of a network of intermodal terminals designed to best serve each market. Sydney Ports has concentrated its attention on the inner and middle west of Sydney for a number of reasons, namely:

- The existence of a mature market base;
- Direct connection to the Port Botany freight line; and
- The opportunity to deliver an integrated solution on-site.

The geographical boundary of the market area for the ILC, which forms the inner and middle western catchment area is shown in **Figure 3-5**.

By a number of separate assessments the market area for the ILC represents between 35-55% of Sydney's import trade and has the trade demand to support a significant shift to rail. In 2000, Sydney Ports commissioned Thompson Clarke Shipping (TCS) to undertake an Origin / Destination survey of containers. The survey identified and tracked the origin and destination of 9,500 full container (12,750 TEUs) movements. This number represented approximately 25% of the full container road movements within metropolitan Sydney during the period of the survey. The survey found that 85% of the containers do not move beyond 40km from the port. It also showed that 56% of full import containers and 23% of full export containers are being delivered to or originate from Sydney regions which would fall within the areas which could be defined as the inner and middle western areas of Sydney. These figures are shown in **Table 3-2**.

More recently the NSW Sea Freight Council (SFC) (2003) undertook a study on "container mapping" that identified container movements for metropolitan Sydney and NSW regions. The study results in **Table 3-3** indicate that more than 70% of imports and 29% of exports are centred on the LGAs generally described as inner and middle western Sydney.

■ **Table 3-2: Distribution of Containers within Sydney (TCS 2000)**

Sydney Region	Import %	Export %	Total %
Central west – Auburn, Bankstown, Parramatta	20.0*	9.1*	16.7*
Industrial west – Fairfield, Holroyd	13.2*	4.2*	10.4*
Blacktown	10.8	3.8	8.6
Liverpool	8.7	1.8	6.6
North Shore – Ryde	1.6	0.1	1.1
Inner west – Concord and Strathfield	1.7*	3.6*	2.3*
Total - Inner & Middle Western Sydney	**56.0**	**22.6**	**45.7**
Sub-total – Core (*) Market Area	**34.9%**	**16.9%**	**29.4%**

■ **Table 3-3: Results of Sea Freight Council Surveys**

Local Government Area	Imports %	*Exports %
Bankstown #	25	13
Fairfield #	15	5
Parramatta #	12	11
Blacktown #	11	-
Botany Bay	8	6
Campbelltown	7	5
Holroyd #	5	-
Auburn #	3	-
Willoughby	2	-
Leichhardt	2	-
Total	**90**	**40**

* More than 50% of exports are agricultural products generated from regional NSW

\# Inner and middle western Sydney area

3.5.2 Market Demand for a New Intermodal Facility

Using the TCS and SFC data Sydney Ports has assessed the potential market for an intermodal facility at Enfield by examining the volume of imports and exports delivered to or coming from the inner and middle western areas of Sydney. In addition, the projected trade growth for the region, the existing industrial / commercial areas, potential for growth of these areas within the catchment, and capacity levels and locations of other intermodals facilities which could serve this demand have all been taken into account. The potential catchment for the proposed facility at Enfield is shown in **Figure 3-5**.

This catchment of inner and middle western Sydney comprises predominantly the LGAs of Auburn, Bankstown, Parramatta, Fairfield, Holroyd, Blacktown, Liverpool, Ryde, Concord and Strathfield. A potential market of 700,000 TEUs exists within this catchment area. This was derived from the distribution outlined by the studies reviewed above and recent Sydney Ports' trade figures. Areas further west or south west would be serviced by other intermodal facilities (existing and proposed). Areas to the east would be more likely supplied directly from the port.

Existing intermodal terminals (Leightonfield/Villawood, Camellia and Yennora) service market areas overlapping the proposed Enfield catchment area. The present annual activity at these terminals is assessed as totalling about 120,000 TEUs and their capacity is estimated at about double this number. On this basis, the market for another intermodal, by 2011, is approximately 500,000 TEUs. The long-term demand, assuming the catchment represents 35% of Sydney's import market, would be in excess of 700-800,000 TEUs. A 40% rail mode share of this number is in line with the proposed throughput at Enfield of 300,000 TEUs. The actual extent of the operational catchment area for Enfield will be established by commercial drivers, with importers and exporters choosing to use the facility where it adds value to their supply chain. It will vary for each business but all price and value modelling suggests that the catchment shown in **Figure 3-5** is a reasonable definition.

3.5.3 Development in the Market Catchment Area

CB Richard Ellis (CBRE, 2005) undertook an assessment of the industrial property across metropolitan Sydney as it may relate to the possible catchment for an intermodal facility at Enfield. CBRE (2005) noted that over the past 15-20 years Sydney has moved from a manufacturing base towards intensive uses such as warehousing and factory units. This trend has been driven by increased land values which have significantly improved logistic efficiencies along key arterial routes and rail networks. Industrial tenants have been relocating to areas of greater transport accessibility. The surveys undertaken indicated that undeveloped and developed industrial land in Sydney is about 9,800 ha, of which some 36% or 3,500 ha is located within the LGAs defined as the inner and middle western area of Sydney. This percentage is consistent with the share of containers destined for the area and provides further evidence of the strength of the market catchment (see **Figure 3-6**).

In addition to reinforcing the catchment area the CBRE (2005) report also looked at vacant land holdings. Notwithstanding the high levels of industrial land (including distribution centre floor space) within the area, the existing high utilisation of that land and the rates of growth predicted in the area suggest that the development of warehousing on the proposed site at Enfield would complement other warehousing in the catchment. Indeed, it would provide a resource which is likely to become in short supply in the area as growth occurs.

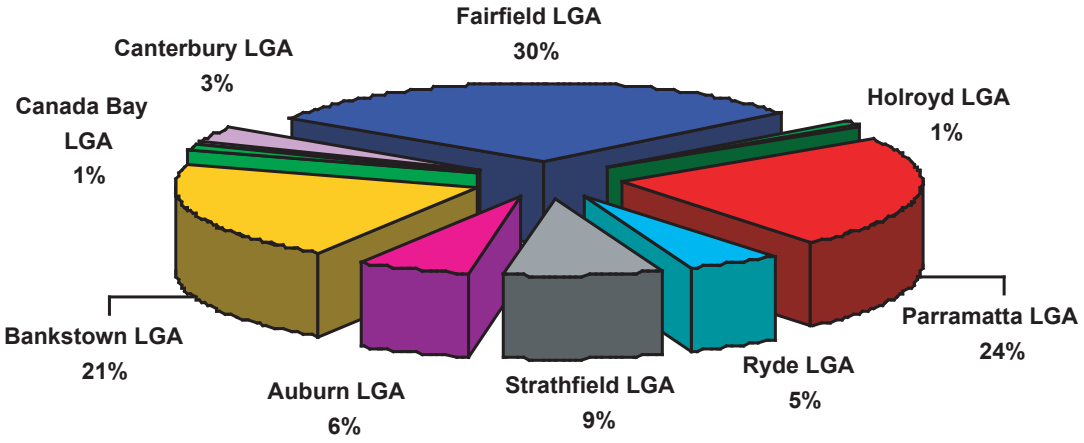
3.6 Alternatives to the Proposal

SPC investigated alternative sites for locating an intermodal logistics centre able to service the market area of inner and middle western Sydney. A similar exercise was undertaken by Rail Infrastructure Corporation (RIC, 2003). Although that study was looking at alternatives for an intermodal terminal for south west and outer western Sydney, a number of the sites considered in that study are relevant to the study area for this project.

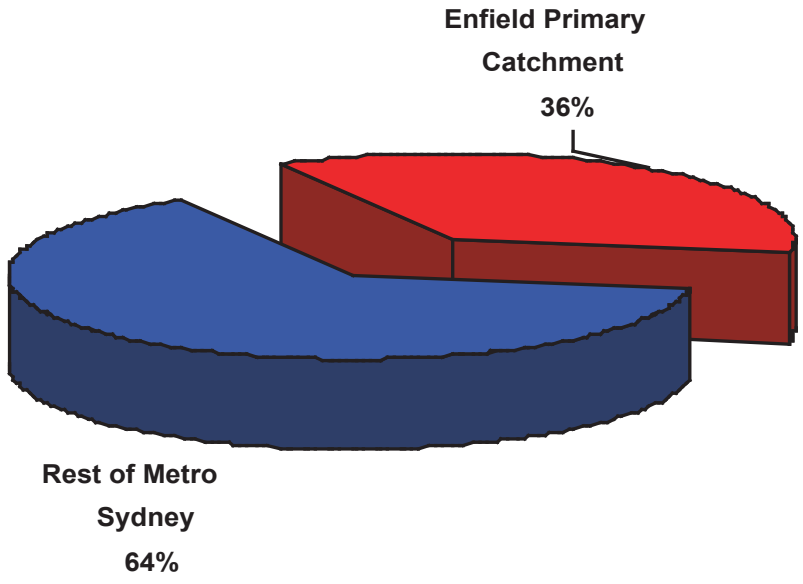
3.6.1 Criteria for Assessing Alternatives

The criteria for assessing alternative locations for an intermodal facility within the proposed catchment are outlined in **Table 3-4**. These criteria are consistent with the criteria used in the RIC (2003) assessment. The criteria need to be viewed in the context of the site's ability to deliver a terminal of sufficient scale and capacity to assist in the strategy of achieving 40% of port volumes by rail.

Metro Sydney Industrial Stock: Developed & Undeveloped Land



Note: Total Enfield Primary Catchment Undeveloped & Developed Industrial Zoned Land: 3,549 Ha.



Note: Total Metro Sydney Undeveloped & Developed Industrial Zoned Land: 9,862 Ha.

Source: CBRE Consulting

Intermodal Logistics Centre at Enfield

Figure 3-6
Distribution of Industrial Zoned Lands in Sydney

3.6.2 Alternatives Considered

A number of sites within and close to the catchment area were considered. These comprised:

- Existing intermodal terminals;
- Other sites, but only if they were on an existing rail link. It was not considered worthwhile assessing sites unable to meet this criterion, as the costs for constructing dedicated rail links within this part of Sydney would be prohibitive.

Table 3-4: Site Assessment Criteria

Criterion	Description
Proximity to market base	The site would need to be located within the area it serves to avoid extra freight costs and delays in delivery, as well as environmental and social issues associated with long distances for truck transport to the catchment
Operational suitability	The physical attributes of the site would include a large, contiguous land area to accommodate an intermodal area, warehousing, container storage and other buildings, as well as site features such as flat topography and length to handle freight trains
Rail access	The site would need to be on or near an existing rail line network with minimal potential problems caused by existing passenger rail operations and limited new rail infrastructure required
Major road access	The site location should allow easy access for trucks to the arterial road network to minimise effect on residential streets
Compatibility with surrounding land use	The site use should be compatible with adjacent land uses, particularly with regard to potential impacts from rail and truck noise
Availability for use	The land needs to be vacant or available for a change in use from its present operation
Other environmental constraints	The site should not be subject to environmental constraints, such as ecological or heritage issues

The sites considered as alternatives are shown in **Figure 3-5**, and are described in **Table 3-5**.

Table 3-5: Alternative Sites for Proposed ILC

Site	Description
Cooks River	Site is in the process of being purchased by Sydney Ports and operates predominantly as an empty container terminal
Leightonfield/Villawood	Site is owned by Mannway, and is primarily used for the transport of steel products between manufacturing and distribution centres.
Camellia	Site is owned by Patrick. It has a rail siding that can hold up to 90 TEU. There is a daily service to Port Botany and a country service. A warehouse is located on the site, along with an empty container park.
Yennora	Site owned by Stockland Trust Group and includes the former wool sheds. Adjoins adjacent industrial development at Yennora and Smithfield, and some expansion is possible as it adjoins existing industrial park.
Chullora	Existing Chullora facility owned and operated by Pacific National. Used primarily for the interstate transfer of domestic freight containers.
Clyde	Existing Clyde marshalling yard, including the new Collex waste consolidation centre.
Flemington	A mix of land, industrial zoned land including a former land fill site
Enfield	About 60 ha site at the former Enfield Marshalling Yards. Owned by Sydney Ports and is currently unused (except for some limited lease arrangements to Pacific National and Toll).

3.6.3 Assessment of Alternatives

The results of the assessment of the potential alternatives listed above is provided in **Table 3-6**. No attempt was made to score each criterion for each site, but it is clear that only one site meets all of the criteria listed.

Table 3-6: Site Assessment

Site	Assessment against Criteria
Cooks River	- Located to the east of the market base and too close to the port - The yard does not have the capacity or land area to accommodate a new facility and is not long enough to handle 600m trains. - Road access is reasonable, off Princes Highway. - Surrounding land uses are primarily industrial - Land is fully used and no expansion opportunities are evident - No environmental constraints evident.
Enfield	- Located at eastern edge of market base - Site provides sufficient vacant land for the facility and could accommodate long trains and container stacking areas. - Rail access is good due to the existing dedicated freight line. - Road access is good via Roberts Road / Centenary Drive, Hume Highway, M4 & M5 - Ecological and heritage issues can be managed. Potential Impacts of noise and traffic on residential areas can be managed - Land is mainly vacant and available for development - Adjoining land use industrial. Some residential areas nearby.
Chullora	- located at eastern edge of market - existing intermodal used for inter-state freight - good rail (existing freight rail line) and road (Roberts Road, Hume Highway, M4 and M5) access - few ecological or heritage issues - forms part of existing industrial complex - Limited space for expansion to accommodate additional freight
Leightonfield / Villawood	- located in middle of market base - existing intermodal with limited area for expansion - Rail access is restricted by passenger line operations - road access is reasonable (Hume Highway) - generally surrounded by industrial uses - few ecological or heritage issues - Opportunities for expanded capacity limited.
Flemington	- located at north eastern end of market base - Former landfill site and has geotechnical constraints to development - Good access to rail and road networks - Surrounding land use a mixture of industrial and residential. Further development has potential for impacts on residential - few ecological or heritage issues - Other vacant land available is limited.

Clyde	- located at northern end of market base - Site supports existing marshalling yards - Some intermodal facilities exist. Space for sidings too small - Good road access - Rail access restricted due to passenger line constraints - Located within industrial area - few ecological or heritage issues - Vacant land limited, insufficient for sidings and container stacking areas.
Camellia	- located at northern end of market base - Site currently used as an intermodal terminal, but limited space for long trains - Good road access to M4 and Hume Highway - Rail access is restricted by passenger line operations - Surrounding land use is industrial - few ecological or heritage issues - Opportunities for expanded capacity limited.
Yennora	- located in middle of market base - Site currently used as an intermodal terminal, but little opportunity for expansion and provision for long trains. - Rail access is restricted by passenger line operations. Opportunities for expanded capacity limited - Road access is relatively poor - few ecological or heritage issues - adjacent land use mainly industrial, with some residential on Denistoun Ave.

The former Enfield Marshalling Yards is considered the most appropriate site to service the market catchment as:

- It is located within the market catchment it would serve;
- Its proximity to market would reduce trucking distances and increase the reliability of delivery times compared to the alternate direct delivery form Port Botany;
- It has a dedicated freight rail link to Port Botany and no constraints relating to the sharing of the passenger network;
- It is served by a major road system, allowing the distribution of freight from the site to the industrial areas in the catchment via the main roads such as Roberts Road, Centenary Drive, Hume Highway, the M4 and the M5 Motorways;
- It is compatible with surrounding industrial land uses. Development around the site is such that separation from container handling operations from residential development is possible;
- The land area available is suitably zoned, having previously been developed and used for rail operations and is adequate to deliver an integrated solution combining an intermodal terminal, warehousing and container storage facilities;

- Site environmental issues such as ecology and heritage can be managed adequately; and
- It has the greatest potential to contribute to Government's 40% rail mode share target

Consideration was not given to sites outside the inner and middle western catchment area. As noted earlier, sites in western Sydney such as St Marys and in south western Sydney such as Ingleburn and Minto are being considered for future intermodal facilities to service their respective market areas. It is considered improbable that a container freight operation would carry cargo to those sites by rail, to have it brought back to the inner and middle western areas by truck. These costs would be much greater than direct trucking to the catchment area from Port Botany.

3.7 Consequences of the Proposal Not Proceeding

There exist two possible outcomes in the context of container freight management should the site not be developed as an intermodal logistics centre.

3.7.1 Forty Percent mode share is not achieved

Without development at Enfield it will be more difficult to achieve a 40% rail mode share by 2011. If the Government does not progress towards its goal of 40% rail share of containers to and from Port Botany, due to the lack of development of an intermodal network and other freight infrastructure needed to support it, then the outcomes would be:

- Congestion at the port and reduced overall efficiency in freight handling; and
- Further increases in truck traffic to the inner and middle western catchment as truck movements from Port Botany to the catchment and back continue to grow at a rate above the natural growth on the road network. This extra growth would be similar to the projected growth in container input growth.

3.7.2 Relative truck growth and lost economic opportunities

Should the project not proceed as an ILC at Enfield, it would result in:

- A relative increase in truck traffic on the road network, carrying containers from Port Botany to the market catchment of the inner and middle western suburbs of Sydney. This increase in truck traffic would be greater than that which would normally occur on the road network. The environmental and social consequences of this relative increase are addressed in the following chapters of the EA;
- Lost employment and economic development opportunities in the area. Following chapters demonstrate the economic and social benefits associated with the development of the site at Enfield as an ILC. This is not to say that some other form of development may occur on the site which has social and economic benefits for the local and possibly wider community, but the assessment of these options was not considered part of this EA.

3.8 Summary of the Need for the ILC

Port Botany accounts for about 97% of container movements through Sydney's ports. To assist in handling the projected increase in container freight, land transport arrangements need to be enhanced, primarily to improve the efficient transfer of goods to their markets. Without any improvement in the capacity of the container transport chain, it is likely importers and exporters will experience delays in cargo movement which will, in turn, result in higher costs and unreliable supply.

The NSW Government has committed itself to an increase in the amount of freight carried by rail to and from Port Botany from its current level of about 21% of the current 1.3 million TEUs, to its goal of 40% of the projected 1.75 million TEUs in 2011. The ILC at Enfield is part of this plan, and without it the achievement of a 40% rail mode share by 2011 is unlikely. The delivery of the ILC at Enfield will ensure that the potential adverse economic outcomes listed above will be avoided and environmental impacts associated with the delivery of container freight by road will also be reduced.

This transfer of freight from road to rail will be achieved by the development of a network of intermodal facilities within metropolitan Sydney. Sydney Ports and the NSW Government have identified the need for an intermodal facility to service the inner and middle western suburbs of Sydney. The former Enfield Marshalling Yards are the most appropriate location for that facility.

Such a facility at Enfield would contribute to:

- The development of a network of intermodal terminals for the distribution of imports and exports specifically targeting containers whose origin or destination is in the inner and middle western area of Sydney;
- The Government's requirement for a shift in mode share from road to rail in relation to Port Botany;
- A reduction in the growth of truck movements (and vehicle kilometres) on road networks between Port Botany and inner and middle western Sydney;
- An increase in reliability in the logistics chain with associated economic and commercial benefits;
- Environmental improvements associated with reduced truck movements, especially air quality and green house gas emissions; and
- Job creation and wider economic benefits, both locally and regionally.