

# **Intermodal Logistics Centre at Enfield Environmental Assessment**

## **CHAPTER 8**

### **RAIL TRAFFIC AND TRANSPORT**

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## 8. Rail Traffic and Transport

*This chapter addresses issues associated with the operation of the existing freight rail connection between Port Botany and the proposed Intermodal Logistics Centre (ILC) site at Enfield. It considers issues raised by the Director-General relating to the forecast numbers of train movements on the rail line, the Inteplan Rail Simulation Study and the integration of the forecast freight train numbers with the operation of the rest of the rail network.*

### 8.1 Existing Freight Rail Network

#### 8.1.1 Freight Rail Network

Sydney's existing freight rail network is shown in **Figure 8-1**. A dedicated rail freight line exists between Port Botany and Enfield / Chullora, a distance of approximately 18 km. 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.

A freight line extension to the south west exists from Chullora to Sefton Junction (about 2.5 km) to the west of Enfield. From Sefton Junction to the Macarthur Region freight trains traverse and share the passenger network on the main southern line.

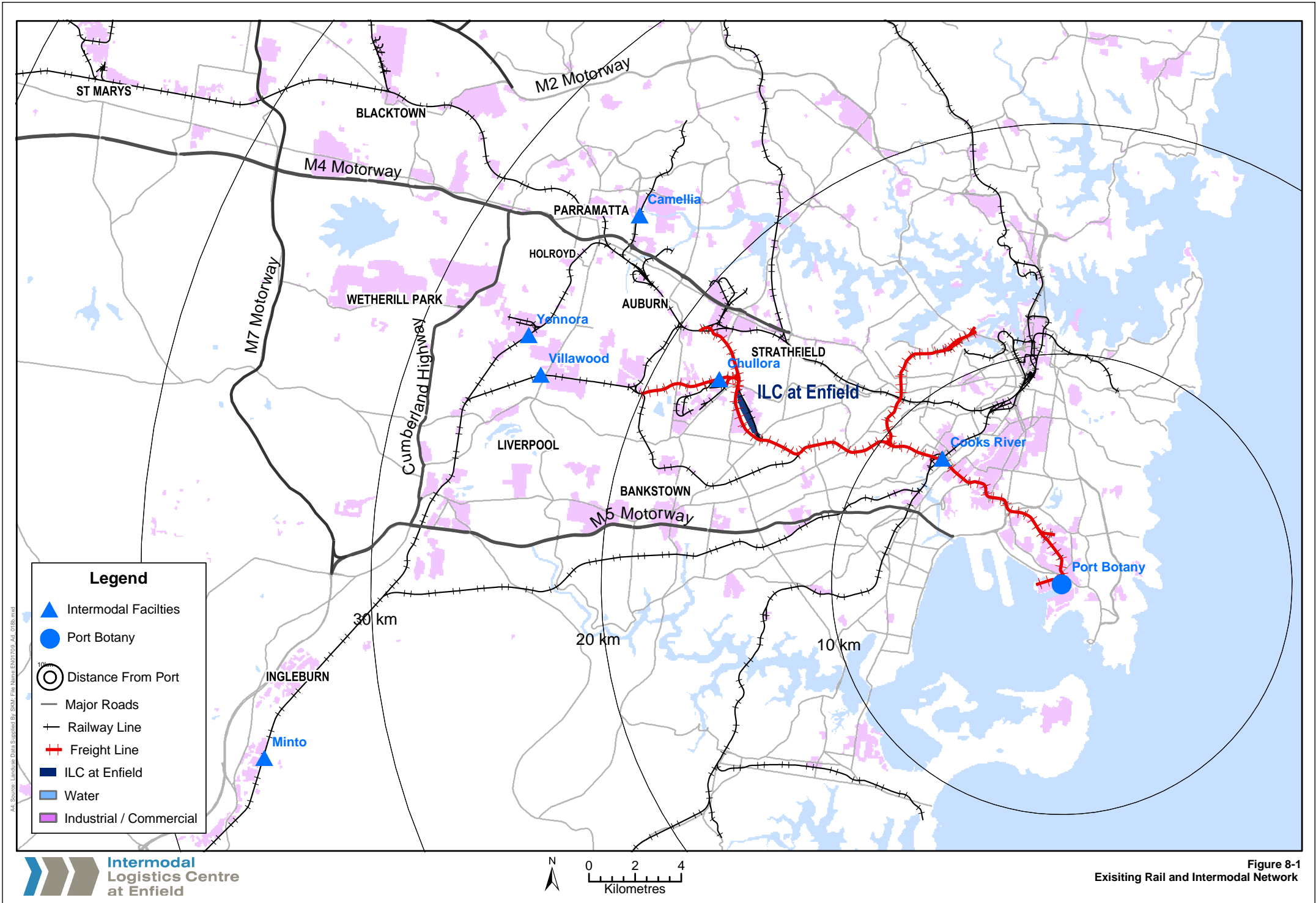
A further freight line extension to the north runs from Enfield to Flemington Junction, Strathfield and North Strathfield (about 5 km) to the north of Enfield, where freight trains then share the passenger network on the main northern line to Hornsby via Epping.

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.

#### 8.1.2 Metropolitan Intermodal Terminals

Intermodal terminals are facilities which allow for the exchange of containers between rail and road. There are five intermodal terminals in the Sydney metropolitan area that service Port Botany, comprising Yennora, Minto, Camellia, Leightonfield/Villawood and Cooks River (**Figure 8-1**). All of these intermodal terminals, except Cooks River, serve the port via a combination of the shared metropolitan rail network and dedicated freight rail network. Priority is given to passenger trains on the shared metropolitan network. This represents a significant constraint to rail freight efficiency, particularly during the peak commuter hours and when curfews prevent any activities by freight trains on the metropolitan rail network.

Chullora is also an intermodal terminal within the Sydney metropolitan area, owned and operated by Pacific National and serves the domestic interstate market.



### 8.1.3 Port Botany to Enfield Rail Line

The existing freight line between Port Botany and Enfield / Chullora is a dedicated freight rail line. It operates as a single line in its own corridor from Botany Yard to Cooks River, east of the Princes Highway. From Cooks River to Marrickville the line is duplicated. From Marrickville to west of Campsie Station, the freight rail line is duplicated and runs in a shared corridor (separate lines) with passenger trains (Bankstown Line), passing through Dulwich Hill, Hurlstone Park, Canterbury and Campsie. It departs from the shared corridor west of the Loch Street Bridge and proceeds to Enfield and Chullora.

Improvements to the freight rail line have been undertaken and include the following:

- Stage 1, comprising a parallel shunting line, administration building, signalling works and circuitry upgrades in the Botany Yard (completed 2000); and
- Stages 2 and 3, comprising duplication of track from Marrickville to Cooks River and an upgrade of the signalling system from Marrickville to Port Botany (completed 2002).

Stage 4 of the program comprises duplication of the dedicated freight line between Cooks River and Port Botany, grade separation of the General Holmes Drive road level crossing, grade separation of the Banksia Street pedestrian crossing and various other minor works. The timing of these works has yet to be determined.

## 8.2 Rail Access

### 8.2.1 Rail Access to Enfield Intermodal Logistics Centre

The new Intermodal Logistics Centre would be serviced by one through line and two rail sidings located on the proposed ILC site, adjacent to the eastern boundary of the new Enfield Marshalling Yard (as shown in **Figure 4-2a**). These sidings would each be about 920m in length and used for the unloading/loading of containers at the Intermodal Terminal site of the Intermodal Logistics Centre. The through line would be connected at either end by existing turnouts that would interface with the dedicated freight line. The length of the proposed sidings would prevent any blocking of main line traffic and would not impede access to the new Enfield Marshalling Yards.

### 8.2.2 Role of RailCorp and Australian Rail Track Corporation

In June 2004, the NSW and Australian Governments signed a 60 year lease for the management and maintenance of rail track infrastructure, serving interstate routes and the Hunter Valley, with access control transferred to the Australian Rail Track Corporation (ARTC). This agreement affects the management and access of the dedicated freight lines in the Sydney metropolitan area. At present, RailCorp is the current track manager until transitional arrangements are completed. It is anticipated that ARTC will assume control following the completion of the Southern Sydney Freight Line.

### 8.2.3 Achieving Rail Mode Share

The NSW Government has committed to increasing, by 2011, the mode share to rail for container traffic to and from Port Botany from the current rate of 21% to 40%. The Freight Infrastructure

Advisory Board (FIAB, 2005) is advising the NSW Government on ways to meet this target. The development of intermodal terminals, such as that proposed for Enfield, has been identified as a key component in meeting this target.

### 8.2.4 Proposed Rail Infrastructure Enhancements

The Australian Government's AusLink program has allocated \$110 million towards improving interstate freight rail connections in the Sydney metropolitan area, including those between Port Botany and Chullora. The duplication of the last, single rail track section between Cooks River and Port Botany (Botany Yard) has been identified to accommodate future rail freight growth. In addition, the development of the Southern Sydney Freight Line has been proposed and separately funded, which would extend the current dedicated freight network from where it finishes at Chullora through to Macarthur. This option would allow rural trains from the south and trains from Minto and Leightonfield/Villawood to use the dedicated freight corridor, thus reducing loading on the passenger network between these locations and supporting the development of additional intermodal terminals where appropriate. An Environmental Assessment (EA) is currently being prepared by ARTC for this proposal.

## 8.3 Rail Traffic and Transport Issues

### 8.3.1 Freight Rail Throughput

In 2004, about 250,000 TEUs were handled by rail through Port Botany. The existing freight line from Port Botany carries approximately 150,000 TEUs from the existing metropolitan intermodal terminals at Minto, Yennora, Leightonfield/Villawood and Camellia, and a further 100,000 TEUs to and from rural areas. Currently, 21% of port container freight is transported by rail from the port, through the dedicated freight line past Enfield, to existing intermodal terminals and rural areas.

A significant increase in the number of containers handled by rail is required for the NSW Government target of 40% mode share to be achieved. The likely volumes to be handled by Port Botany and the associated mode share by rail are outlined in **Table 8-1**.

■ **Table 8-1: Container Volumes predicted through Port Botany**

Year	Containers predicted through Port Botany (TEU)	40% mode share (TEU)
2011	1.75 million	700,000
2016	2.2 million	880,000
2021	2.6 million	1.04 million
2025	3.2 million	1.28 million

To meet this target, there will need to be a significant expansion of the metropolitan intermodal network. The existing terminals at Minto, Yennora, Leightonfield/Villawood and Camellia have limited options for expansion, but a doubling of their current volumes has been built into the forecast. New intermodal facilities in the inner west, west and south west will be required and will facilitate an increase in TEUs and train numbers along the dedicated freight line.

### 8.3.2 Freight Rail Movements

Existing and future freight train movements along the dedicated freight line between Port Botany and Enfield have been predicted from information provided by RailCorp, Sydney Ports and freight operators. These are shown in **Table 8-2**, and assume the development of a network of intermodal facilities to service the Sydney metropolitan area and improvements to the existing freight rail network to service these intermodals.

■ **Table 8-2: Existing and Future Freight Movements**

Year	Daily Train Movements	Total Daily Train Movements
2005		
Total movements past Enfield		56
Comprising: Movements to/from Port Botany	28	
Movements to / from other locations	28	
2016		
Total movements to/from Enfield or beyond		134
Comprising: Movements to/from Port Botany	94	
(including to / from ILC at Enfield)*	(16)	
Movements to / from other locations	40	
2025		
Total movements to/from Enfield or beyond		166
Comprising: Movements to/from Port Botany	108	
(including to / from ILC at Enfield)*	(16)	
Movements to / from other locations	58	

\* Movements between Port Botany and Enfield will be between 10 and 20, with 16 assessed to be the daily average

There are currently about 56 train movements per day on the dedicated freight rail line past Enfield, comprising about 28 to/from Port Botany (carrying the current 250,000 TEUs per year) and 28 from other sources. These other sources include bulk coal and wheat trains to Port Kembla from western NSW, and domestic freight services to Cooks River and Botany Yard.

**Table 8-2** also shows the expected increase in freight numbers along the line in 2016 and 2025. Most of this growth is due to the increased numbers of containers which will enter the port as the rail mode share increases. Non port related growth will also occur, but at a lesser rate.

When the proposed ILC at Enfield reaches capacity (throughput of 300,000 TEUs) in 2016, the contribution of trains to and from the ILC would be small, comprising between 10 and 20 train movements per day (average 16 per day). These movements would be part of 94 movements to and from Port Botany and the total 134 movements on the freight rail corridor past Enfield. Given the NSW Government target of achieving a mode share of 40% by rail for transporting containers to and from Port Botany, the projected train movements for Enfield would still occur if the proposed ILC at Enfield did not proceed, but would instead travel to an alternative intermodal site in the west or south west of Sydney. Importantly, there would be no reduction in predicted train movements and the rail

capacity in the network would still be required. This is especially important in areas west and south-west from Enfield, where limited train paths are shared by passenger and freight services.

### **8.3.3 Freight Rail Capacity**

A Rail Simulation Study was undertaken by Inteplan (2004) to review port related container movements through the Sydney freight rail network and identify the issues needing to be addressed to achieve the handling of 40% of the 3.2 million TEU movements through Port Botany in 2025.

Dynamic simulation modelling was undertaken to assess the capacity of the rail/freight network to handle a 40% mode share of container throughput at Port Botany (1.28 million TEUs predicted by 2025). The approach to this modelling was supported by the (then) Department of Infrastructure, Planning and Natural Resources (DIPNR), RailCorp and the Ministry of Transport. Possible operational and infrastructure options were also examined, including rail network infrastructure, rolling stock requirements, container handling equipment and port terminal design.

RailCorp has confirmed that the existing freight line has the capacity to move up to 500,000 TEUs, compared with the current rail volumes of 250,000 TEUs. For the dedicated freight line between Port Botany and Enfield to carry the anticipated 1.28m TEUs by 2025, track duplication between Cooks River and Port Botany will be required, including grade separation of General Holmes Drive, as well as construction of other intermodal facilities. The timing of the track duplication would be required between 2011 and 2016, depending on trade growth.

The modelling demonstrated that the freight line from Port Botany has capacity to carry the likely container generation from the port up to the year 2025, with network enhancements, and that the capacity exists at Enfield to handle the projected container throughput of 300,000 TEUs per annum. The modelling also confirmed that the location of intermodal terminals, including the ILC at Enfield, along a dedicated freight line would relieve pressure on the shared passenger and freight network to support future freight operations.

## **8.4 Construction Issues**

The construction of rail infrastructure for the Intermodal Logistics Centre at Enfield would have minimal impact on the operation of the existing line. The turnouts at the north and south of the site already exist and would be connected to the proposed through line. No disruption to the existing service along the dedicated freight rail line is anticipated during the construction.

## **8.5 Mitigation Measures**

### **8.5.1 Construction**

No disruption during the installation of the connection of the through line and sidings for the Intermodal Logistics Centre is anticipated.



### **8.5.2 Operation**

The forecast increase in port related rail traffic would need to be addressed by operational enhancements and then infrastructure augmentation along the dedicated freight rail line. The proposed ILC at Enfield does not trigger the need for immediate rail infrastructure enhancements.

Within the Intermodal Logistics Centre at Enfield, Sydney Ports would provide rail facilities to provide for loading/unloading and improve train turnaround times. These would include:

- A through line;
- Two rail sidings for the loading and unloading of containers;
- Turnouts at either end of the through line to connect to the main line and provide operational flexibility for train movements at the site; and
- Compliance with regulatory requirements for the site operation of freight trains at this location.

### **8.6 Conclusions**

It is NSW Government policy to increase the Port Botany mode split by rail to 40%. The construction and operation of the proposed ILC at Enfield will contribute towards achieving the 40% target, but that achievement will be contingent on other factors, including additional intermodal terminals beyond Enfield, but serviced by the dedicated freight line passing through Enfield, rail operation efficiencies and infrastructure enhancement.

Rail freight movements from Port Botany along the dedicated freight line between Port Botany and Enfield comprise about 28 per day, 50% of the rail freight movements in that corridor. By 2016, when the ILC achieves its capacity of 300,000 TEUs throughput, freight train movements on the line will total about 134 per day, comprising 94 to and from Port Botany. Of the 134, a relatively small number of between 10 and 20 (average about 16, or 12%) will deliver and pick up freight from the ILC at Enfield.