NSW GOVERNMENT
**Department of Planning**

# *MAJOR PROJECT ASSESSMENT:*
# *Southern Sydney Freight Line*

Director-General's
Environmental Assessment Report
Section 75I of the
*Environmental Planning and Assessment Act 1979*

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# EXECUTIVE SUMMARY

The Australian Rail Track Corporation (the Proponent) has lodged an application seeking the Minister for Planning's approval to construct, operate and maintain the Southern Sydney Freight Line (SSFL), a dedicated freight line, adjacent to the existing electrified Main South Passenger Line and within the existing rail corridor between Macarthur and Sefton in South-Western Sydney. The proposal includes:

- a 30km long, bi-directional, non-electrified, dedicated freight line;
- a 2,050 metres passing loop at Glenfield incorporated with the flyover; and
- grade separation would be constructed between the SSFL and the RailCorp passenger network at Glenfield and Sefton Park Junction.

The Proponent provided a Submissions Report to the Department on 21 August 2006 which responded to the issues raised in public submissions. Amendments to the proposal were included and assessed comprising:

- deletion of two intermediate connections between the SSFL and RailCorp passenger lines;
- minor relocation and extension of the passing loop at Leighonfield; and
- refinement of the Glenfield Flyover at Leacock Regional Park and Throsby Park.

The Department considered that preparation of a Preferred Project Report was not required as the amendments were considered to either minimise or not substantially change the predicted impacts of the proposal or its operation.

During the public exhibition, 87 submissions were received by the Department. Noise and vibration impacts were raised in approximately 70 per cent of submissions (60 submissions). Other key issues identified by the community and public authorities included land use, property and access (39); traffic and transport (28); social impacts (28) and visual character (31). Approximately 25 per cent of submissions stated support for the proposal. The issue of proposal justification, particularly in terms of its location, whilst not raised in significant proportion of submissions was clearly an issue of concern to the broader community.

In undertaking the assessment, the Department determined the key issues relating to the proposal to be: strategic justification; noise and vibration; station precinct works (in particular at Cabramatta); level crossings; parklands; traffic and transport; and the biophysical environment (including flora and fauna and hydrology). Other aspects considered in preparing this report were visual amenity; heritage; air quality; soils; waste management; hazard and risk; and energy requirements.

**Strategic Justification**

Justification of the proposal is premised on general Government commitment at the State and Federal level to improving the efficiency of transporting freight by rail and improving the competitiveness of rail freight versus road transport which is likely to continue to dominate the freight transport task into the foreseeable future. The proposal has been identified in a number of key planning documents including the NSW State Government's Metropolitan Strategy and State Infrastructure Strategy as well as the Federal Government's AusLink and ARTC's North South Corridor Strategy. It is also recognised by the Freight Infrastructure Advisory Board (FIAB), established under the Metropolitan Strategy, as probably the most important rail freight infrastructure proposal in Australia.

The project will reduce the increasing rate of road freight traffic growth across the wider Sydney Metropolitan area and particularly along major highways linking the capital cities. The FIAB recognised that there will continue to be significant growth in container movement through Sydney even with a desired increase mode shift of freight from road to rail from 21 per cent to 40 per cent. With the SSFL and other identified freight transport projects in place, the increase in freight trucks in 2021 would be 1,750,000, down from the projections of 2,750,000 in the absence of these measures.

Further, the projected shift of freight from road to rail across the North-South Corridor would have estimated fuel saving of up to an annual 80,000 litres by 2018 and reduction of up to 245 tonnes of carbon dioxide ($CO_2$) emissions per annum in 2018.

Four alignment options were considered in selecting the preferred option. These were:

- **Option 1** using the RailCorp Main South Line corridor between Macarthur and Sefton (preferred option);
- **Option 2** as for option 1 to Cabramatta Junction, switch to the Main West line to Clyde Yard/Auburn and connecting with the existing freight network at Flemington Junction;
- **Option 3** as for option 1 to Glenfield Junction, switch to East Hills line then to Illawarra line joining the existing freight network at Marrickville; and
- **Option 4** using Main South line via Moss Vale to Wollongong, then Illawarra line to Marrickville. A flyover would be required at Wolli Creek to separate the freight line from the East Hills and Airport passenger lines.

The selection of the preferred option was based on:

- good connections to existing and proposed future freight;
- ability to use the existing rail corridor, thereby giving rise to fewer environmental impacts;
- fewer residential receivers compared with other options; and
- relatively few impacts on future network infrastructure plans.

The Department's assessment concluded that the proposal is consistent with and would support key planning policies and strategies at the State and Federal level to increase the efficiency of freight rail and its competitiveness with road transport to facilitate significant mode shift of freight from road to rail. Further, the preferred option has been optimised in terms of operational requirements, functionality and minimising environmental impacts.

**Operational Noise**

In order to undertake an equitable noise assessment, the Department, in consultation with the Department of Environment and Conservation, refined operational noise planning levels to reflect impacts associated with the proposal. This means that, because the proposal would be located within a shared corridor (with RailCorp passenger rail services), the Proponent is responsible only for the impacts of this proposal and not for rectifying other corridor impacts which are managed through separate processes and programs by other parties. This approach is consistent with that adopted for other current rail projects (eg Rail Clearway Program).

Environmental Noise Criteria were established in consultation with the DEC and are consistent with the planning goals outlined in Chapter 163 of the Environmental Noise Control Manual, namely:

Planning Levels – $L_{Aeq}$, 24hr = 55dBA; $L_{Amax}$ = 80dBA **for residential receivers**.

The Department considers that the noise assessment is consistent with the Environmental Assessment requirements set by the Department and DEC. The assessment identified 59 noise catchments adjacent to sensitive (residential) areas and that Planning Levels in 2008, before the operation of the SSFL (i.e. irrespective of whether the SSFL were to proceed or not), **will be exceeded** in all but 5 catchments. The overall outcome of the noise assessment with the SSFL in place and operational indicates that sensitive receivers will experience noise levels that are below the Planning Levels, or an environment that is **improved from or equal to the existing situation**, but which may still be above the Planning Levels even with mitigation.

The Proponent has also committed to:

- installing wheel noise (hunting) detectors at Goulburn and Metford and working with operators to have excessively noisy wagons removed for repair;
- installing noise barriers along approximately 7,500m of the corridor with an absorptive surface to prevent noise reflecting to the opposite side of the corridor (refer to Appendix G); and
- designing noise barriers in consultation with the affected community, taking into consideration overshadowing, local flooding the potential for graffiti and other forms of vandalism.

In noting the importance of operational noise impacts, the Department has assessed the Proponent's commitments and considered that although the assessment of noise and vibration impacts was adequate, the Proponent needed to improve commitments relating to the development of a Source Control Plan and ongoing monitoring and review of proposed mitigation measures. Consequently, the Department has recommended that

a comprehensive Operation Noise and Vibration Management Plan be prepared. This will require the Proponent to, at 1, 2, 5 and 10 years after commencement of operations:

- monitor and review the adequacy and effectiveness of noise mitigation measures against noise objectives;
- review, and revise if required, the Source Control Plan; and
- review advances in noise standards and best practice noise mitigation technology and any State or Federal Government initiatives to manage rail noise.

A report of the monitoring and review must be submitted to the Director-General including any additional Reasonable and Feasible mitigation measures identified and these must be installed or implemented, by the Proponent, to the satisfaction of the Director-General in consultation with DEC and affected receivers.

This monitoring regime is significantly more stringent than that which has been adopted for other projects where review of actual impacts against predictions is usually restricted to one year from operations. This recommended condition also recognises continuous improvement in technology and the dynamic nature of government initiatives which may provide future additional benefits to the community where additional management measures are available.

Source-reduction strategies benefit areas within and outside the geographic scope of the Project, and in particular, locations where physical mitigation measures are not proposed. Due to the significance of this issue, the Department has recommended that a Source Control Plan be prepared as part of the ONVMP to include a program of condition monitoring for the purpose of minimising noise emissions from freight rolling stock and maintenance activities; and targets, assessment, action and review processes for incorporation and implementation of best practice measures.

The provision of noise barriers can have secondary impacts such as urban amenity, design, safety and view impacts (including visual severance). The Department considers that these impacts can be mostly addressed in detailed design and that on balance a significantly improved noise environment for many sensitive receivers outweighs potential secondary impacts. However, this should be rightly determined in consultation with affected receivers and in the preparation of the Urban Design and Landscaping Plan (UDLP).

**Cabramatta Station Precinct**

In determining the alignment through Cabramatta, both underground and above ground alignments were considered. An underground alignment would require the construction of a tunnel under Broomfield Street. The alignment at Cabramatta also needs to accommodate the long-term plans of RailCorp to increase train path capacity at this junction of the rail network which would involve:

- relocating the Old South Main Down track to an underpass;
- a tunnel under the station;
- a new underground platform for trains from Granville;
- cut and cover construction for approach cuttings approximately 1.3km long close to a live track; and
- a loss of parking due to the southern approach cutting, and require the construction of a ventilation shaft.

The Department notes that an underground alignment would have greater cost, construction, and operational functionality impacts. The Department understands that the cost for the tunnel with ventilation is approximately $48 million whereas a surface alignment with provision of surface works in the station precinct is approximately $4.5 million. Further assessment of an underground alignment is not necessary as the current proposal is considered acceptable subject to appropriate mitigation measures and residual impacts are manageable.

The Proponent has proposed a 65m linear 'shared zone' near Cabramatta Station to mitigate impacts on pedestrians and cyclists and to manage potential pedestrian-vehicle conflicts, whilst not affecting kerbside parking supporting adjacent commercial and retail developments. It is expected that the shared traffic zone would result in some minor traffic diversions particularly at peak periods to adjoining roads, primarily along Longfield and Cumberland Streets, which would be reviewed at the detailed design stage.

Parking near Cabramatta Station is comprised of time-restricted and non-time restricted parking serving the needs of businesses, shoppers and rail commuters. The proposal would affect 185 on and off street car parking spaces to the north and south of Cabramatta Station. It is recommended that the Proponent optimise the

relocation of parking by taking into consideration different user parking requirements, and identify immediate and longer term measures with an objective to minimise the amount of displaced parking which is more than 400 metres from the station entrance. This would include the consideration of alternate arrangements both on and off street parking, including reconfiguration of spaces along Broomfield Street and if relevant, contributions to the redevelopment of existing parking facilities..

**Upgrading / Additional Facilities**

The Proponent proposes to replace existing station access facilities affected by the proposal on a like for like basis (e.g. replace existing stairs to be modified by the project with new stairs), except where this is precluded for technical/ engineering reasons, where comparable facilities would be provided (e.g. replace existing ramp with lifts). Bankstown Council, Liverpool Council and RailCorp submissions have suggested that the Proponent should provide additional facilities (e.g. provide disabled access at stations that don't already provide this service) to offset the impacts of the project.

The Department considers that the provision of adequate station facilities for passenger services to be the responsibility of RailCorp rather than ARTC and considers it unreasonable to require ARTC (a freight provider) to provide additional passenger facilities, over and above those facilities that are directly affected by the project, when the project relates to freight rather than passenger rail. The Department also acknowledges that the proposal has been designed not to preclude future upgrade works and understands that RailCorp through its Easy Access program is progressively upgrading pedestrian access to stations.

**Liverpool Hospital Level Crossing**

The rail corridor currently bisects Liverpool Hospital, with the majority of the hospital facilities located on the western side of the corridor. The Liverpool Hospital level crossing provides vehicular access and the only 'easy' pedestrian access between the eastern and western sides of the hospital. The crossing facilitates staff and patient movements, and is considered a critical access path for the functionality of the hospital.

The crossing already experiences delays and access restrictions as a result of existing passenger rail traffic (particularly during peak times), and this situation is expected to worsen with increased freight traffic resulting from the SSFL (i.e. closures of up to 30-50 minutes in length during peak times). RailCorp has indicated that the crossing may need to be closed for the full peak hour duration when the Liverpool Clearways Project becomes operational (expected in 2011).

The Department considers that the ARTC's proposal to safely manage the existing level crossing for an indefinite period of time until alternative access provisions are made by a third party does not sufficiently respond to the extent of impact likely to be generated by the SSFL proposal. The ARTC's proposal relies absolutely on a third party (i.e. NSW Health) providing facilities to mitigate impacts that have (at least in part) been generated by the proposal without providing a contingency for alternative access in the event that Liverpool Hospital's plans do not proceed or are delayed.

As the construction of the SSFL would undoubtedly worsen existing access problems at the Liverpool Hospital level crossing, the Department considers it reasonable that ARTC be required to contribute to plans to accelerate provision of the alternative crossings proposed for the Liverpool Hospital and that alternate pedestrian and vehicle crossing is provided prior to the operation of the SSFL. As such the Department recommends that ARTC be required to cooperate with RailCorp and NSW Health, including contribution in cash or kind, to provide alternative vehicle and pedestrian access across the rail corridor prior to the commencement of operations.

**Auburn Road Bridge**

In response to significant objections raised by Council, the community, the local MP and the Department in relation to bridge closure, traffic disruptions and diversions at Auburn Road, the Department sought to achieve a better outcome with the Proponent. Following negotiations, the Proponent has agreed to modify its construction techniques so as to only require part closure of the bridge during construction. In addition, the potential to include a cycle path in this location will be investigated further. This agreement has been incorporated into the recommended Conditions of Approval

## Air Quality

The Proponent has predicted that locomotive emissions would meet all relevant air quality guidelines except for annual average nitrogen dioxide ($NO_2$) guidelines in 2018. The Department notes that annual average $NO_2$ is a measure of **cumulative** air quality impacts and that the locomotives using the SSFL would not be the only contributor to these levels. The 1 hour $NO_2$ goals considers the direct contribution of $NO_2$ by the SSFL and it is noted that these goals will be met.

Given that rail infrastructure as a whole is only estimated to contribute to up to 1.7% of $NO_2$ emissions in the Sydney Basin, it is considered that the SSFL's contribution to emission levels would not be significant. The Department further notes that the air quality assessment was based on highly conservative assumptions and predicted emissions based on the total forecast growth in rail traffic for the North-South Strategy, two thirds of which is likely to occur regardless of the SSFL.

The ARTC has also committed to undertaking a further review of the air quality assessment to confirm the $NO_2$ impacts of the project and to working with rail operators and the DEC to progress improvements in emission control for diesel locomotives. The DEC recommended that the proposed review should focus on identifying options for preventing any exceedance of $NO_2$ criteria. The Department has incorporated the Proponent's commitments and the DEC's recommendation into its recommended CoA and is satisfied that the contribution of emissions from the SSFL is likely to be small and would likely be offset by long-term modal shifts from road to rail freight, which the project would encourage.

## Conclusion

The Department has undertaken a comprehensive assessment of the proposal in consultation with the Department of Environment and Conservation, including review of the Environmental Assessment, Submissions Report and issues raised in 87 submissions.

It is considered that the significant benefits of the proposal, in terms of implementing key government initiatives in relation to freight transport; improvements to the noise environment for a majority of receivers in the corridor; ongoing review of noise mitigation measures to ensure the identified improvements are realised; and facilitating acceleration of long term plans to provide alternative access to existing level crossings outweigh the impacts of the proposal which are predominantly construction related and therefore short term in nature.
Overall the Department believes that the residual impacts of the proposal are within acceptable limits and may be further reduced with the implementation of the Proponent's Statements of Commitment and recommended Conditions of Approval.

The Recommended Conditions of Approval have been carefully drafted to provide a comprehensive environmental management framework for the construction and operation of the Southern Sydney Freight Line to support the Proponent's Statements of Commitment.

Based on this assessment, the Department recommends that the Minister approve the project subject to conditions to be implemented in conjunction with the Proponent's Statement of Commitments as modified by the Department.

# 1 BACKGROUND

The Australian Rail Track Corporation (ARTC) (the Proponent) is a Commonwealth-owned company responsible for operating the interstate rail freight network, linking Perth, Brisbane, Melbourne and Sydney.

The ARTC is presently undertaking an $872 million investment program to improve interstate freight rail infrastructure between Melbourne, Sydney and Brisbane known as the *North-South Corridor Strategy*. The program aims to reduce transit times in this corridor, to improve the availability of services to meet growing freight demand and to improve the competitiveness of rail compared to road freight.

A major freight bottleneck currently exists in Southern Sydney where freight trains share the existing passenger rail network. Freight trains are not permitted to run on the metropolitan network during morning and afternoon peak times and must give passenger rail priority at other times. The prohibition times coincide with the optimum arrival and departure times for Sydney-Melbourne intermodal freight services, resulting in current rail performance in the Melbourne-Sydney intermodal market falling significantly short of the levels required to make rail freight competitive to road freight in terms of transit time, reliability and price.

For rail freight to be competitive in the Brisbane-Sydney-Melbourne freight corridor it is essential that freight trains be able to enter and exit Sydney during passenger train peak periods. To resolve this situation, ARTC proposes to construct, operate and maintain a dedicated freight line, known as the Southern Sydney Freight Line (SSFL) in South-Western Sydney, to allow passenger and freight rail to operate independently of each other. Forecast freight movements on a typical day in 2018 without the SSFL are approximately 42 movements compared with 62 movements with the SSFL. Although there are forecast increases in night time freight movements, the SSFL by providing a segregated freight train path into and out of Sydney assists in reducing the number of freight trains operating at night by opening up peak hour freight paths.

The SSFL comprises a key component of ARTC's *North-South Corridor Strategy* and has been identified in both the NSW Metropolitan Strategy and the State Infrastructure Strategy as an important component of the NSW Government's freight strategy. The freight strategy aims to increase the mode share of rail freight from the existing level of 21% to approximately 40%. The proposal is also complementary to key freight transport initiatives in Sydney including the Port Botany expansion and proposed intermodal facilities in south-western Sydney.

The proposal would involve a capital expenditure of approximately $200 Million and provide employment for approximately 300 personnel during construction.

# 2 PROPOSED DEVELOPMENT

## 2.1 Project Description

The ARTC proposes to construct, operate and maintain a 30km long, bi-directional, non-electrified, dedicated freight line, adjacent to the existing electrified Main South Passenger Line and largely within the existing rail corridor in South-Western Sydney (see Figure 1) travelling through Campbelltown, Liverpool, Fairfield and Bankstown Local Government Areas (LGA).

The SSFL would commence south of Macarthur and be located on the western side of the rail corridor between Macarthur and Glenfield. Between Glenfield and Sefton Park Junction the SSFL would be located on the eastern and southern side of the rail corridor. At Sefton Park Junction the line would connect via an underpass or deep cutting to the existing Metropolitan Freight Network (see Figure 1).

The SSFL would connect and use the existing freight passing loop between Ingleburn and Glenfield Railway Stations. A 2,050 metres passing loop would be provided approximately midway along the route. Grade separation would be constructed between the SSFL and the RailCorp passenger network at Glenfield and Sefton Park Junction to avoid movement conflicts between trains.

The SSFL would follow the existing Main South Passenger Line through developed areas of south western Sydney, including several town centres (Ingleburn, Minto, Liverpool and Cabramatta) and industrial areas (Villawood, Leightonfield East, Chester Hill, Sefton). The biological and physical environment along the corridor is generally disturbed with mainly altered creek lines and vegetation; however the project would also involve works along the Georges River and the Leacock Regional Parklands which provide areas of remnant vegetation and recreational green space.

Due to the developed and generally disturbed nature of the project corridor, the impacts of the project would be largely centred on operational amenity impacts to existing sensitive receivers located adjacent to the rail line (e.g. noise & vibration and visual); impacts associated with the provision of infrastructure within the confines/constraints of an already developed area (e.g. reconfiguration of stations; property impacts etc); and disturbances to surrounding receivers during the construction of the project (e.g. traffic & haulage; access to stations etc).

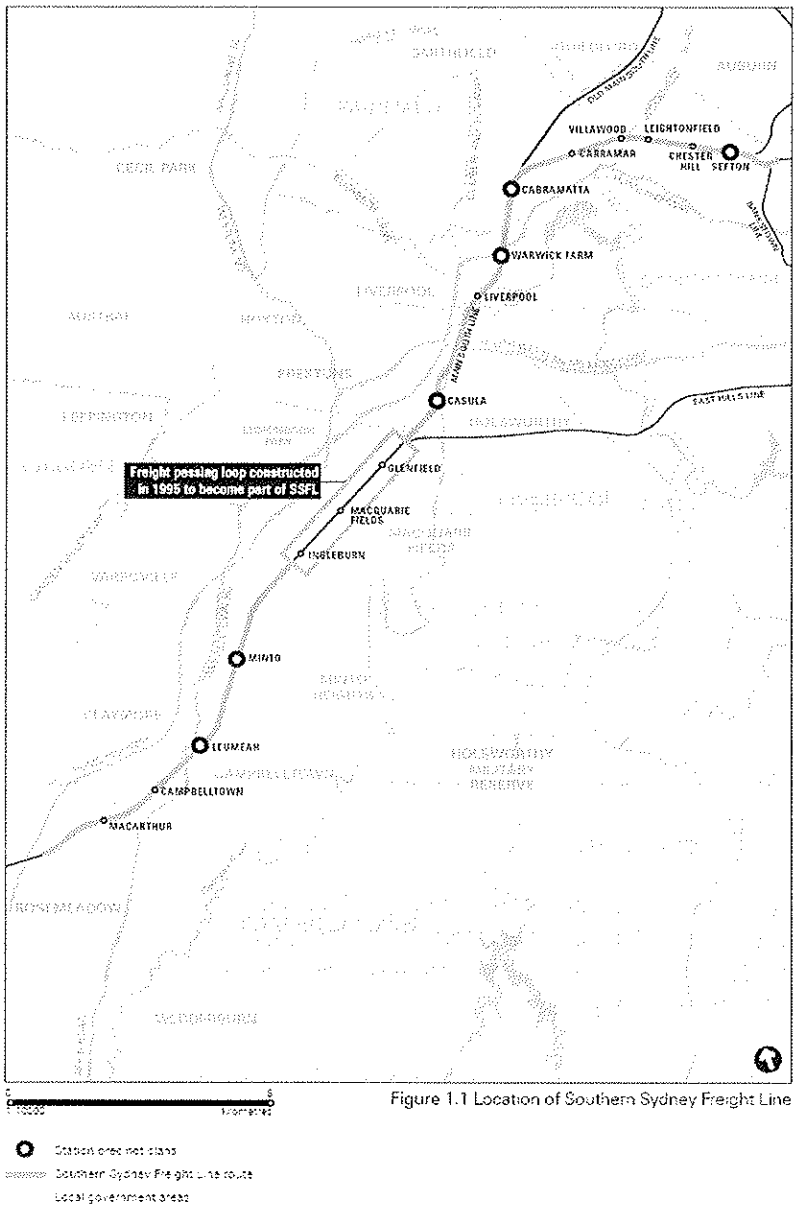



Figure 1.1 Location of Southern Sydney Freight Line

**Figure 1 SSFL Location**

Major components of the Project as described in the Environmental Assessment are outlined in Table 1 below.

**Table 1 Key Project Components**

| | |
|---|---|
| Alignment | ▪ on western side of rail corridor from south of Macarthur to Ingleburn railway station;<br>▪ connect existing 6 kilometre freight passing loop at Ingleburn railway station;<br>▪ flyover of RailCorp network north of Glenfield Junction to cross the SSFL to the eastern side of the rail corridor;<br>▪ 2 kilometre passing loop co-located with flyover north of Glenfield Junction, so that freight trains can pass on the bidirectional freight line; and<br>▪ connect to Metropolitan Freight Network via a deep cutting or underpass of Main South Line; and<br>▪ three connections between RailCorp's Main South Line and the SSFL at Campbelltown, Casula and Leightonfield for freight and diesel passenger services to cross between the two networks. |
| Station Works | Modifications to Leumeah, Minto, Casula, Warwick Farm, Cabramatta and Sefton railway stations and their surrounding precincts, including:<br>▪ replace affected station facilities and buildings, e.g. pedestrian footbridges, ticket offices<br>▪ maintain the easy access standard to Leumeah, Minto and Cabramatta Railway Stations,<br>▪ new access over the SSFL to the easy access standard at Warwick Farm Railway Station, including two new lifts;<br>▪ capability for the future upgrading of Casula and Sefton Railway Stations to the new equitable access standard; and<br>▪ undertake minor road works to affected local roads to maintain station, public and private access<br>▪ provide new landscaping, bus shelters/canopies, pedestrian/cycle pathways, signage and street furniture where affected by the proposal. |
| Bridges | Modify existing and construct new bridges (road, rail and pedestrian), including:<br>▪ upgrade existing road bridges at Bareena Street, Miller Road and Chester Hill Road<br>▪ pier protection to the Hume Highway, Newbridge Road and Cabramatta Road East bridges, and underpinning to the Cooper Road bridge abutment<br>▪ a new road bridge at Auburn Road<br>▪ new rail bridges over Woodbrook Road, Shepherd Street, Broomfield Street (Sussex Street), Moore Street/Sandal Crescent, Hector Street and Woods Road and creek crossings;<br>▪ pedestrian footbridge upgrades at Canley Vale and at Campbelltown and Leightonfield railway stations<br>▪ relocate the existing pedestrian footbridge over Prospect Creek<br>▪ construct new rail bridges over creeks (including Glenfield, Cabramatta and Prospect Creeks) and drainage culverts/structures over numerous drainage tributaries. |

## 2.2 Project Objectives and Benefits

The project objectives and anticipated benefits as stated in the Environmental Assessment (EA) are as shown in Table 2.

**Table 2 Project Objectives and Benefits**

| Primary Objectives | Benefits |
|---|---|
| ▪ improve reliability and travel times for rail freight services between Melbourne–Sydney–Brisbane | ▪ encourage the large scale transfer of mode share from road to rail freight along the Sydney and Melbourne freight corridor resulting in an estimated net saving of >182, 000 semi-trailer net tonne kilometre trips by 2018. Benefits associated with this transfer include:<br>- reduced road infrastructure and maintenance costs;<br>- reduced traffic congestion and increased road safety; and<br>- reduced fuel consumption (annual saving of 78,334 to 81,782 litres) and greenhouse emissions (annual saving of 235 to 245 tonnes of carbon dioxide emissions). |

| Primary Objectives | Benefits |
|---|---|
| ▪ improve rail freight service competitiveness compared to road freight service | ▪ enabling freight to be dispatched and received at times that meets the needs of the market (i.e. during the morning and afternoon peak);<br>▪ ensure that freight timetabling across and beyond the Sydney-Melbourne corridor is no longer affected by the peak period prohibitions at Sydney; and<br>▪ providing additional capacity to cater for future growth in freight rail traffic |
| ▪ reduce delays to passenger services resulting from conflicts with freight operations | ▪ improve the reliability of passenger rail lines by removing the potential for freight rail breakdowns on passenger lines<br>▪ free up capacity along the existing Main South Line to cater for existing and future passenger rail traffic from key growth areas in Sydney's South West |
| ▪ support State and National economic development with provision of key freight infrastructure | ▪ complement and support the functioning of key infrastructure projects in Sydney including Port Botany expansion and proposed intermodal facilities in southern Sydney |
| Secondary Objectives | |
| ▪ enhance potential beneficial environmental effects and manage potential adverse environmental effects by: | |
| - conserving biological diversity and ecological integrity; | |
| - eliminating the threat of serious or irreversible environmental damage; | |
| - improving air quality and reducing greenhouse gas emissions; | |
| - minimising use of energy and non-renewable resources; | |
| - minimise construction and operational related impacts on the local community; and | |
| ▪ achieve acceptable economic and financial outcomes. | ▪ involve a capital expenditure of approximately $200 Million and provide employment for approximately 300 personnel during construction<br>▪ encourage growth and employment in the freight rail industry (and associated service sectors) |

# 3 STATUTORY CONTEXT

## 3.1 Major Projects

The SSFL is classified as a Major Project under Clause 23 of Schedule 1 of *State Environmental Planning Policy (Major Projects) 2005* as it involves development for the purpose of a rail freight line that has a capital investment value of more than $30M. Consequently, Part 3A of the EP&A Act applies to the project and the Minister is the Approval Authority. The ARTC lodged a Project Application for the SSFL with the Director-General on 12 April 2006.

In accordance with clause 8J of the Environmental Planning and Assessment Regulation 2000 (EP&A Regulation) the Director-General adopted the Director-General's Requirements, previously issued for the preparation of an Environmental Impact Statement for the SSFL under Division 4 of Part 5 of the EP&A Act, for the purposes of Part 3A of the Act.

## 3.2 Exhibition and Notification

The ARTC submitted an Environmental Assessment consistent with the Director-General's Requirements in April 2006.

The Environmental Assessment was exhibited between 3 May 2006 and 3 July 2006 (including an extension of the exhibition period from 2 June 2006 to 3 July 2006). This is more than twice the statutory minimum period. Exhibition locations were as follows:

- the Department of Planning's head office;
- Australian Rail Track Corporation's office;
- Nature Conservation Council of NSW; and
- Bankstown, Campbelltown, Fairfield and Liverpool Councils.

The Environmental Assessment was also made available for download from the Department's internet site with information on the exhibition period, where to view a copy of the EA, and how to make a submission.

Notification of the exhibition period was made through advertisements in the following local and metropolitan newspapers:

- the Sydney Morning Herald;
- Liverpool City Champion;
- Camden Advertiser;
- Campbelltown Macarthur Advertiser;
- Fairfield City Champion;
- South Western Rural Advertiser; and
- Bankstown Canterbury Torch.

In addition to the statutory requirements undertaken by the Department, the Proponent also undertook extensive consultation both in the preparation and exhibition of the Environmental Assessment. Consultation activities undertaken during the exhibition of the Environmental Assessment included:

- Distribution of a community newsletter (in English, Vietnamese and Arabic);
- Letters to individual landholders;
- Staffed information days;
- Exhibition advertisements in non-English speaking newspapers;
- Poster displays at railway stations along the proposed SSFL route;
- Web site information (www.ssfl.artc.com.au);
- 1800 Project information line; and a
- Translating and interpreting service.

## 3.3 Permissibility

The proposal would be largely contained within the existing rail corridor (where the land is zoned for Railways); however some works would occur in areas directly adjacent to the rail corridor, which are zoned for other uses. In summary, the proposal would traverse through the following land zonings:

- *Campbelltown Local Environmental Plan 2002*: 4(b) Industry B – Industry B; 5(a) Special Uses – Drainage; 5(a) Special Uses – Parking; 5(a) Special Uses – Parking and community uses; 5(a) Special Uses – Railway; 6(a) Local Open Space Zone; 10(a) Regional Comprehensive Centre; and unzoned;
- *Liverpool Local Environmental Plan 1997*: 2(a) Residential; 3(b) Business—Highway; 5(a) Special Uses; 6(a) Recreation Public; and 8(b) National Parks and Nature Reserves;
- *Fairfield Local Environmental Plan 1994*: 2(a) Residential A; 2(a1) Residential A1; 3(b) District Business Centre; 5(a) Special Uses; 5(b) Special Uses—Arterial Road and Arterial Road Widening; 6(a) Existing and Proposed Recreation; and
- *Bankstown Local Environmental Plan 2001* –5 Special Uses (Railway Purposes) and unzoned land.

The proposal is permissible under each of these zonings.

# 4 CONSULTATION AND ISSUES RAISED

The Department received 87 submissions on the project (including multiple submissions from particular stakeholders). These consisted of:

- 48 submissions from individuals;
- four (4) submissions from businesses;
- four (4) submissions from community groups;
- five (5) petitions;
- six (6) submissions from local members;
- ten (10) submissions from Councils: Western Sydney Regional Organisation of Councils, Liverpool City Council, Bankstown City Council, Campbelltown City Council, and Fairfield City Council; and
- 11 submissions from public authorities: Department of Environment and Conservation (DEC), Department of Natural Resources (DNR), Department of Primary Industries (DPI), NSW Health, RailCorp, Transport Infrastructure Development Corporation (TIDC), Ministry of Transport, RTA, Sydney Ports, and NSW Maritime.

Submissions were received from ten (10) government agencies:

- **Department of Environment and Conservation** – raised no overall objection to the proposal but identified key issues being review and, where necessary, enhancement of operational noise mitigation measures (including source controls); and justification of conclusions relating to the Green and Golden Bell Frog (*Litoria aurea*) and *Pimelea spicata*. The DEC also noted that revocation and acquisition of land from Leacock Regional Park is required. Other issues identified related to traffic, transport and access; construction work hours; construction noise, operational noise; ground and surface water impacts; Aboriginal heritage; waste management; and operational environmental controls;
- **Department of Natural Resources** – raised no overall objection to the proposal however key issue is the proximity of the works to Bow Bowing Creek and the Georges River. Other issues raised include bridge and crossing design; impacts on creek and riparian vegetation in Leacock Regional Park; and vegetation offsets;
- **Department of Primary Industries** – issues raised related to waterway crossings and realignment, including the Georges River; sediment control; noxious weeds and mine subsidence;
- **NSW Health** – raised concerns regarding pedestrian and vehicular access across the rail corridor (particularly in relation to Liverpool Hospital); noise and vibration control requirements; and land acquisition requirements;
- **RailCorp** – Key issues raised by RailCorp related to interaction of the proposal with the passenger rail network; safety of passengers, rail workers and others as well as general effects on passengers (service) during construction and operation. RailCorp also noted that it did not support intermediate connections between the SSFL and the existing network though track geometry should not preclude future connections; disabled access works at Sefton and Casula, Carramar, Minto; level crossings at Liverpool, Casula and Sefton Park; operational noise mitigation and general maintenance;
- **Transport Infrastructure Development Corporation** – issues raised include construction and operational impacts on the Rail Clearways and Metropolitan Rail Expansion programs, in particular the Liverpool Turnback, Macarthur Station Platform 4 and the South West Rail Link projects;
- **Ministry of Transport** – key issues raised were construction impacts on bus service timetables and reliability and use of commuter parking spaces by construction workers. Other issues raised included operational impacts which might require changes to bus stop and taxi stands; road and bus stop infrastructure; pedestrian connectivity; and specific access issues relating to Leumeah, Minto, Casula and Sefton stations;
- **Roads and Traffic Authority** – requested that traffic management plans be prepared where road network may be affected by construction and/or operation; identification of spoil movement routes; network analysis required where road closures proposed during construction and the need for "Road Occupancy Licence"; and restriction of parking for staff and construction workers;
- **Sydney Ports** – raised no objections but supported the examination of a crossover to connect the Macarthur Intermodal Shipping Terminal to the SSFL and sought further information on rail connections between the Mannway Freight Terminal and the SSFL; and
- **NSW Maritime** – raised no navigational objections to the SSFL.

Submissions were received from four local Councils:

- **Fairfield City Council** – Fairfield Council has indicated that it does not dispute the need for the proposal but has questioned the preferred route and sought further consideration of alternative routes. Other concerns included impacts of future development; flooding; strategic planning conflicts; impacts on visual connection and amenity; graffiti, social impacts such as visual severance and social exclusion, safety and crime; economic impacts on East Cabramatta and reduced investment; asset management; access and parking; impacts on vehicular traffic, cyclists and pedestrians; flora and fauna impacts; and operational noise;
- **Bankstown City Council** –hydrology, drainage and flooding; disabled access at Sefton station; vehicular and pedestrian access; planning process; heritage impacts; hazard and risk; flora and fauna; and operational noise;
- **Liverpool City Council** – Council raised concerns regarding accessibility at Casula, Warwick Farm and Liverpool stations; impacts on the Georges River Boardwalk and cycleway; level crossings and future rail connections to the South West Rail Link and East Hills Y link; impacts on open space; flooding and noise assessment, impacts and mitigation;
- **Campbelltown City Council** – concerns raised included air quality; station and facility design; impacts on visual amenity; impacts on proposals for Farrow Road; heritage; and noise impacts.

It should be noted that the four councils pooled resources and engaged Arup Consulting to review the noise impact assessment for the proposal. This is discussed in more detail in Section 5.2 of this report.

The Department also received submissions following the exhibition period including a submission from Fairfield City Council that inclosed a petition banner, petitions from the Vietnamese, Cambodian and Chinese communities and form letters from the community highlighting the Council's and communities concerns on the impacts of the proposal on the Fairfield community.

### 4.1 Overview of Issues Raised

The majority of submissions received were from residences and businesses within 1km of the rail corridor. A breakdown of the issues raised in these submissions is provided in Table 3 below. The Proponent was required to prepare a Submissions Report to respond to the issues raised. The Department has reviewed the EA, submissions on the proposal, Submissions Report and additional information provided by the proponent and considers that the key issues associated with the project are:

- the strategic justification and consideration of alternative alignments;
- design of key project components (particularly the project alignment and Cabramatta station);
- noise and vibration;
- traffic and transport; and
- impacts on the biological and physical environment (flora and fauna and hydrology).

**Table 3 Issues raised by submissions**

| Key Issues | Number of submissions (of the 87) which raised this issue | Department's Consideration |
|---|---|---|
| Noise and Vibration | 60 | Addressed in Section 4.2 of the Submissions Report and Section 5.2 of this report. |
| Land use, property and access | 39 | Addressed in Section 4.3.9 of the Submissions Report and Sections 5.4, 5.5 and 5.8 and 5.3 (in relation to Station precincts and other project components) of this report. |
| Traffic and Transport | 28 | Addressed in Section 4.3.1 of the Submissions Report and Sections 5.3 (in relation to Station precincts) and 5.4 and 5.6 of this report. |
| Social impacts | 28 | Addressed in Sections 4.3.7 & 4.3.8 of the Submissions Report and Section 5.2 and 5.3 (in relation to Station precincts and other project components) and 5.8 of this report. |
| Visual Character | 31 | Addressed in Section 4.3.5 of the Submissions Report and Sections 5.2, 5.3 (in relation to Station precincts and other project components), 5.5 and 5.8 of this report. |

| Key Issues | Number of submissions (of the 87) which raised this issue | Department's Consideration |
|---|---|---|
| Environmental assessment process | 21 | Addressed in Section 4.3.13 of the Submissions Report and Sections 3 and 4 of this report. |
| Support for the project | 21 | Noted |
| Planning | 21 | Addressed in Section 4.3.12 of the Submissions Report |
| Consultation process | 18 | Addressed in Section 4.3.10 of the Submissions Report and Section 4 of this report. |
| Ground and surface water | 17 | Addressed in Section 4.3.2 of the Submissions Report and Sections 5.7.2 and 5.8 of this report. |
| Options | 16 | Addressed in Section 4.3.14 of the Submissions Report and Section 5.1 of this report. |
| Air Quality | 14 | Addressed in Section 4.3.6 of the Submissions Report and Section 5.8 of this report |
| Contaminated/ Hazard materials and waste | 13 | Addressed in Section 4.3.18 of the Submissions Report and Section 5.8 of this report |
| Biodiversity | 11 | Addressed in Section 4.3.3 of the Submissions Report and Section 5.7 of this report. |
| Operation of Project | 10 | Addressed in Section 4.3.11 of the Submissions Report. |
| Heritage | 7 | Addressed in Section 4.3.4 of the Submissions Report and Section 5.8 of this report. |
| Documentation clarification | 6 | Addressed in Section 4.3.16 of the Submissions Report. |
| Other | 13 | Addressed in Section 4.3.15 of the Submissions Report. |

## 4.2 Amendments to the Proposal

As a result of issues raised in submissions and additional design, the Proponent proposed three (3) minor amendments to the proposal. These are briefly summarised in the following sections.

### *4.2.1 Connection to RailCorp network at Glenfield and Casula*

Two intermediate connections were deleted from the proposal as described in the EA on the basis that RailCorp did not support them. These were:

- north of Glenfield Railway Station, that would have enabled freight services travelling in the Up direction (into Sydney) to leave the SSFL and travel via the Old South Line and Granville to access western Sydney; and
- south of Casula Railway Station, that would have enabled freight services travelling in the Down direction (out of Sydney) via the Old South Line and Granville to join the SSFL.

These changes will restrict freight services from leaving the SSFL at Glenfield or joining the SSFL at Casula and affect the potential operation of the SSFL and likely freight train numbers by reducing access to and from the Old South Line. The impacts of the SSFL (in relation to noise and vibration, hazard and risk and air quality assessment along the route) as a result of these modifications would not change as the assessment conservatively incorporated freight movements that had traditionally run via Granville and Fairfield (i.e. accessing the Old South Line).

The Department considers that the proposed amendments have addressed matters raised by RailCorp relating to connections from the SSFL to the existing rail system and that they are unlikely to change the nature and scope of the original proposal.

### *4.2.2 Leightonfield Yard*

An amendment to the passing loops and associated connections at Leightonfield is proposed. The 900 metre new loop proposed in the EA would be deleted from the concept and replaced with a 1600 metre passing loop extending from approximately Woodville Road in the west to Campbell Hill Road at its eastern extent. This would connect to and extend from the existing Leightonfield loop. This amendment is consistent with the RailCorp

submission, would allow improved access to the Leightonfield Yard and could be used by trains up to 1200m in length awaiting a path into Chullora during periods of high freight traffic volumes from the Main Northern Line.

As a result of this amendment, the main SSFL line is required to be moved five (5) metres northwards but within the rail corridor. The 350m eastward extension of the existing passing loop will require further modification to the Miller Bridge Road extension which would be similar in construction to the original proposal. The 300m westward extension would not affect Woodville Road Bridge. The amendment would also reduce land acquisition requirements at Llewellyn Avenue.

The revised assessment of this amendment indicates that changes to the expected environmental impacts are negligible; however, there may be noise increases for a block of units on Waldron Road (adjacent a proposed rail turnout), the quantification of which is dependant on the detailed design. Accordingly, the Proponent has committed to investigate the need for physical mitigation measures at this location.

Other environmental impacts including land use, traffic and transport will be similar to those identified in the environmental assessment and it is considered that the amended proposal will not have additional impacts in relation to these matters.

The Department considers that the proposed amendments have addressed matters raised by RailCorp relating to the configuration of the SSFL through Leightonfield. It is considered that the amendments are acceptable and are unlikely to change the nature and scope of the original proposal. The Department concurs with the commitment made by the Proponent to investigate the need for physical noise mitigation measures at Waldron Road and that noise impacts as a result of this change be no greater than identified in the EA. This matter would be addressed in the development and implementation of the recommended Operation Noise and Vibration Management Plan (CoA 50).

*4.2.3 Glenfield Flyover*

A refinement to the Glenfield flyover at Leacock Regional Park and Throsby Park is proposed. The flyover ensures the operational independence of the SSFL from the RailCorp network. It would also facilitate future access to the Moorebank Freight Terminal[1] identified in the Metropolitan Strategy, should it proceed. Amendments to the flyover include:

- a reduction in the size of the bridge decking units;
- refinement of the retaining wall adjacent to the pond in Throsby Park with revised access track, retaining wall and landscape treatment;
- widening of the embankment for the northern approach ramp due to lower than anticipated excavated ground level at the adjoining Glenfield Waste Facility land; and
- refinement of the retaining wall in Leacock Regional Park near the southern approach ramp with a revegetated batter that would contribute to visual screening of the flyover.

In considering the amendments, the Proponent has reviewed property, noise, park management, social and visual impacts. The refined design reduces total park land acquisition from 1.32 ha to 1.25 ha, although the land taken in Leacock Regional park increases slightly by 0.13 ha to 0.15 ha. The Proponent argues that as the character of the park is shaped by the rail corridor and the proposed operations are consistent with the operation of the rail corridor that the amenity impact would not diminish the use or enjoyment of the park for recreational purposes or result in a change of land use.

The amendments have no additional social impacts to those that would occur under the original proposal. Further visual assessment has identified that enhanced design and landscaping treatments will reduce the visual impacts of the proposal in this location.

* * *

Due to the minor nature of the proposed amendments the Department was satisfied that a Preferred Project Report was not required for the project.

[1] It should be noted that there is currently no proposal to develop the Moorebank Freight Terminal and that this facility would not be dependent on the SSFL to proceed.

# 5 KEY ISSUES

## 5.1 Need, Justification and Alternatives

The key project components identified by the Department in its consideration of the project documents and submissions received are discussed below.

### *5.1.1 Strategic Justification*

**Issue**

The ARTC proposes to construct, operate and maintain the Southern Sydney Freight Line within the existing Main South Rail corridor between Macarthur and Sefton, in Metropolitan Sydney, as part of a national investment strategy aimed at improving rail freight efficiency within key rail freight corridors between Melbourne, Sydney and Brisbane.

The key objectives of the proposal as identified in the Environmental Assessment are to:

- improve reliability and travel times for rail freight services between Melbourne – Sydney – Brisbane; and
- improve rail freight service competitiveness compared to road freight service.

A number of other objectives of the project consider passenger service improvements, economic development, environmental sustainability and economic and financial outcomes.

**Submissions**

A range of issues were raised in submissions in relation to the strategic justification of the proposal. These included both support and objection to the proposal and are summarised as follows:

- freight line will impact on Metropolitan Strategy objectives in relation to the integration of land use and transport and urban renewal along transport corridors – conflicting objectives of utilising rail corridors or the increased movement of freight;
- justification needs to reflect recent changes to freight requirements, road infrastructure and the Metropolitan strategy;
- further assessment of future freight requirements need to be undertaken
- Cabramatta has been identified as a potential major centre in the Metropolitan Strategy;
- supportive of proposal in general terms as a mechanism that supports reducing road freight;
- acknowledge increased road safety benefits and reduction in energy use to transport goods; and
- questions the benefits of the proposal on passenger services.

**Consideration**

The SSFL is identified in a range of strategic planning documents which attempt to address the issue of freight movement and in particular improving competition between road and rail freight as well as increasing mode shift of freight movements from road to rail. These documents are identified in Table 4 below with the key objectives relevant to the proposal.

**Table 4** Strategic Planning Documents

| Plan or Policy | Key Objectives and Actions |
|---|---|
| Auslink Rail | ▪ Focus of the Auslink Rail program is the Melbourne-Sydney-Brisbane corridor of which the SSFL is the most significant project<br>▪ The key objective of the project is to reduce transit times between Melbourne and Sydney from 13h 10m to 10h 40m for 1500 metre superfreighters. |
| Draft North South Strategy (ARTC, May 2005) | ▪ Key objective for Melbourne-Sydney link is to address market demands for late afternoon departure and early morning arrival of freight trains. |
| Sydney-Melbourne Corridor Strategy (Auslink) | ▪ short term priorities – to improve rail reliability, efficiency and productivity<br>▪ current track sharing arrangements with passenger services in southern Sydney constrains efficiency<br>▪ double stacking currently not possible which limits productivity<br>▪ SSFL will remove current curfew restrictions in morning and afternoon peaks |
| NSW Metropolitan Strategy – Transport Strategy for Sydney | ▪ Action D5.2.2 – to increase separation of passenger and freight rail services on rail network<br>- This would improve reliability and efficiency of the metropolitan rail network and |

| Plan or Policy | Key Objectives and Actions |
|---|---|
| | improving existing freight only lines.<br>- SSFL identified as a specific area to address |
| | ▪ Action D6.2.1 – Government to work with ARTC to facilitate the SSFL.<br>- This action identifies the route of the SSFL and connections to the existing dedicated freight line to Chullora and proposed Enfield freight terminals. |
| State Infrastructure Strategy (NSW Govt, 2005) | ▪ The SIS notes that the increase in economic growth will lead to a doubling of road freight traffic in the 15 years to 2020.<br>▪ The State Government has committed to continuing to work with the ARTC to increase rail freight capacity and competitiveness<br>▪ The SIS recognises ARTC's North South investment strategy, of which the SSFL is part, to achieve step-change in rail freight competitiveness in the interstate intermodal market. |
| Freight Infrastructure Advisory Board – Railing Port Botany's Containers | Recommendation 16:<br>▪ Identifies the SSFL and the need to bring forward its planning and implementation, including for the Government to declare it Critical Infrastructure |

Consistency with Strategic Plans

The Department recognises the planned role for development with respect to Cabramatta and other locations along the rail corridor identified in the Metropolitan Strategy. Similarly, it is noted that the role of the Southern Sydney Freight Line and its location between Macarthur and Sefton is explicitly stated in the Strategy. From this, it is clear that the Department does not consider these two purposes to be mutually exclusive or inconsistent. Rather, it is suggests that it is incumbent on planning authorities (including councils), planners and developers to recognise both objectives and to design new developments taking into account all constraints which apply to a particular site as well as the responsibility for rail operators to reduce the impact of noise and air emissions on the surrounding environment. These objectives are also recognised in the Metropolitan Strategy (Transport Strategy for Sydney) as follows:

- *Objective D6.1.1 – Develop freight strategies for domestic intermodal freight, movement of construction materials, and movements of bulk fuel.*

Strategies for each market sector must include measures to reduce the impact of freight movements on the community, including issues regarding noise and emissions.

- *Objective D8.2.1 – Develop strategies to:*
  - *increase the volume of freight moved by rail;*
  - *reduce emissions from older diesel vehicles; and*
  - *reduce noise along rail freight lines.*

This objective notes that while rail freight movement is generally more environmentally friendly than road transport, the noise impact of significant growth in rail volumes may affect community adjacent to key corridors but that new developments along rail lines will continue to incorporate measure to minimise noise and vibration impacts. Further, there are a number of broad strategies to address corridor wide issues of noise which are further discussed in Section 5.2 of this report.

The Freight Infrastructure Advisory Board (FIAB), established as an action from the Metropolitan Strategy released *"Railing Port Botany's Containers. Proposals to Ease Pressure on Sydney's Roads"* in July 2005. The document identified the role of the SSFL and recommended that ARTC investment in the project be brought forward and that the NSW Government declare it to be Critical Infrastructure under the *Environmental Planning and Assessment Act 1979*. The report further bolsters this recommendation with the statement that the SSFL is considered the most important of all rail freight projects in Australia. Whilst the action to declare it Critical Infrastructure was not implemented, the project's importance is clearly recognised.

The SSFL has also been identified in the State Infrastructure Strategy as an important component of the NSW Government's freight strategy which plans to increase the mode share of rail freight from the existing level of 21% to approximately 40%. The proposal would provide significant benefits to the state including a capital investment of approximately $200 Million; benefits associated with modal shifts from road to freight rail (including savings in

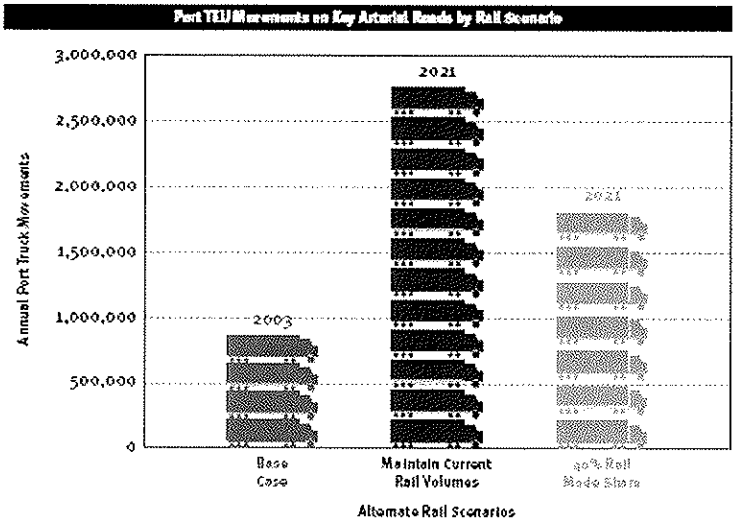
road infrastructure costs and green house gas emissions); and encouraging growth and employment in rail freight support sectors.

The NSW State Plan (Nov, 2006) identifies as Priority E7, the need to improve the efficiency of the road network in urban environments. The target of this priority is to improve the efficiency of the road network during peak times and the Plan notes that actions already committed to achieve this target include reducing the proportion of containerised freight travelling by road.

Road Transport Vs Rail Transport

Although the SSFL will not significantly benefit road freight traffic at an LGA level, the project will potentially reduce the rate of road freight traffic growth across the wider Sydney Metropolitan area and particularly along major highways linking the capital cities. The do nothing option would result in worsening delays and reliability of freight access to and through Sydney resulting in the continued low growth of rail freight compared to road freight.

The FIAB recognised that there will continue to be significant growth in container movement through Sydney. If the status quo is retained (i.e. in the absence of a mode shift from road to 40% by rail), road freight is likely to increase from about 750,000 annual port truck movements in 2003 to approximately 2,750,000 in 2021 as shown in **Figure 2**. It should be noted that one 1500 metre intermodal train (superfreighter) is generally equivalent to 90-100 semi-trailers.




*Source: Summary Report, Draft Metropolitan Intermodal Freight Strategy, Department of Infrastructure, Planning and Natural Resources, October 2004.*

Figure 2 Annual Port Truck Movements

These figures indicate that even with a significant modal shift of freight transport from road to rail, the number of trucks will more than double in the period to 2021. The Southern Sydney Freight Line is a key component in the strategy that will serve to "reduce the increase" in truck movements during this period.

The proponent states that the projected shift of freight from road to rail across the North-South Corridor would have an estimated annual fuel saving of up to 80,000 litres by 2018 and up to 245 tonnes of carbon dioxide emissions per annum in 2018, equivalent to filling an average car fuel tank approximately 2130 times.

Australian Greenhouse Office figures show that annual emissions from rail[2] between 1990 and 2003 are in the range of nine (9) percent to 15 percent of those for trucks and buses for corresponding years (*i.e.* average of 1.6 MT $CO_2$-e for rail compared to 13.6 MT $CO_2$-e for trucks and buses over that period). The figures also show that the rail contribution to greenhouse emissions for the transport sector have decreased since 1990.

[2] Rail is defined as all non-electric rail including light rail, heavy urban rail, heavy non-urban passenger rail, hire and reward freight and ancillary freight. Emissions associated with the electricity generated to power electric rail are accounted for within the Stationary Energy sector (AGO, 2005)

AGO (2005) states that historically rail emissions have been on a downward trend due to improvements in rail freight systems including investment in rolling stock, track infrastructure and enhanced operational practices. Further, moderate increases in projected rail emissions (2.6 per cent per annum between 2010 and 2020) are largely driven by an increase in projected demand tempered by continuing improvements in energy efficiency of rail systems.

QR Network Access (2002) found that the rate of emissions from intermodal freight (grams per net tonne kilometre) was substantially less than from direct road freight. The emissions from intermodal transport were between 31% and 54% of those from 6 axle articulated vehicles and between 41 per cent and 70 per cent of those from 9 axle B-doubles. In the Sydney to Melbourne corridor, $CO_2$ emissions rates for intermodal transport are estimated at 14 NTK (net tonne kilometre) compared to 36 NTK (39 per cent) and 28 NTK (51 per cent) for 6 axle and 9 axles articulated vehicles respectively.

***

In conclusion, the Department considers that the proposal is a key component of increasing the mode share of freight transport by rail, is consistent with published planning policies and strategies and would provide benefits to regional air quality, greenhouse gas emissions and fuel consumption in undertaking this essential task.

### *5.1.2 Alternatives Considered*

**Issue**

A route options study was commissioned, as part of project development, to investigate the feasibility of providing a dedicated freight line through Sydney. Four corridor alternatives were considered (see Figure 3) on the basis of operational (efficiency of train operations, suitability of the alignment for freight operations, access to current/future freight terminals, impacts on future projects, track alignment suitability for freight (curve and grade); technical (capital and maintenance costs); environmental (land take, proximity to sensitive areas, and noise, vibration and air quality impacts) and economic (changes in transit time/availability, impact on future freight and growth) criteria. The options are summarised in Table 5 below.

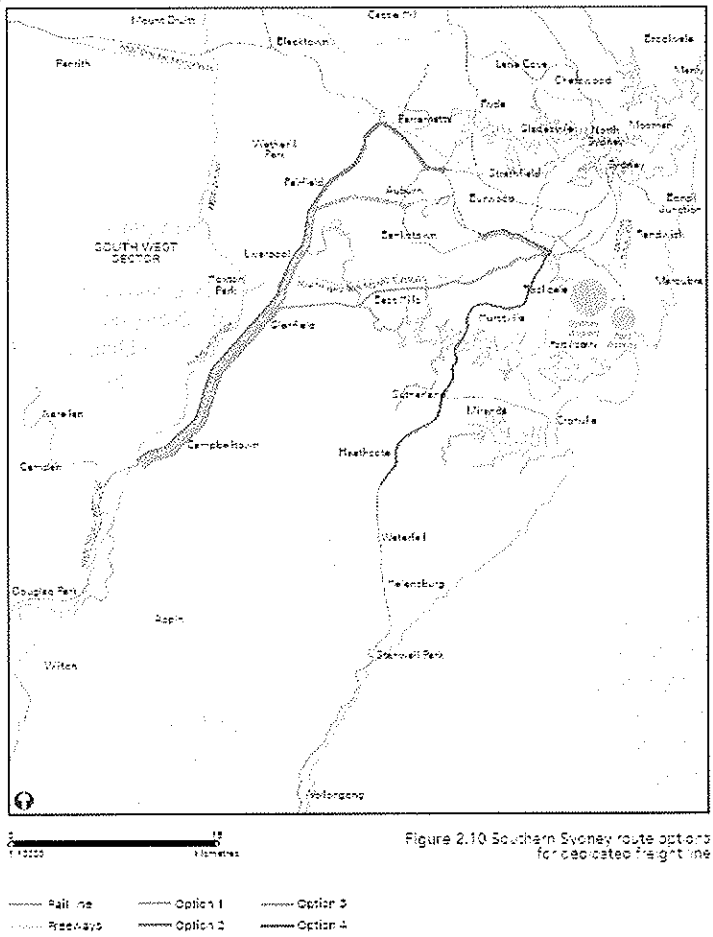



Figure 3 Alternatives Routes Considered

**Table 5** Options Summary and Comparison

| Option | Consideration |
|---|---|
| Option 1 (preferred route)<br><br>▪ using the RailCorp corridor between Macarthur to Sefton | Option 1 has:<br>▪ good compatibility with existing and future freight terminal locations (see Figure 4);<br>▪ uses the existing freight corridor for the majority of the route distance giving rise to relatively fewer environmental impacts;<br>▪ has relatively low impacts on future network infrastructure plans. Greater than 50% of the route would travel through open space or industrial land meaning that impacts to residential receivers would be minimised; and<br>▪ the lowest capital ($200 Million) and maintenance cost of any options considered. |
| Option 2 (via Granville)<br><br>▪ as for Option 1 to Cabramatta Junction with an underpass under the junction to the Old South Line corridor<br>▪ track would continue to Clyde Yard and Auburn on eastern (Down) side of Main West Line corridor<br>▪ second underpass under Auburn Railway Station would cross freight track to north (Up) side<br>▪ track would run east to connect with existing freight network at Flemington Junction via a third underpass under Olympic Park lines; | Option 2 has several physical constraints requiring underpass structures at Cabramatta Junction, Auburn and Olympic Park Line to gain access to the Metropolitan Freight Line at Flemington, resulting in costs of up to 65% more than Option 1. |
| Option 3 (East Hills Line)<br>▪ as for Option 1 between Macarthur and Glenfield Junction<br>▪ from there proceeding on the north (Up) side of East Hills Line to Wolli Creek Junction then via the Illawarra Line to Meeks Road Junction, Marrickville, where it would join the existing freight network | Option 3 has a narrow corridor between Bexley North and Turrella and therefore does not have the width for a fifth track without significant land acquisition from Wolli Creek Regional Park and associated impacts on the creek. This option also has a greater proportion of residential development adjacent to it.<br><br>In addition, due to gradient differentials between the Illawarra Line and the Metropolitan Freight Line at Meeks Road Junction, connection to the existing freight network (and therefore to Port Botany) would require significant additional rail infrastructure (rail loops).<br><br>It does not provide easy access to the Northern Line, which is required for freight movement to Brisbane, a key function of the SSFL. Under this option, in order to gain access to the Main Northern Line, freight would have to travel north from Meeks Road Junction via the Bankstown Line, thereby impacting inner western suburbs not currently affected by significant rail freight traffic.<br><br>This option would require an extra 10 kilometres of track construction and 30% greater construction costs compared to Option 1. |
| Option 4 (Illawarra Line)<br><br>▪ utilises the existing Illawarra Line corridor between Waterfall and Meeks Road Junction, Marrickville.<br>▪ A flyover would be required at Wolli Creek Junction to separate the freight track from the East Hills and Airport Lines.<br>▪ All freight movements south of Sydney would go via Wollongong and Robertson and connect to the Main South Line at Moss Vale. | ▪ same problems as Option 3 in relation to access to the Meeks Road Junction and Main Northern Line.<br><br>▪ stretches of very steep gradients (20km at a 1:30 gradient between Unanderra and Summit Tank; and 2km at a 1:40 gradient on the Como Bank) which would significantly complicate train operation efficiency and costs by increasing journey times and fuel consumption.<br><br>▪ no direct connections with existing and planned intermodal terminals along the Main South Line<br><br>▪ 35% greater construction costs compared with Option 1, due to major bridge crossings at Georges River and Cooks River. |

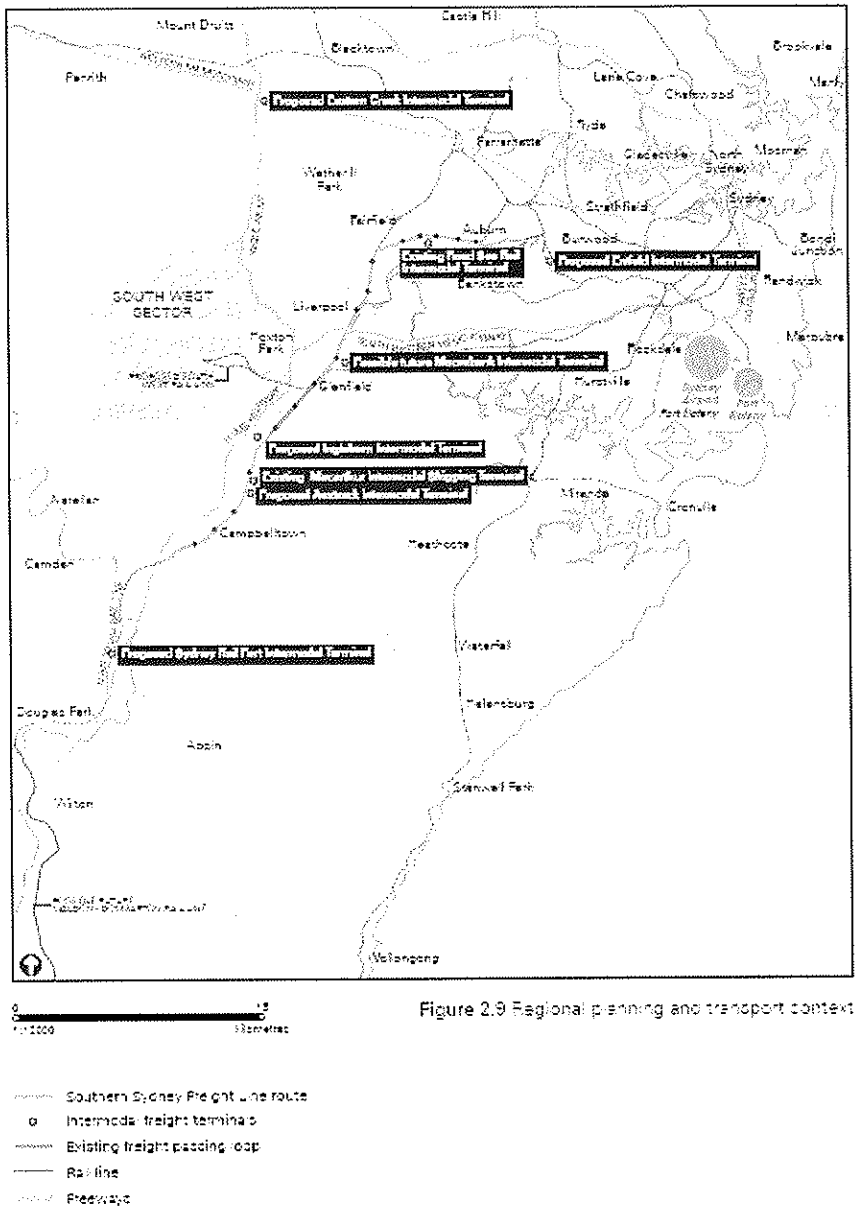



Figure 2.9 Regional planning and transport context

**Figure 4 Existing and Proposed Future Intermodal Terminals**

## Submissions

Sixteen (16) submissions raised concerns regarding the preferred route selection representing approximately 18% of submissions received.

Key issues raised were:

- proposal should be underground, particularly through Cabramatta
- oppose track through Cabramatta
- operations should be distributed around the network.
- could be better located to avoid high density residential areas
- route selection avoids large amount of land acquisition
- local route alternatives have not been adequately explored
- proposal should not go through Cabramatta, Canley Vale, Villawood and Carramar
- SSFL will further divide Cabramatta

Issues relating to Cabramatta Station are discussed further in section 5.3.1.

**Departmental Consideration**
Based on the findings of the route assessment presented in Section 2.6.2 of the EA and as summarised below, the Department is satisfied that the preferred route option chosen by the Proponent (the current proposal) would have the lowest economic, constructability and environmental costs and greatest operational benefits, of the options considered.

In summary the Department is satisfied that Proponent has undertaken a rigorous assessment of the route options available for the project and is satisfied that the options chosen provides the best outcome between the operational outcomes of the project (i.e. access to existing and future freight terminal locations), the physical constraints of the corridor; potential disruptions to the existing rail network; and the environmental and economic costs associated with these factors. The Department further notes that the route selected is the route that is identified in the Metropolitan Strategy (D6.2.1) and is therefore consistent with strategic planning policy. For the above reasons the Department is satisfied that the proposed SSFL route alignment is site suitable.

## 5.2 Noise and Vibration

The Submissions Report has identified that noise and vibration impacts were an area of major concern to the community. The Proponent was required to assess the impacts of the proposal in relation to noise and vibration impacts generated by the construction and operation of the proposal, with particular attention given to sensitive receptors and to provide a discussion on potential mitigation measures. This included the reporting of current impacts, likely changes to impacts as a result of the project, proposed mitigation measures and the results of these mitigation measures.

### *5.2.1 Construction Noise and Vibration*

**Issue**
The nature and timing of construction will generally determine the appropriate construction noise criteria to be considered. For this project, construction is proposed to be generally undertaken in three phases and at six work areas, with two work areas operating at any one time, suggesting that receivers near any particular location would be exposed to construction noise over a small proportion of the total 2 and a half year construction period. Notwithstanding this, there is potential for works to exceed 26 weeks at any one location and therefore the EA considered criteria that LA10 noise levels should not exceed the background by more than 5dB(A). This approach is consistent with the ENCM and the Ministers Condition of Approval for the Epping to Chatswood Rail Line.

The EA considered the indicative construction program and the likely plant and equipment to be used in each construction phase. The assessment identified that the maximum noise levels from construction activities would exceed the criteria and mitigation measures would be required. However, due to the linear nature of the project maximum noise levels would exist at any particular receiver for only a short period of time, with receivers close to bridge and station works being subject to longer periods of construction noise.

The construction vibration assessment has identified that the generation of vibration would be well below relevant criteria for either human comfort or structural damage to buildings. However, vibration at piling, demolition and flyover works would be perceptible.

**Submissions**
The Submissions Report identified that the management and mitigation of construction noise and vibration impacts was a key community concern. The DEC identified that the Construction Noise and Vibration Management Plan include Noise Vibration Impact Statements, be prepared by a recognised acoustic consultant, and the proponent commit to installing all physical operational noise management measures as early as practicable during construction of the proposal.

**Key Commitments**
In relation to construction noise and vibration impacts the Proponent has identified a range of commitments to mitigate construction impacts including: the preparation of a Construction Noise and Vibration Management Sub Plan; construction hours, construction techniques, consultation, and installing of operation noise mitigation measures as early as possible during construction(SoC 37 – 45).

**Departmental Consideration**

The Department acknowledges that construction activities will potentially result in localised exceedance of noise criteria. It is considered that these exceedances will generally be relatively short term in nature and that the proposed mitigation commitments will assist in minimising these. However, the Department considers that there is scope to strengthen the Proponent's commitments to further improve the performance of the proposal in relation to construction noise and vibration impacts. Accordingly it is recommended the commitments be redrafted and incorporate the need for the preparation of noise and vibration impact statements for major construction activities, not permitting blasting unless otherwise approved by the DEC, and the independent verification of the adequacy of the noise impact assessment and proposed mitigation measures (CoA 38 - 49).

### *5.2.2 Operation Noise and Vibration*

**Issue**

Operational noise is a key environmental impact of the proposal and is a source of major concern to the community. The Department in its consideration of this issue, both in the preparation of environmental requirements and its assessment of the proposal was cognisant of the particular attributes of the existing corridor and the impacts of the proposal. The project is proposed in an established freight rail corridor with existing noise related impacts. In order to ensure an equitable assessment of noise related impacts for the community, the application of the environmental noise criteria was refined to reflect project related impacts of the proposal.

As noise and vibration impacts are partly related to the number of train movements, it is worth noting that forecast freight movements on a typical day in 2018 without the SSFL would be approximately 42 movements and that with the SSFL, this would be approximately 62 movements. These calculations are from a base of 27 movements in 2005 and incorporate movements resulting from ARTC's North-South Corridor Strategy improvements. These figures demonstrate that there will be freight growth and associated impacts in the absence of the SSFL.

Application of Operational Noise Criteria

Environmental Noise Criteria were established in consultation with the DEC and are consistent with the planning goals outlined in Chapter 163 of the Environmental Noise Control Manual, namely:

Planning Levels – $L_{Aeq}$, 24hr = 55dBA; $L_{Amax}$ = 80dBA for residential receivers

In consultation with the DEC, the Department provided guidance on the application of these criteria and identified that physical mitigation measures were not required to be considered as an automatic response to any predicted exceedance of the Planning Levels. It should also be noted that these Planning Levels are not absolute (*i.e.* not criteria to be achieved); rather they are goals to aim for.

For exceedance of less than 5 dB(A), the DEC advised and the Department agreed that it would be appropriate for mitigation to focus on strategic source control measures. This approach acknowledges wider rail noise initiatives that have the potential to assist in controlling and mitigating rail noise. The NSW Government has established an inter-agency rail noise working group to progress a rail noise strategy that could include proposals for source related initiatives, environmental planning controls for adjacent development and rail operator management manuals. The National Transport Commission has also identified the need for a national code of practice for rolling stock noise emissions and is working with the Australasian Rail Association to develop this code, a process in which NSW and the ARTC will participate. It is also an objective of the NSW environment protection licence regime to reduce rail noise impacts.

Physical noise mitigation measures were also not required to be considered where the noise assessment demonstrated that the project would not worsen (*i.e.* increase) the noise environment even if Planning Levels were not met. That is, the predicted noise level at opening and 10 years after opening of the project (nominally year 2018) was lower than the predicted level in those years in the absence of the project when taking into account the projected growth in rail traffic. This approach was considered reasonable as it addressed project impacts and is consistent with the primary objectives of the SSFL, which is to improve the availability and reliability of train paths into and out of Sydney by avoiding the RailCorp passenger network.

### Submissions

The community has identified a range of concerns in relation to operational noise and vibration. In summary, submissions were concerned with:

- increased noise impacts including night time impacts, resulting from the projects location, increase in rail freight movements, operation times, train configuration, and speed;
- adequacy of noise objectives, criteria and definitions;
- adequacy and validity of noise assessment, quantification of impacts and mitigation measures;
- impacts of proposal on receivers (including health, social and economic impacts) and ongoing noise exceedance for some receivers;
- impacts on recreational areas;
- secondary impacts of physical mitigation measures (for example visual impacts of noise barriers);
- cumulative impacts and impacts on strategic planning, and future development opportunities;
- maintenance, management, licensing and monitoring of noise impacts; and
- adequacy of vibration assessment.

### Key Commitments

A range of mitigation measures were considered by the Proponent in optimising the project design. These included:

- locating the line and passing loops to minimise the number of residences exposed to increased noise levels, and the design of bridge structures to minimise noise impacts;
- installing wheel noise (hunting) detectors at Goulburn and Metford and to work with operators to have excessively noisy wagons to be removed for repair; and
- installing noise barriers along approximately 7,500m of the corridor, having a nominal design of up to 4m in height, 5m from the nearest track and having an absorptive surface to prevent noise reflecting to the opposite side of the corridor.

The Proponent committed to undertake further noise impact assessment to confirm the scope of mitigation measures and their design. The design of noise barriers would be undertaken in consultation with the affected community and where installed would take into consideration:

- shadow impacts;
- local flooding impacts; and
- assessment of potential for graffiti and other forms of vandalism (SoC 46).

The Proponent also committed to the preparation of an Operation Noise and Vibration Management Sub Plan which is to include a Source Control Plan, and an adequacy review of operation noise and vibration measures at a time between six months and one year after commencement of operation with the objective of identifying and installing additional noise mitigation measures as necessary (SoC 47-48).

### Departmental Consideration

Noise Assessment

The Department considers that noise and vibration impacts, and in particular noise impacts are a key environmental issue associated with this project and that appropriate mitigation and ongoing management measures must respond adequately to project-related impacts. Notwithstanding this, the assessment of noise and vibration impacts needs to consider the existing and future role of this rail corridor with and without the proposal. Accordingly the Department, in consultation with the DEC, developed appropriate noise criteria for this project and notes that the proposed mitigation measures will not and are not required to address all existing noise problems within the corridor. This project based approach is consistent with that adopted for other current rail projects (eg Rail Clearway Program).

The Department considers that the noise assessment is consistent with the Environmental Assessment Requirements set by the DEC and the Department. The assessment identified 59 noise catchments adjacent sensitive (residential) areas and identified that Planning Levels in 2008, before the operation of the SSFL (*i.e.* irrespective of whether the SSFL proceeds), will be exceeded in all but 5 catchments. Refer to Appendix G – Noise Barrier Locations and Heights, for catchment locations, surrounding land uses and proposed physical mitigation measures.

The assessment identified that in the first instance, physical noise mitigation measures were not required to be considered in 32 catchments because:

- there would be a **decrease** in noise levels and Planning Levels are **not** exceeded (catchment MAC1); or

| Catchment | $L_{Aeq,24hr}$ (dBA) | | | | $L_{Amax}$ (dBA) | | | |
|---|---|---|---|---|---|---|---|---|
| | 2008 Before | 2008 with SSFL | 2018 with SSFL | 2018 No SSFL | 2008 Before | 2008 with SSFL | 2018 with SSFL | 2018 No SSFL |
| MAC1 | 54.3 | 49.3 | 50.8 | 56.2 | 76.0 | 76.0 | 76.0 | 76.0 |

- Noise levels would be higher in the 2018 scenario with the SSFL than would be experienced in 2018 without the SSFL **but** the Planning Levels would **not** be exceeded (three catchments CAS1, CAS2, and CAS3); or

| Catchment | $L_{Aeq,24hr}$ (dBA) | | | | $L_{Amax}$ (dBA) | | | |
|---|---|---|---|---|---|---|---|---|
| | 2008 No SSFL | 2008 with SSFL | 2018 with SSFL | 2018 No SSFL | 2008 No SSFL | 2008 with SSFL | 2018 with SSFL | 2018 No SSFL |
| CAS1 | 51.4 | 52.4 | 55.0 | 53.1 | 78.1 | 79.9 | 79.9 | 78.1 |
| CAS2 | 50.0 | 49.7 | 52.2 | 51.7 | 76.3 | 76.3 | 76.3 | 76.3 |
| CAS3 | 42.5 | 44.5 | 47.3 | 44.2 | 65.0 | 67.9 | 67.9 | 65.0 |

- Noise levels would be higher in the 2018 scenario with the SSFL than would be experienced in 2018 without the SSFL, but the Planning Levels would be exceeded by **less** than 5dBA[3] (one catchment GLE2); or

| Catchment | $L_{Aeq,24hr}$ (dBA) | | | | $L_{Amax}$ (dBA) | | | |
|---|---|---|---|---|---|---|---|---|
| | 2008 No SSFL | 2008 with SSFL | 2018 with SSFL | 2018 No SSFL | 2008 No SSFL | 2008 with SSFL | 2018 with SSFL | 2018 No SSFL |
| GLE2 | 54.1 | 54.4 | 57.3 | 56.0 | 75.8 | 76.3 | 76.3 | 75.8 |

- Planning Levels are currently exceeded, but there would be an immediate **decrease** in noise levels as a result of the SSFL (primarily due to freight services moving to the opposite side of the rail corridor) **and** 2018 noise levels with the SSFL are **not** greater than those levels in the 2018 No SSFL scenario (22 catchments (LEU1, LEU2, MIN3, ING3, GLE1, GLE3, CAS4, LIV1, LIV3, WFA2, CAB3, CVA2, CVA3, CAR2, CAR4, CAR5, VIL2, VIL1, VIL3, CHE2, SEF4, RPK1)

| Catchment | $L_{Aeq,24hr}$ (dBA) | | | | $L_{Amax}$ (dBA) | | | |
|---|---|---|---|---|---|---|---|---|
| | 2008 No SSFL | 2008 with SSFL | 2018 with SSFL | 2018 No SSFL | 2008 No SSFL | 2008 with SSFL | 2018 with SSFL | 2018 No SSFL |
| LEU1 | 68.1 | 67.2 | 69.3 | 69.7 | 95.1 | 95.1 | 95.1 | 95.1 |
| LEU2 | 65.8 | 65.0 | 67.1 | 67.4 | 92.2 | 92.2 | 92.2 | 92.2 |
| MIN3 | 65.0 | 64.4 | 66.6 | 66.6 | 91.1 | 91.1 | 91.1 | 91.1 |
| ING3 | 69.0 | 67.9 | 69.8 | 70.6 | 96.2 | 96.2 | 96.2 | 96.2 |
| GLE1 | 63.3 | 62.5 | 65.2 | 65.2 | 87.1 | 87.1 | 87.1 | 87.1 |

[3] mitigation is required to focus on source control measures such as longer term rolling stock improvements (refer to *Application of Noise Criteria*)

| Catchment | $L_{Aeq,24hr}$ (dBA) | | | | $L_{Amax}$ (dBA) | | | |
|---|---|---|---|---|---|---|---|---|
| | 2008 No SSFL | 2008 with SSFL | 2018 with SSFL | 2018 No SSFL | 2008 No SSFL | 2008 with SSFL | 2018 with SSFL | 2018 No SSFL |
| GLE3 | 64.5 | 63.0 | 64.8 | 66.0 | 87.2 | 87.2 | 87.2 | 87.2 |
| CAS4 | 65.1 | 63.8 | 66.6 | 67.0 | 89.1 | 89.1 | 89.1 | 89.1 |
| LIV1 | 68.9 | 67.9 | 70.1 | 70.6 | 92.7 | 92.7 | 92.7 | 92.7 |
| LIV3 | 69.6 | 68.2 | 70.3 | 71.2 | 93.5 | 93.5 | 93.5 | 93.5 |
| WFA2 | 65.2 | 64.6 | 66.9 | 66.9 | 88.4 | 88.4 | 88.4 | 88.4 |
| CAB3 | 64.6 | 63.7 | 65.9 | 66.3 | 87.7 | 87.7 | 87.7 | 87.7 |
| CVA2 | 69.5 | 68.4 | 70.5 | 71.2 | 93.4 | 93.4 | 93.4 | 93.4 |
| CVA3 | 67.5 | 66.5 | 68.9 | 69.2 | 91.1 | 91.1 | 91.1 | 91.1 |
| CAR2 | 68.3 | 67.3 | 69.6 | 70.1 | 92.2 | 92.2 | 92.2 | 92.2 |
| CAR4 | 75.1 | 71.6 | 73.0 | 76.9 | 98.4 | 98.4 | 98.4 | 98.4 |
| CAR5 | 66.7 | 65.5 | 68.4 | 68.6 | 91.7 | 91.7 | 91.7 | 91.7 |
| VIL2 | 66.2 | 63.4 | 65.4 | 68.0 | 91.4 | 91.4 | 91.4 | 91.4 |
| VIL1 | 64.9 | 62.0 | 64.0 | 66.7 | 91.4 | 91.4 | 91.4 | 91.4 |
| VIL3 | 63.9 | 63.2 | 65.8 | 65.8 | 87.6 | 87.6 | 87.6 | 87.6 |
| CHE2 | 67.0 | 66.0 | 68.4 | 68.7 | 90.6 | 90.6 | 90.6 | 90.6 |
| SEF4 | 66.6 | 65.7 | 68.2 | 68.3 | 90.1 | 90.1 | 90.1 | 90.1 |
| RPK1 | 69.8 | 67.9 | 70.8 | 71.8 | 95.1 | 95.1 | 95.1 | 95.1 |

It should also be noted that if the 2018 levels with the SSFL are compared with the base case (2008 before SSFL), then the increase in noise levels in these catchments would be less than 2dBA. This increase is generally considered as not being perceptible and the need for implementing physical mitigation measures as not reasonable.

- Planning Levels are **currently exceeded** but there would be an immediate (2008) **decrease** in noise levels as a result of the SSFL and a **minimal** exceedance of the 2018 no SSFL scenario levels (5 catchments (MIN2, MAQ1, MAQ2, MAQ3 and CAS6). This increase is less than 2dBA over 2008 base levels and the difference between the 2018 scenarios with and without the SSFL is less than 0.5dBA. Therefore the implementation of physical mitigation measures is not considered reasonable.

| Catchment | $L_{Aeq,24hr}$ (dBA) | | | | $L_{Amax}$ (dBA) | | | |
|---|---|---|---|---|---|---|---|---|
| | 2008 No SSFL | 2008 with SSFL | 2018 with SSFL | 2018 No SSFL | 2008 No SSFL | 2008 with SSFL | 2018 with SSFL | 2018 No SSFL |
| MIN2 | 63.6 | 63.1 | 65.3 | 65.2 | 89.3 | 89.3 | 89.3 | 89.3 |
| MAQ1 | 63.8 | 63.3 | 65.5 | 65.4 | 89.6 | 89.6 | 89.6 | 89.6 |
| MAQ2 | 62.4 | 62.1 | 64.3 | 63.9 | 84.6 | 84.6 | 84.6 | 84.6 |
| MAQ3 | 60.8 | 60.5 | 62.7 | 62.3 | 82.6 | 82.6 | 82.6 | 82.6 |
| CAS6 | 63.2 | 62.8 | 65.1 | 64.9 | 86.6 | 86.6 | 86.6 | 86.6 |

Physical Mitigation Measures

Physical noise mitigation measures were considered for the remaining 27 catchments. Of these 27 catchments, Planning Levels would be achieved at 12 catchments with the nominal noise barriers in place (CAM1, ING1, ING2, CAS5, CAB1, CAB6, CAR1, CAR3, CAR7, CHE4, SEF2, SEF1).

| Catchment | Barrier Height (metres) | $L_{Aeq,24hr}$ | | $L_{Amax}$ | |
|---|---|---|---|---|---|
| | | 2008 No SSFL | 2018 With SSFL and Barrier | 2008 No SSFL | 2018 With SSFL and Barrier |
| CAM1 | 4 | 65.2 | 54.8 | 90.3 | 75.6 |
| ING1 | 3.5 | 63.4 | 54.9 | 89.1 | 76.3 |
| ING2 | 3.5 | 61.4 | 54.1 | 87.8 | 75.8 |
| CAS5 | 4 | 64.4 | 54.3 | 88.3 | 75.5 |
| CAB1 | 3.5 | 64.9 | 53.9 | 88.1 | 73.0 |
| CAB6 | 4 | 64.5 | 53.7 | 87.6 | 72.6 |
| CAR1 | 3.5 | 63.8 | 54.3 | 86.9 | 74.5 |
| CAR3 | 3.5 | 64.8 | 54.4 | 88.0 | 73.4 |
| CAR7 | 3.5 | 64.6 | 54.7 | 88.5 | 74.6 |
| CHE4 | 2 | 61.9 | 53.3 | 88.7 | 71.6 |
| SEF2 | 2.5 | 62.5 | 54.9 | 86.0 | 74.7 |
| SEF1 | 1.5 | 62.1 | 54.7 | 87.7 | 75.2 |

The Proponent also identified that it would not be possible to achieve the Planning Levels in the remaining 15 catchments using a nominal 4m high noise barrier, with the highest exceedance being 7dBA. These exceedances are primarily related to residences in the upper levels of multi-storey buildings or where there are topographical constraints where noise barriers have limited effect. However, further mitigation is not considered reasonable and feasible at these locations as these catchments will receive substantial benefit, if not the full effect of the proposed noise barriers, resulting in an improved environment

| Catchment | $L_{Aeq,\ 24\ hr}$ (55dBA) | | | $L_{Amax}$ (80dBA) | | |
|---|---|---|---|---|---|---|
| | 2008 No SSFL | 2018 with SSFL and Barrier | Net Change (from 2008 no SSFL) | 2008 No SSFL | 2018 with SSFL and Barrier | Net Change (from 2008 no SSFL) |
| MIN1 | 66.8 | 56.9 | -9.9 | 94.7 | 94.7 | 0 |
| LIV2 | 64.5 | 59.7 | -4.8 | 88.0 | 82.8 | -5.2 |
| LIV4 | 67.5 | 61.4 | -6.1 | 91.0 | 84.0 | -7.0 |
| WFA1 | 65.5 | 57.3 | -8.2 | 89.6 | 77.5 | -12.1 |
| CAB2 | 66.2 | 55.9 | -10.3 | 89.6 | 75.2 | -14.4 |
| CAB4 | 64.5 | 61.9 | -2.6 | 88.4 | 88.4 | 0 |
| CAB5 | 64.2 | 60.1 | -4.1 | 88.1 | 88.1 | 0 |
| CVA1 | 63.9 | 60.3 | -3.6 | 87.1 | 87.1 | 0 |
| CAR6 | 64.7 | 61.0 | -3.7 | 88.6 | 88.6 | 0 |
| CAR8 | 68.7 | 58.4 | -10.3 | 93.4 | 78.6 | -14.8 |
| CHE1 | 65.2 | 56.4 | -8.8 | 89.2 | 77.9 | -11.3 |
| CHE3 | 68.3 | 60.6 | -7.7 | 92.9 | 85.9 | -7.0 |

| Catchment | $L_{Aeq, 24\,hr}$ (55dBA) | | | $L_{Amax}$ (80dBA) | | |
|---|---|---|---|---|---|---|
| | 2008 No SSFL | 2018 with SSFL and Barrier | Net Change (from 2008 no SSFL) | 2008 No SSFL | 2018 with SSFL and Barrier | Net Change (from 2008 no SSFL) |
| SEF3 | 67.2 | 57.4 | **-9.8** | 90.8 | 79.1 | **-11.7** |
| SEF5 | 66.9 | 57.7 | **-9.2** | 91.1 | 77.8 | **-13.3** |
| RPK2 | 68.0 | 61.1 | **-6.9** | 92.7 | 84.6 | **-8.1** |

The Department notes the concerns raised in the submissions and acknowledges that assumptions, including noise sources and consequent modelling and forecasts may change in the detailed design or over time, resulting in potentially different impacts of either a positive or negative nature. However, these assumptions would be further assessed in the detailed design of the mitigation measures and through the ongoing monitoring of the project. The Proponent would be responsible for any additional mitigation measures should there be substantial exceedance of the predicted noise levels associated with the project.

Submissions identified that the EA should have more adequately assessed and mitigated 'acute' railway noise levels and night time impacts. As noted, the Department in consultation with DEC identified appropriate criteria and methodology to address project specific noise impacts. Accordingly, the Proponent was not required to explicitly consider night time noise criteria or 'acute' railway noise levels. Although there will be increases in night time movements, the SSFL will improve the availability and reliability of freight train paths into and out of Sydney during peak periods and assists in reducing the number of freight trains operating at night.

The Department also notes that potential noise impacts outside the boundaries of the project on areas of the existing rail network beyond the study area are not significant enough to warrant further investigations and that these areas would benefit through mitigation actions undertaken as part of the project including the recommended Source Control Plan, and wider rail noise initiatives.

The Department notes that the assessment of noise impacts has focussed on mitigating impacts on existing development, and that assessing impacts on future development is problematic due to the uncertain nature of this development. In acknowledging that the project has been identified as an action in the Sydney Metropolitan Strategy and that the corridor is an existing shared freight and passenger rail corridor, future land use planning and development will need to continue to respond to existing and future operations on the corridor. However, it should be recognised that the project will mitigate existing and future noise levels in many locations along the corridor thus minimising future receiver mitigation costs. Accordingly, the Department considers that further analysis of noise impacts on future development is not warranted.

With regards to the operation of the SSFL, speed and restriction of movement numbers were also considered as potential noise mitigation measures. The Department agrees that these measures are not considered reasonable and feasible as they would be inconsistent with the project objective to improve the efficiency of rail operations. The restriction on movement numbers and any potential night curfews would also be inconsistent with this objective and is not considered an efficient method of reducing noise levels.

The proposal has the potential to increase noise impacts on open-space including along the Georges River parklands, and at Leacock Regional Park and Throsby Park adjacent the Glenfield Flyover. The Department considers that due to the existence of the current freight corridor and the intermittent nature of freight movements and park uses, the proposal will not significantly change the essential nature of adjoining parklands or impact on users and that further mitigation measures are not warranted.

The Department also notes that noise levels will marginally increase at residences adjoining Leacock Regional Park where the proposed Glenfield Flyover and passing loop is to be located. The identified increases in noise are below the Planning Levels and therefore physical mitigation is not required, however, these residences will benefit from ongoing source control measures. The Department also understands that three alternate locations were considered for this facility and that Leacock Regional Park was the preferred location for the flyover as:

- it can be readily accommodated between the constraints at Glenfield and the optimum possible future connection to the intermodal terminal at Moorebank;
- it provides for optimum gradients as low as 1/100;
- it would have the least noise impacts on adjoining residences and the Casula Arts Centre; and
- there are no major construction issues.

The DEC has expressed concern that the operational noise impacts of the proposal may have been underestimated, but also noted that the Proponent had committed to a review of adequacy of the operational mitigation measures. In noting the importance of operational noise impacts, the Department has reviewed the Proponents commitments and has recommended that a comprehensive Operation Noise and Vibration Management Plan be prepared (CoA 50). As part of the ONVMP the Proponent would be required to review and monitor the effectiveness of the proposed mitigation measures and, if necessary identify further reasonable and feasible mitigation measures to be implemented. This monitoring would need to be undertaken 1, 2, 5 and 10 years after commencement of operations and would need to consider advances in best practice noise mitigation technology and any State or Federal Government initiatives to manage rail noise (CoA 53).

Source Reduction Strategies

The Department agrees with the DEC and other submitters that source-reduction strategies have significant benefit in that they have benefits both within and outside the geographic scope of the Project, and in particular, to locations where physical mitigation measures are not proposed. Due to the significance of this issue, the Department considers that the requirement of such a plan needs to be detailed further prior to Operation and has recommended that a Source Control Plan be prepared as part of the ONVMP.

It is recommended that the Source Control Plan be prepared in consultation with the DEC and approved by the Director-General prior to the commencement of operations (CoA 50). The Source Control Plan will be required to identify strategies for source controls including a program of condition monitoring for the purpose of minimising noise emissions from freight rolling stock and maintenance activities; and targets, assessment, action and review processes for incorporation and implementation of best practice measures. As part of the ONVMP review process, the Proponent will be required to review the effectiveness of mitigation measures including the Source Control Plan.

Noise Barriers

The Department notes that the provision of noise barriers has the potential to have secondary impacts such as urban amenity, design, safety and view impacts (including visual severance). The Department considers that these impacts can be mostly addressed in the detail design of the proposal and that on balance a significantly improved noise environment for many sensitive receivers outweighs potential secondary impacts. However, this should be rightly determined in consultation with affected receivers (CoA 24 and 51) and in the preparation of the Urban Design and Landscaping Plan (UDLP). The preparation of the UDLP requires the Proponent to consider property and land use; visual amenity; biodiversity values; heritage values; access, transport and traffic facilities; and personal and passenger safety. In considering these issues, it is expected that potential social and economic impacts would be avoided.

The Department notes that the Proponent has committed to designing noise barriers to reduce the incidence of graffiti. The Department supports this initiative, and also recommends that the ongoing maintenance and operation costs of urban design and landscaping items and works must remain the Proponent's responsibility until satisfactory arrangements have been put in place for the transfer of the asset to the relevant authority. This will include the removal of graffiti within performance standards specified in an UDLP (CoA 27).

Vibration Assessment

The Vibration assessment identified that the project would not exceed operational vibration criteria. Total Vibration Dose Values are expected to be below the preferred values for both critical areas (eg hospitals) and residences. Notwithstanding, it is recommended that the Proponent be required to monitor vibration levels against objectives identified in the ONVMP (CoA 53).

ARUP Report

Bankstown, Fairfield and Liverpool Councils, in preparing their response to the exhibited EA, engaged ARUP Acoustics to undertake a technical review of the noise and vibration assessment. Key issues identified in this review included:

- the assessment of impacts was complicated due to the shared nature of the corridor;
- in the absence of definitive railway noise criteria that the noise criteria identified were reasonable limits to apply to the project;
- the application of 'no mitigation if no noise increase' allowance results in unusual situations where receivers exposed to existing noise criteria exceedance may not receive physical mitigation measures;
- the assessment should adopt 'acute' railway noise levels 10db above the target criteria, above which noise mitigation will be provided, even if there is no increase in noise levels due to the project;
- the assessment should provide a more detailed description of likely night time noise impacts; and
- the proposal will result in intensification of use on areas of the existing rail network beyond the study area.

To a large extent, the ARUP report supports the approach adopted in developing the planning levels for this project, the assessment process undertaken by ARTC and the application of mitigation measures. Of the additional matters raised in the report, these are addressed either in ARTC's Submissions report or the Department's consideration above. Overall, the Department has assessed that the matters raised in the ARUP Report and the Proponent's response to these issues and considers that the noise and vibration assessment was appropriate and that the recommended Conditions of Approval will assist in refining the proposed mitigation measures. As noted, to overcome the complexity of the existing shared passenger and freight corridor, the Department in consultation with the DEC developed EA requirements that focused the assessment and resultant mitigation measures on project related impacts. Consequently the Proponent was not required to explicitly consider night time or acute noise levels. The Department also considers that potential noise impacts outside the geographic scope of the project will be negligible and that the Source Control Plan will benefit receivers both inside and outside the boundaries of the project.

* * *

The Department notes that the proposal would largely be contained within the existing Main South Line rail corridor, which has been used for 24-hour rail freight for over 100 years. Freight would continue to grow on the existing line whether or not the SSFL proceeds, with forecast freight movements on a typical day in 2018 without the SSFL being approximately 42 movements, compared with 62 movements with the SSFL, from a base of 27 movements in 2005. This equates to the SSFL contributing approximately 20 more freight movements per day in 2018.

The mitigation measures proposed as part of the project would not only mitigate noise attributable to the Project but also provide a substantial improvement in the existing noise environment of the overall corridor. As a result of these mitigation measures, the Department considers that social and economic impacts would also be minimised, as would be cumulative impacts. Consequently, the Department considers that the noise and vibration impacts attributable to the project are acceptable in the context of the existing environment subject to the recommended conditions of approval.

## 5.3 Station Precinct Works

### *5.3.1 Cabramatta Station and surrounds*

**Issue**

Cabramatta Railway Station serves as a transport interchange and provides pedestrian access across the rail corridor, between east and west Cabramatta. The Cabramatta town centre is primarily located to the west of the rail corridor providing a regional centre function. To the east, the centre has a more local role. To the north and south of the station, development is primarily residential. The proposal at Cabramatta Station requires works to the eastern side of the station and the adjoining area.

In determining the alignment through Cabramatta, the Proponent considered both an underground and above ground alignment. The surface alignment would be located on the western side of Broomfield Street, whilst the underground alignment would require the construction of a tunnel under Broomfield Street. The alignment at Cabramatta also needs to accommodate the long-term plans of RailCorp to increase train path capacity at this

junction of the rail network. This would involve relocating the Old South Main Down track (from Granville) to an underpass crossing the main south tracks (from Carramar) and a tunnel under the station, and to incorporate a new underground platform for trains coming from Granville.

Key elements of the proposal at Cabramatta Station include:

- an alignment to the eastern side of the corridor and station partly outside the existing corridor with the width of land to be acquired up to 10 m at its widest point to the north of the station;
- extension of the station footbridge and installation of new stairs and a lift;
- reconfiguration of Broomfield Street including a narrowing of the street and the provision of a shared zone; between the new station entry and business across the street and the reconfiguration of 185 car parking spaces immediately to the north and south of the station; and
- Provision of a new two bay bus stop.

**Submissions**

Submissions raised a number of concerns regarding impacts at Cabramatta and adjoining areas. Fairfield Council considers that the impacts of the Project as currently proposed are not acceptable and that there are significant impacts to the local community. In summary, these concerns relate to:

- a request for alternative routes or undergrounding of the project due to environmental, social and health impacts of the current proposal;
- construction impacts including access changes, hazards and risks, noise and vibration and potential social and economic impacts, including loss of trade for businesses in east Cabramatta and psychological distress among disadvantaged residents that are unable to avoid construction (or operational) impacts;
- a station design that should accommodate existing and future growth in transport demand, provide cycle facilities and be designed to meet Council design requirements;
- adverse traffic, pedestrian and cycle impacts resulting from the introduction of a shared traffic zone, changes to station access, parking and stopping facilities;
- the adequacy of noise and vibration assessment and mitigation measures, including the absence of noise barriers adjacent to the Cabramatta town centre;
- impacts of noise barriers on views, safety, urban amenity and the cohesiveness, function and viability of Cabramatta;
- reduced safety from changes to the pedestrian overpass, additional distances to car parking, loss of surveillance and CCTV capacity and increased crime resulting from the installation of noise barriers;
- economic impacts resulting from a loss of amenity in east Cabramatta and a reduced opportunity for redevelopment and investment, resulting in socio economic decline;
- ongoing maintenance costs to Council arising from additional landscaping, graffiti removal and street lighting costs;
- heritage impacts on LEP listed items; and
- cumulative nature of impacts

**Key Commitments**

The Proponent has identified project wide construction related commitments, including the preparation of a Construction Environmental Management Sub Plan (SoC 13) which will incorporate a range of sub plans covering a key construction issues, including traffic and access, noise and vibration, and potential hazard and risk impacts. Of particular note is the provision of alternate access prior to the closure of facilities.

The Proponent has also identified Cabramatta specific commitments including the minimisation of traffic and transport impacts; undertaking detail design of the station precinct , a traffic impact assessment of the proposed shared zone, and preparation of a Parking Study and a Pedestrian Access and Mobility Plan (SoC 81 and 95).

**Departmental Consideration**

Alignment

The Department understands that an underground alignment at Cabramatta would require tunnel and approach cuttings of approximately 1.3km in length using cut and cover construction in close proximity to a live track, and would result in a loss of parking due to the southern approach cutting, and require the construction of a

ventilation shaft. The surface alignment would result in a widening of the corridor of up to 10m resulting in a range of access and parking changes and some additional noise and visual impacts.

The Department notes that the assessment of surface and underground alignments at Cabramatta concluded that an underground alignment would have greater cost, construction, and operational functionality impacts and that Council's alternative C for the Cabramatta section of the proposal can not be built as it is based on an incorrect design assumption. The Department understands that the cost for the tunnel with ventilation is approximately $48 million whereas a surface alignment with provision of surface works in the station precinct is approximately $4.5 million. The Department considers that further assessment of an underground alignment is not warranted as it considers the proposal acceptable subject to appropriate mitigation measures as discussed in the following sections.

The Department also notes that future construction impacts could be further minimised by undertaking preliminary piling and roofing works for future RailCorp alignments. The Department recommends that the proponent liaises with RailCorp on this matter, and if possible these works be carried out in conjunction with the construction of the SSFL (CoA 30).

Construction

The Department considers that the construction of the project without appropriate mitigation measures would result in impacts at Cabramatta, particularly as a result of temporary access changes and noise and vibration impacts. The Department also notes that the Proponent has committed to a range of construction related management measures that will assist in minimising these impacts and consequential environmental, social, health and economic impacts. The Department also notes that the above ground alignment will have relatively fewer construction impacts on Cabramatta and the surrounding area thus minimising any economic impact on business in the area.

To enhance the environmental outcomes of construction related commitments, the Department has recommended a range of amendments to both the project wide and Cabramatta specific commitments. These include revisions to Construction Environmental Management Plan framework, sub plan and operation requirements (CoA 13, 38-49, 54-58, 68) The Department considers that with these recommended revisions, construction related impacts can be effectively managed.

Station Design

The Department notes that the design of Cabramatta station includes a new station entry, relocated bus and taxi facilities and a range of ancillary works and improvements including new paving on the western and eastern side of Broomfield Street, street trees and security lighting. To ensure that these public domain works are consistent with the surrounding streetscape and Council initiatives, the Department recommends that the Proponent be required to continue to consult with Council on the design of the station as part of the preparation of an Urban Design and Landscape Plans (CoA 24). The Department also notes that due to the constrained nature of the location, the ability to expand transport facilities, including cycle facilities is limited. The Department also considers that the provision of additional facilities that are not directly affected by the proposal are not the responsibility of the Proponent, however, the Department also acknowledges that where practicable, the proposal should not preclude the future provision of these facilities.

Access and Parking

The Department notes that due to space constraints, Broomfield Street is required to be narrowed to accommodate the project, and that this will require Broomfield Street, at its narrowest point, to be reduced to two 3.0m traffic lanes and one parking lane (resulting in a loss of a parking and cycle lane). It is also noted that although these lane widths are not optimal, the impacts to road users are expected to be minimal and acceptable, subject to the implementation of appropriate traffic management measures.

The Proponent has proposed a 65m linear 'shared zone' near Cabramatta Station to mitigate impacts on pedestrians and cyclists and to manage potential pedestrian-vehicle conflicts, whilst not affecting kerbside parking supporting adjacent commercial and retail developments. It is expected that the shared traffic zone would result in some minor but acceptable traffic diversions particularly at peak periods to adjoining roads,

primarily along Longfield and Cumberland Streets. The Department notes that the proponent has committed to undertake further traffic impact assessment and prepare a Pedestrian Access and Mobility Plan (SoC 81).

Changes to and impacts on parking has been identified as a significant issue at Cabramatta, as has the adequacy of the proposed mitigation measures. Parking in this vicinity is comprised of time-restricted and non-time restricted parking serving the needs of businesses, shoppers and rail commuters. The Proponent has identified that the proposal would impact on 185 on and off street car parking spaces to the north and south of Cabramatta Station and that replacement parking would involve reconfiguring spaces along Broomfield Street. A proportion (approximately 40 spaces) of this relocated parking could be in excess of 400m from the station, depending on the final configuration of the parking. The proposal will also result in the reconfiguration of bus bays, and kiss and ride facilities with minimal impact.

Cabramatta has been identified as a potential major centre in the Sydney Metropolitan Strategy. In centres where there are relatively good public transport services and connectivity, existing government policy identifies that parking supply should be managed to reflect this connectivity and to support the efficient and viable operation of public transport services. The Department notes that relocating some 40 car parking spaces more than 400m from the station is not an optimal solution but does not consider that this a significant issue due to the relatively low number of displaced places and that the proposed station facilitates bus-rail interchange. The Department also notes that the Proponent has committed to preparation of a Parking Study (SoC 81).

Notwithstanding, the Department considers it appropriate that the relocation of parking should be optimised, take into consideration different users parking requirements, and identify immediate and longer term measures (*i.e.* noting that there may be different opportunities once construction is completed) with an objective to minimising the amount of displaced parking which is more than 400 metres from the station entrance. This would include the consideration of alternate arrangements both on and off street parking, and if relevant contributions to the redevelopment of existing parking facilities.

In considering the related nature of vehicle, pedestrian, and cycle access, the Department recommends that the proposed traffic assessment be carried out concurrently with proposed parking and pedestrian studies. This review should be done in consultation with Council, relevant Government Departments and the community, and accordingly the Department recommends that the Proponent undertake a review of proposed traffic, parking, cycle and pedestrian arrangements and incorporate these into the Urban Design and Landscape Plan for Cabramatta (CoA 29).

Noise and Vibration

The Department notes that no sensitive receivers have been identified in Cabramatta centre, and as a consequence noise mitigation measures are not proposed or required. Notwithstanding, Noise and vibration matters are primarily considered in section 5.2, and the Proponent will be required to confirm the noise and vibration assessment, including the identification of sensitive receivers in non-residential areas (CoA 50).

The Department also notes that noise barriers are proposed adjacent to the Cabramatta Centre, including along Broomfield Street. The Department notes that the installation of noise barriers will have secondary impacts in this location due to the high rail embankment, which includes loss of views and urban amenity impacts. The Proponent has committed to designing the embankment and barriers to reduce these impacts including the provision of plant screens and limiting the potential for graffiti. The Department considers that these secondary impacts need to be balanced against the benefits to the community from a reduction in both existing and future noise impacts. Subsequently, the Department recommends that the design of noise barriers be considered in the development of Urban Design and Landscape Plans (CoA 24), and that in preparing the UDLP and identifying noise mitigation requirements along Broomfield Street, that, the Proponent consult with adjacent landowners with particular reference to the design of the embankment retaining wall and any physical noise mitigation requirements (CoA 26).

Safety

The Department notes that passenger and community safety is a key concern in Cabramatta. The proponent has identified that indicative design for stations considered a range of public safety issues and that these would be refined in the detail design of the project. The Department also notes that the relevant commitments do not

identify this matter, or matters related to the existing Town Safe Closed Circuit Television (CCTV) System. Subject to appropriate mitigation measures, the Department is generally satisfied that the proposal would not adversely affect security and safety and that there are appropriate management measures that could be applied. The Department therefore recommends that the Proponent consider passenger and community safety in the detailed design of the station and surrounds including the capacity of the CCTV network (CoA 28).

The Department notes that easy access to Cabramatta Station will be achieved on the eastern side of the station through the introduction of a lift. It is understood that a ramp, which would need to meet current disabled access gradient standards can not be accommodated without additional impact on parking due to space constraints along Broomfield Street. The Department acknowledges that there is potential for the lift to breakdown and that there is a risk for entrapment. However, the Department also considers that the increased impact on parking precludes the introduction of ramps and therefore recommends that the proponent design the lift to enhance its security including the introduction of a CCTV camera, subject to Council agreement and be built to allow occupants to be observed from both the street and pedestrian overpass (CoA 28).

Social and Economic Impacts

The Department notes concerns raised by the community regarding the potential social and economic impacts of the proposal and its cumulative impacts. In considering these impacts, the Department has considered the existing constraints and impacts of the current rail corridor and notes that the proposed mitigation measures would minimise the potential for social, economic and cumulative impacts, and that any residual impacts should be considered against the wider benefits of the proposal. Notwithstanding, the Department considers that the detailed urban design of the project include measures to minimise the impacts of the Project on property and land use; visual amenity; heritage values; and personal and passenger safety (CoA 24).

The Department notes that a number of the proposed mitigation measures will have ongoing running and maintenance costs, particularly in relation to landscaping and security costs. The Department considers and recommends that the ongoing maintenance and operation costs of urban design and landscaping items and works implemented as part of Project remain the Proponent's responsibility until satisfactory arrangements have been put in place for the transfer of the asset to the relevant authority (CoA 27).

Heritage

The station precinct works at Cabramatta would involve the extension of the Cabramatta pedestrian footbridge (which is listed on RailCorp's section 170 Register of Heritage Conservation) and the demolition of station facilities (ticket office and toilets) within the 'brick railway building' which is listed under the Fairfield LEP. The Department understands that the works would not directly affect the listed brick railway building itself and that the proposed removal of ticket and toilet facilities is considered unlikely to affect the heritage significance of the listed building, due to the contemporary nature of the facilities. Similarly, low heritage impacts are predicted on the pedestrian footbridge as this also relatively contemporary in nature.

To mitigate the heritage impacts of the proposal the ARTC proposes to undertake photographic documentation of all heritage items to be affected prior to the commencement of works and design all works to be sensitive to the heritage values and character of the existing heritage buildings/ structures. The Department is satisfied that with the implementation of the proposed mitigation measures, the heritage impacts of the project can be minimised so as to not result in unacceptable impacts. The Cabramatta Station precinct would not affect any State Heritage Register (SHR) listed items.

* * *

In summary, the Department is satisfied that the proposal can be designed, mitigated and managed to minimise the impacts to the community of Cabramatta as far as possible. The Department considers that the mitigation measures proposed by the Proponent and as incorporated into recommended conditions of the proposal would largely offset the adverse impacts of the project at Cabramatta such that the costs of the project would not be concentrated on the Cabramatta community. The Department is satisfied that the design of Cabramatta Station (as mitigated) provides a balanced outcome between impacts to the community and corridor constraints and is justified against the strategic benefits of the project.

### 5.3.2 Other Station Precincts

**Issue**

Six stations would require significant construction work to fit the SSFL within the space available and preserve their public transport functionality, maintain public access and replace facilities affected by the SSFL. These works would include:

- footbridge extensions and modifications, including construction of lifts where required;
- reconstruction of station buildings and other facilities (eg ticket offices);
- construction of a protection barrier on the back of the platform next to the SSFL; and
- restoration of car parking, taxi stands and kiss and ride facilities, and bus interchange facilities affected by the SSFL.

The following changes to station precincts (other than Cabramatta Station) and corridor access would be required to accommodate the SSFL:

- Leumeah – extension of existing footbridge, replacement of existing stairs and lifts with new stairs and lifts, relocation of 88 parking spaces, and minor adjustments to kerb line and roundabout on the station access road;
- Minto – extension of existing footbridge, replacement of existing stairs and ramp with new stairs and 2 new lifts, relocation of 56 parking spaces to two new formal parking areas off Wiltshire Street (totalling 75 spaces) and relocation of bus stops 60m to the north;
- Casula – extension of existing footbridge and replacement of existing stairs with new stairs, widening of the embankment outside of the rail corridor;
- Warwick Farm – replacement of existing at-grade access with new pedestrian bridge and 2 lifts and relocation of 26 parking spaces;
- Carramar – extension of existing pedestrian underpass and relocation of 6 parking spaces;
- Leightonfield – extension of existing pedestrian bridge;
- Chester Hill – upgrade of existing pedestrian bridge (on Chester Hill Road); and
- Sefton – replacement of existing footbridge and stairs with new footbridge and stairs, relocation of 26 parking spaces, relocation of bus stop 40m to the east, and minor adjustments to Station access road (Wellington Road).

**Submissions**

Submissions on the proposal raised the following concerns regarding the proposed changes to station precincts:

- traffic & transport, access, and parking impacts during construction and operation;
- safety and hazard impacts associated with the installation of lifts at stations;
- provision of additional facilities (including additional 'easy access' lifts rather than replacement of existing facilities like for like) to offset impacts;
- amenity impacts on the Casula Powerhouse Regional Arts Centre; and
- visual and heritage impacts

**Key Commitments**

The Proponent has proposed the following measures to minimise the construction impacts of the proposal (SoC 69-88 and 19-20):

- not removing existing station access or parking spaces until the replacement facilities (or temporary facilities) have been provided;
- Develop Traffic Management Plans in consultation with affected stakeholder groups (including Council, the Ministry of Transport, bus operators, and emergency services);
- develop site-specific Traffic Control Plans to station-specific traffic and transport impacts (including kiss & ride facilities, peak commuter traffic, bus networks, and Casula level crossing), and keep surrounding residents and businesses notified of construction works.

The Proponent has also committed to project wide and specific station urban design and landscaping actions (SoC 89, 91-94, 96). The objective of the design is to ensure that the functionality and accessibility of directly affected stations is maintained during and after construction. The easy access standard would be maintained at Leumeah, Minto and Cabramatta railway stations; new access over the SSFL to the easy access standard would be provided at Warwick Farm Station; and the capability for the future upgrading of Casula and Sefton Stations to equitable access standards would be provided.

**Departmental Consideration**

Access

The Department considers that the main access (traffic and transport) impacts of the proposal to station users would be limited to the construction phase, where disturbances to existing station facilities (including pedestrian access, kiss & ride parking, and bus facilities) and disruptions to traffic from construction works and construction vehicles, are likely. As noted, the Proponent has committed to not removing existing station access or parking spaces until the replacement facilities (or temporary facilities) have been provided; and the development of a range of traffic management measures including the preparation and implementation of Traffic Control Plans at station precincts. These requirements have been reinforced by the recommended Traffic related Conditions of Approval (CoA 54-58). The Department is satisfied that with the implementation mitigation measures identified by the Proponent, and the recommended conditions of approval that station-specific construction impacts can be appropriately managed.

The Department considers that that the proposed changes would not significantly impact on the operational efficiency of the station precincts as there would be no net loss to station facilities and because the affected facilities would be replaced to a standard at least equivalent or better to existing facilities. The Department notes that the relocation of facilities (such as parking spaces and bus zones) is unlikely to cause major disruptions to station users as the relocated facilities would remain within the existing station precincts.

Safety and Hazard

The Department understands that easy access lifts are proposed at Minto and Warwick Farm Stations as space restrictions preclude the construction of alternative access such as ramps. However, the Department is concerned that the replacement of ramp and at grade access with lifts at these stations would increase personal safety and hazard risks (i.e. entrapment due to breakdown) to station users. Consequently, the Department recommends that as with Cabramatta Station, the detailed design for these station precincts considers personal security and entrapment issues including lighting requirements and appropriate treatments of the lift structure to increase visibility (CoA 24).

Upgrading / Additional Facilities

The Proponent proposes to replace existing station access facilities affected by the proposal on a like for like basis (e.g. replace existing stairs to be modified by the project with new stairs), except where this is precluded for technical/ engineering reasons, where comparable facilities would be provided (e.g. replace existing ramp with lifts). Bankstown Council, Liverpool Council and RailCorp submissions have suggested that the Proponent should provide additional facilities (e.g. provide disabled access at stations that don't already provide this service) to offset the impacts of the project.

The Department considers that the provision of adequate station facilities for passenger services to be the responsibility of RailCorp rather than ARTC and considers it unreasonable to require ARTC (a freight provider) to provide additional passenger facilities, over and above those facilities that are directly affected by the project, when the project relates to freight rather than passenger rail. The Department also acknowledges that the proposal has been designed not to preclude future upgrade works and understands that RailCorp through its Easy Access program is progressively upgrading pedestrian access to stations.

The Department notes that the Proponent would provide 'easy' access (i.e. non-discriminatory) facilities at Leumeah, Minto, (Cabramatta) and Warwick Farm stations to replace existing facilities and provide for the future provision of easy access facilities by RailCorp at Casula and Sefton. The Department has incorporated this commitment into its Conditions of Approval (CoA 36).

Casula Arts Centre

The Department understands that the main amenity impacts to the Casula Arts Centre would be operational noise and visual impacts. The visual impacts would result from the Casula station works themselves, associated embankment works and the 4m noise barrier to be constructed to mitigate noise impacts. Due to the green space land uses surrounding Casula station, the visual impact in this area is considered to be high to moderate. The Department understands that the proposed noise barrier would reduce noise levels at the Art centre; and that the ARTC proposes to prepare detailed architectural plans for the precinct to ensure that the urban design and landscape treatment for the site is consistent with the identified values and land use in the area (SoC 93).

Accordingly, the Department is satisfied that Casula Station works can be designed to minimise noise and visual impacts at the Arts Centre.

Visual

The EA states that the proposed station alterations would generally have lower visual impacts where the proposed works are contained within the rail corridor and a higher impact where the works extend outside of the corridor, particularly where surrounding receivers include residential receivers. A high visual impact is predicted for the Sefton station precinct where a mature fig tree which comprises the dominant visual feature near the station entry is proposed to be removed. The ARTC proposes to plant two new trees (pot sized) to compensate for the loss. In addition, as stated above the ARTC proposes to prepare site-specific architectural / urban design plans for each precinct (SoC 89-98). The Department notes that the proposed changes are generally consistent with the existing function, character and land use of the subject station precinct and is satisfied that the proposed mitigation measures would be sufficient to mitigate the residual impacts of the project.

Heritage

The Department understands that the proposed station precinct works would directly affect the following items listed under RailCorp's section 170 register:

- Minto footbridge;
- Casula footbridge;
- Carramar pedestrian underpass;
- Leightonfield footbridge; and
- Sefton station and footbridge.

No LEP or SHR listed items would be affected by the works. The Department notes many of the items to be affected by the proposal are largely contemporary in nature (e.g. the Minto and Casula Footbridges and Carramar underpass). To mitigate the heritage impacts of the proposal the ARTC proposes to undertake photographic documentation of all heritage items to be affected prior to the commencement of works and design all works to be sensitive to the heritage values and character of the existing heritage buildings/ structures (SoC 31-36). The Department is satisfied that with the implementation of the proposed mitigation measures, the heritage impacts of the project can be minimised so as to not result in unacceptable impacts.

* * *

In summary, the Department is satisfied that the changes to station precincts will minimise the impacts of the SSFL by maintaining public transport functionality, public access and replacing directly affected facilities. The changes will in some circumstance also enhance facilities and enable the future provision of easy access facilities. When balanced against the strategic benefits of the project, these minor changes are considered acceptable.

## 5.4 Level Crossings

Three level crossings are located within the project corridor, two of which provide public access: the Casula and Liverpool Hospital level crossings; and the third at Sefton Park Junction provides RailCorp staff access to depots, an electrical substation and heavy equipment storage areas within the rail corridor.

### *5.4.1 Liverpool Hospital Level Crossing*

**Issue**

The rail corridor currently bisects Liverpool Hospital, with majority of the hospital facilities located on the western side of the corridor. The Liverpool Hospital level crossing provides vehicular and the only 'easy' pedestrian access between the eastern and western sides of the hospital. The crossing facilitates staff and patient movements, and is considered a critical access path for the functionality of the hospital.

The crossing already experiences delays and access restrictions as a result of existing passenger rail traffic (particularly during peak times), and this situation is expected to worsen with increased freight traffic resulting from the SSFL (i.e. closures of up to 30-50 minutes in length during peak times) as well as increased passenger rail movements resulting from the proposed Liverpool Turnback project (part of the NSW Government Rail

Clearways program) which is expected to be operational soon after the SSFL in 2011 (i.e. potential closure of the crossing during the entire peak period).

### Submissions

Access problems resulting from the SSFL and the need to provide alternate access at Liverpool Hospital were raised by the community and public authorities.

### Key Commitment

In relation to this level crossing, the Proponent has committed to undertaking further risk assessment of the SSFL in consultation with the RailCorp to identify an implement risk mitigation measures to enable the continued operation of the level crossing (SoC 75).

### Departmental Consideration

The Department notes that NSW Health is currently in the process of seeking Planning Approval for the upgrade of the Liverpool Hospital. As part of that upgrade, NSW Health proposes to construct one vehicular and one pedestrian crossing over the rail corridor to connect the two sides of the Hospital (see Figure 5) at which time the existing level crossing will be closed. There is a possibility that the provision of these alternative crossings may not coincide with the delivery of the SSFL, in which case there would be a period following the construction of the SSFL where access through the crossing may become severely constrained.

The Proponent has noted that the crossing can be designed to operate safely (without needing to be fully closed), although it may be closed for up to 50 minutes each hour during peak periods further impeding access across the rail corridor. Additionally, RailCorp has indicated that the crossing may need to be closed for the full peak hour duration when the Liverpool Clearways Project becomes operational.

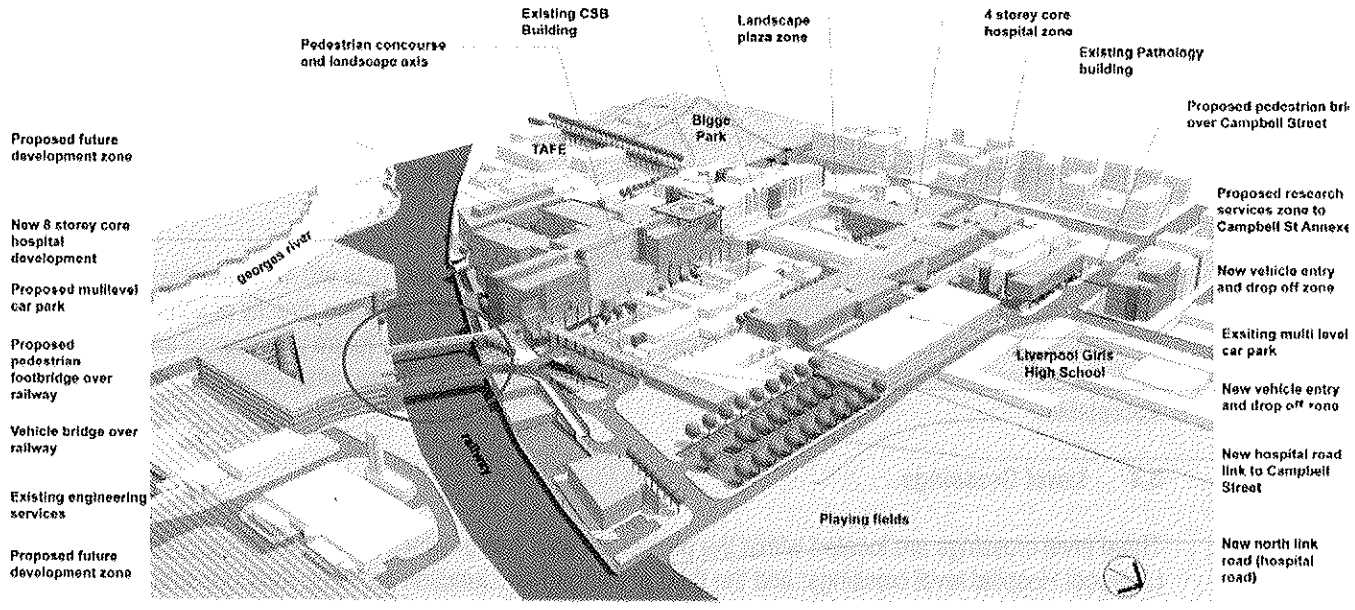



**Figure 5 Proposed Liverpool Hospital Redevelopment**

The Department considers that the ARTC's proposal to safely manage the existing level crossing for an indefinite period of time until alternative access provisions are made by a third party does not sufficiently respond to the extent of impact likely to be generated by the SSFL proposal. The ARTC's proposal relies absolutely on a third party providing facilities to mitigate the impacts that have (at least in part) been generated by the proposal. No alternate access provisions have been considered by the Proponent to mitigate the impacts of the proposal (as a contingency for Liverpool Hospital's plans not proceeding or being delayed indefinitely), or any commitment made to help progress the timely delivery of Liverpool Hospital's plans in cooperation with RailCorp and NSW Health.

As the construction of the SSFL would undoubtedly worsen existing access problems at the Liverpool Hospital level crossing, the Department considers it reasonable that ARTC be required to contribute to existing plans that would help mitigate the impacts that have at least partially been generated by the project. This is consistent with

NSW Health requirements as stated in its submission on the SSFL and in its Environmental Assessment for the Hospital Redevelopment (exhibited between 6 September and 4 October 2006) that *NSW Health would be seeking funding commitment for the crossings from ARTC.* As such the Department recommends Condition of Approval 33 be included which requires the Proponent to cooperate with RailCorp and NSW Health, including contribution in cash or kind, to provide alternative vehicle and pedestrian access across the rail corridor **prior to the commencement of operations.**

### *5.4.2 Casula Level Crossing*

**Issue**

The Casula level crossing constitutes the only vehicle access to the Casula Regional Arts Centre and Georges River Parklands for emergency services and the public. The Department notes that the existing station facilities (i.e. pedestrian overbridge) provides pedestrian access to the Arts Centre and the parkland, however does not provide disabled access or easy access for cyclists. While the level crossing may be used by pedestrian, cyclists and for disabled access, it is not a formalised 'easy access' pedestrian crossing.

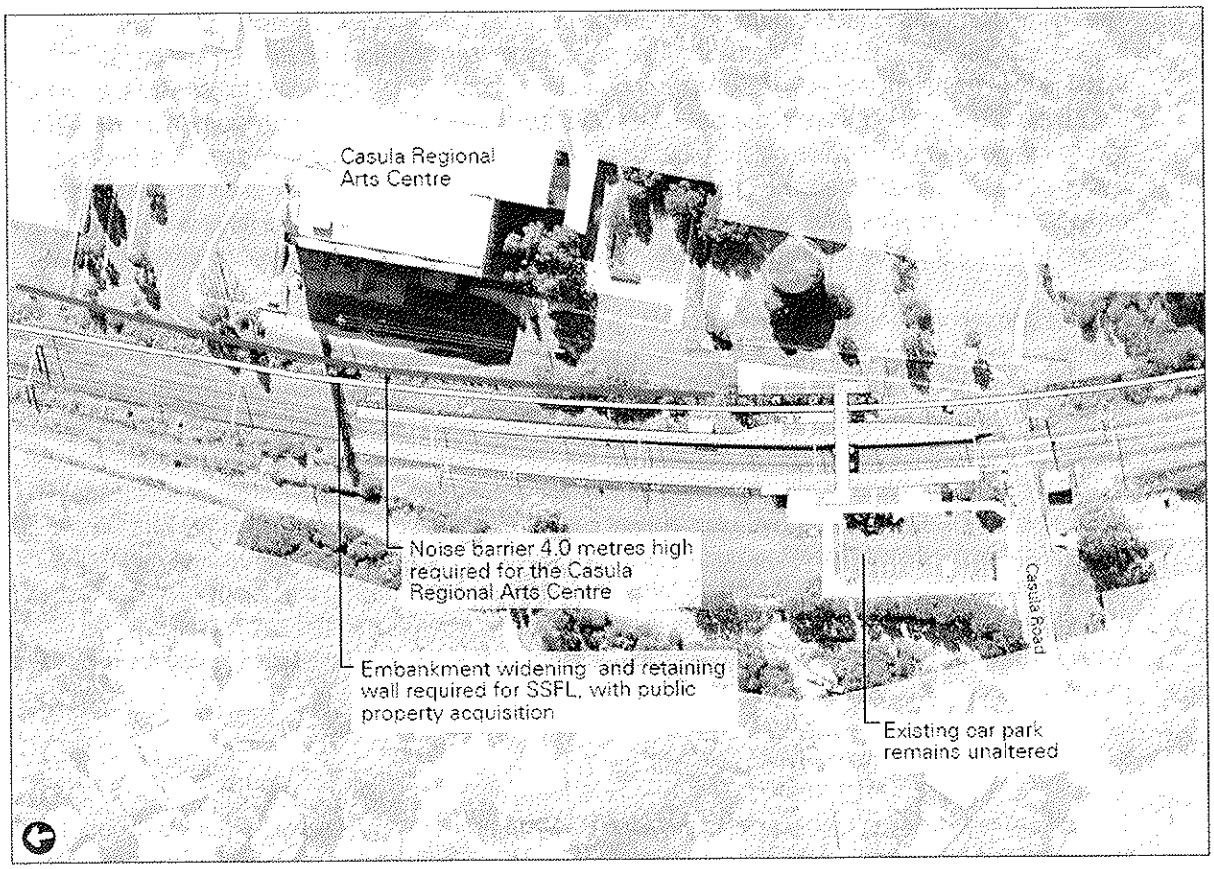



**Figure 6 Casula Railway Station and Regional Arts Centre**

The Department understands that the Ministry of Arts and Liverpool Council have plans to redevelop the Arts Centre and provide alternate vehicular access to the site (via Shepard Street) as part of that redevelopment, whereupon RailCorp has agreed to close the level crossing except for emergency purposes. The redevelopment plans do not include the provision of alternate pedestrian access. While the station is currently characterised by low levels of patronage, patronage levels are expected to increase as a result of the proposed redevelopment – resulting in increased demand for 'easy pedestrian access' to the Arts Centre.

There is also potential for impacts from the proposed short-tem closure (during weekend works and rail possessions) of the level crossing at Casula during construction.

**Departmental Consideration**
In noting that there is potential access impacts to the Casula Regional Arts Centre during construction, the Department recommends the Proponent be required to minimise the closures of the Casula level crossing, to ensure that they are coordinated with the Casula Regional Arts Centre so as not to conflict with events and to provide alternate Emergency Services access during any closure (CoA 57).

In its submission on the proposal, Liverpool Council noted that improving the amenity of Casula station was critical to the redevelopment of the Arts centre, and recommended that lift access be provided at the station as part of the project. The Department considers the provision of passenger rail facilities to be the primary responsibility of RailCorp as a passenger rail service provider rather than ARTC, a freight provider. While ARTC should be required to replace any existing passenger facilities that are affected by the construction of the SSFL, the Department does not consider it reasonable that ARTC be required to provide any additional passenger facilities over and above what already exists (particularly as the SSFL itself would not be generating any additional pedestrian demand on existing services).

The Department notes that the proposed redevelopment of the Arts Centre is independent of the SSFL, and any additional passenger demand generated by the project and its implications on existing station facilities is a matter that needs to be negotiated with RailCorp, the authority responsible for passenger rail services, as would be the case if the SSFL was not being proposed. The ARTC has committed to make provisions in the design of Casula station for the future installation of lifts(s) by RailCorp, if required. The Department considers that the proposed design of Casual station to allow for the future provision of easy access facilities, to be an important offset measure as it constitutes a future saving of public resources that would otherwise have to be spent in altering the station (if lefts were to be put in, in the future). Consequently, the Department supports this measure.

Council also recommended that ARTC should be required to contribute to the provision of alternate access to Art Centre, as in the absence of this alternate access, the impacts resulting from the SSFL at the Casula crossing (i.e. increased delays and reduced operational efficiency resulting from the increased freight volumes generated by the SSFL and its interaction with existing passenger rail), would not be offset. The Department agrees that the SSFL has the potential to reduce the efficiency of the Casula level crossing, although considers that this impacts is unlikely to be as severe as with the Liverpool Hospital crossing as even with increased patronage levels the crossing is only likely to be used on a intermittent basis (i.e. when there is an event at the Arts Centre). The Department understands that following discussions, the ARTC has reached an agreement with Council for the provision of alternate access to the Arts Centre via Shepard's Street prior to the commencement of the operation of the SSFL. The Department supports this measure and has incorporated this key commitment as well as requirements for contingency planning (i.e. if the alternate access is not constructed in time for operation) into its recommended CoA (CoA 32).

### *5.4.3 Sefton Park Junction Level Crossing*

**Issue**
The Sefton Park Junction Level crossing provides RailCorp access from Wellington Road to depots, an electrical substation and heavy equipment storage areas. RailCorp has identified that as a result of the proposal, additional crossing operation controls would need to be installed at the level crossing including the construction of a vehicle queuing lane off Wellington Road. RailCorp has also identified that should detailed design indicate significant height differences, then it would seek to have the crossing relocated to Carlingford Road.

**Departmental Consideration**
The ARTC has indicated that the SSFL can be safely incorporated into a level crossing at either location and has committed to undertaking further design review in consultation with RailCorp to determine the final solution for this level crossing. The Department is satisfied with this approach, however considers that the preferred solution must consider the management of impacts on the surrounding road network in consultation with key stakeholders (including the proposed queuing lane off Wellington Road) and be completed to the satisfaction of the Director-General prior to the commencement of construction. The Department has incorporated this requirement into its recommended Condition of Approvals (CoA 31).


**Figure 7 Sefton Park Junction Level Crossing**

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In summary, the Department believes that there is a solution to all impacts relating to level crossings. It is also recognised that the solutions are not the sole responsibility of the ARTC and that implementation will require co-operation and co-ordination between a range of stakeholders.

## 5.5 Parklands

### Issue

Some land acquisition would be required from various parklands along the corridor to accommodate the proposal. The greatest impact is on:

- green space between Casula and Liverpool Hospital: Leacock Regional Park (including Throsby Park located directly south of Leacock Park, comprised of open-space and playing fields); and
- Georges River Corridor Parklands (comprised of the former Casula Golf course, Mills Park and the Casula Arts Centre Grounds) and Lighthorse Park.

The proposal would require the acquisition of approximately:

- 1.25 hectares from Leacock / Throsby Park and 2.3 hectares of the adjoining Glenfield Waste Disposal Facility (which will become part of Leacock Park at the end of its operation) to accommodate the proposed flyover from the western to the eastern side of the rail corridor. This equates to less approximately 4% of the 90 hectare area; and
- approximately 1.8 hectares of land from the Georges River Corridor Parklands (including Lighthorse Park) for embankments, which equates to approximately 6% of the 58.45 hectare area.

At Leacock Regional Park and in some locations adjacent to the Georges River, the land required for the project comprises some remnant vegetation, including two (2) endangered ecological communities (EECs) (see Section 5.7.1 ). The proposed SSFL alignment also passes under Newbridge Road at Lighthorse Park and therefore impacts on existing footpath, ramp and stair facilities at the southern end of the park. These connect to the Newbridge Road footpath and provide residents south of Lighthorse Park pedestrian access to the Liverpool CBD and rail station across the railway line. The replacement facilities proposed would be located to the east of their existing location and would encroach the western edge of the park. The proposal may also influence the location of future access and cycle routes identified in the *Georges River Corridor: Plan of Management and Master Plan* and described in the *draft Liverpool City Centre Plan.*

### Submissions

The major concerns raised in community and public authority submissions were in relation to land use (i.e. loss of recreation/ green space), ecological and visual impacts; the preclusion of future access and cycle provisions; and

consistency with the objectives of the *Leacock Regional Park Plan of Management* (Department of Urban affairs and Planning, 1996) and *Georges River Corridor: Plan of Management and Master Plan* (Liverpool City Council and Planning NSW 2002). One submission also raised concerns that the closure of the Casula Railway Crossing would preclude the extension of the "River Walk' from the Casula Arts Centre to Leacock Regional Park.

**Key Commitments**

To minimise and mitigate the land use, ecological and visual impacts of the proposal on parklands, the Proponent has committed to implementing a detailed urban design and landscaping strategy, with the aims of visually integrating the design and landscaping of the proposed works with the existing land use values of the parklands and offsetting impact to ecological communities by undertaking restoration planting (including using affected EEC species) (SoC 25, 89).

In relation to Leacock Park, the proposed flyover design and associated urban design would in part visually screen the existing rail corridor and Glenfield waste facility. At Lighthorse Park, the replacement access facilities and associated urban design would be designed to ensure optimal visual integration with the Park. The proponent has also committed to maintaining pedestrian access from the park via Newbridge Road for the duration of construction (SoC 84, 89). It is also proposed that concealment and other safety issues are considered in the urban design of the proposal in accordance with the *Crime Prevention Though Environmental Design* principles.

**Departmental Consideration**

Land use, Ecological and Visual Impacts

The Department has assessed the impacts of the proposal on parklands and notes that:

- less than 2% of the total future land area of the Leacock Regional Park (including the integration of the Glenfield waste facility) would be affected;
- following the exhibition of the EA, the Proponent has further refined the Glenfield Flyover to further minimise acquisition requirements from Leacock/Throsby Parks;
- the land to be acquired from all parks (and along the remainder of the SSFL route) comprises linear strips directly adjacent to the existing rail corridor and would not result in any additional land severance;
- fauna or habitat corridors would not be significantly affected, as the existing rail corridor already forms an east-west barrier to fauna movements near Leacock Park and the Georges River;
- endangered ecological communities (EECs) to be cleared comprise disturbed examples and are located directly adjacent to and affected by edge effects from the existing rail corridor;
- the Proponent has designed the project to:
  - locate visually prominent and noise generating features, such as the Glenfield Flyover, away from residential receivers; and
  - avoid impacts to significant features in the parklands such as playing fields at Throsby Park and ponds at Leacock Park wherever possible.

In consideration of the above points and key commitments, the Department is satisfied that:

- the impacts of the proposal on recreational/green space, ecology and visual impacts can be minimised and offset through appropriate design and management measures; and
- the design and mitigation measures proposed have considered the objectives of the *Leacock Regional Park Plan of Management* and *Georges River Corridor: Plan of Management and Master Plan* in relation to maintaining recreational amenity, visual quality and flora and fauna values.

In relation to Leacock Park, the Department notes that the deliberate location of the Glenfield Flyover at the boundary of the Glenfield Waste Facility and Leacock Regional Park is a design measure to minimise amenity impacts on surrounding residents. In its proposed location, the property, visual and noise impacts of the flyover would be confined to areas of open space and landfill rather than residential receivers and as such the impacts would constitute mainly intermittent impacts to users of the Parkland rather than permanent impacts as would be the case if the infrastructure was located adjacent to residential areas to the south or north of the Park as previously considered.

The Department has incorporated the Proponent's key commitments in relation to urban design and landscaping into its recommended Conditions of Approval (CoA 24).

Future Access

The *Georges River Corridor: Plan of Management and Master Plan* identifies the following initiatives for improving pedestrian and cycleway access and connectivity between the Liverpool CBD and the Gorges River corridor parklands:

- the extension of the Liverpool Station concourse over the rail corridor to connect directly with the northern end of Lighthorse Park; and
- the provision of a shared cycle/ pedestrian walkway along the Georges River connecting the proposed Liverpool Station concourse extension with the Casula Arts Centre with possible extensions to existing pedestrian/ cycle paths in Leacock Park (the "River Walk").

Council has also progressed plans for the provision of cycle/ pedestrian access from Liverpool Hospital to Lighthorse Park on the on the eastern side of the rail corridor, via a pedestrian priority boardwalk along the Georges River and a cycle priority path along the eastern rail embankment. Although not identified in the Georges River master plan or any other environmental planning instrument, Council has advised that the above proposal comprises a key component of Council's plans to improve public access to the Georges River corridor green space.

Of these proposals, the SSFL has the potential to impact on the Liverpool Station concourse extension and the proposed cycle priority path between the Liverpool Hospital and Lighthorse Park. The Liverpool Station concourse would have to be extended further to cross the SSFL, however this would not preclude the provision of this facility. The cycle priority path is proposed to be located on the same site (on the rail embankment) as the SSFL. For it to remain at this location, the ARTC has noted that cycleway may need to be cantilevered as part of the piled concrete slab structure that is to be built as part of the SSFL and that this may affect bank stability. Council has expressed concern that this design solution if not provided as part of the SSFL, would make the proposal prohibitive in terms of constructability and associated cost.

While the proposed cycle path between Liverpool Hospital and Lighthouse Park is not identified in any published document, it is a proposal which Council has invested some resources in progressing The Department believes that the Proponent should be required to consult with Liverpool City Council, to allow Council to assess options, where feasible, for establishing the cycle link (CoA 35).

The Department notes that Council's plans to extend the River Walk to Leacock Park does not rely on the Casula level crossing which is not a formalised pedestrian crossing and has been identified in the Georges River Master Plan as requiring closure in the future. The Georges River Master Plan identifies that the connection to Leacock Park would occur under the existing rail viaduct crossing over Glenfield Creek just south of the Casula level crossing. The Department understands that the proposed works on the Glenfield Creek viaduct as part of the SSFL would not preclude the provision of this access way and has incorporated this requirement into its recommended Conditions of Approval (CoA 34).

* * *

In summary the Department is satisfied that the impacts on the existing values or future potential of Parklands are acceptable.

## 5.6 Traffic and Transport

**Issue**

The SSFL would require:

- modifications to
  - nine (9) station precincts;
  - eight (8) pedestrian footbridges (seven (7) of which are in Station precincts);
  - one (1) pedestrian underpass (Carramar station underpass);
  - eight (8) road bridges;
  - six (6) rail bridges over roads;
  - five (5) rail bridges over waterways;
  - three (3) level crossings; and
  - involve major excavation works at the Sefton Park Junction dive and bridge upgrade works.

During these works, existing traffic arrangements are likely to be disrupted by part and full road closures, traffic diversions and works under traffic, which have the potential to affect road users. In addition to altering existing traffic arrangements, the proposal would also generate additional vehicular traffic during construction from spoil haulage, general construction vehicles and construction personnel vehicles. Construction traffic would be distributed across 12 site access points along the corridor. The Proponent estimates that during the earthworks phase up to 45 trucks per day would access the gate servicing the Glenfield and Sefton Park Junction work areas over a 20 month period and up to 30 trucks per day would access all of the other works sites at an average of approximately two months per gate.

At worst case, traffic flows are predicted to temporarily increase by 3.7 per cent on major arterial roads (M5 Motorway) and by up to 4.4 per cent on local roads (Woods Road) as result of haulage vehicles. As fluctuations of weekday traffic flow of between 5 and 10 per cent are common on major arterial roads (such as the M5 and Hume Highway), the Proponent predicts that the proposed traffic increases on major roads are unlikely to significantly affect motorists, however local road and intersection performance may be temporarily adversely affected. Traffic conditions on local roads may also be affected by the redirection of traffic from temporary road detours.

Auburn Road Bridge

In order to accommodate the Sefton Park Junction cutting, the EA identified that full closure of Auburn Road, Birrong would be required for up to 6 months to allow reconstruction of the road bridge. The Sefton Park Junction is required to bring the SSFL under the existing Bankstown Line so it can continue its alignment eastwards and connect with the Metropolitan Goods Line, while avoiding passenger and freight train conflicts. The cutting would require the rebuilding of the Auburn Road bridge as the cutting would undermine the existing bridge abutment.

At other locations, complete road closures would only be required for short periods (i.e. weekends, overnight or during rail possessions). The project would also require alterations, mainly within the station precincts, to existing bus (including the temporary relocation of bus and taxi stands), parking, cyclists and access arrangements during the construction of the project.

Farrow Road

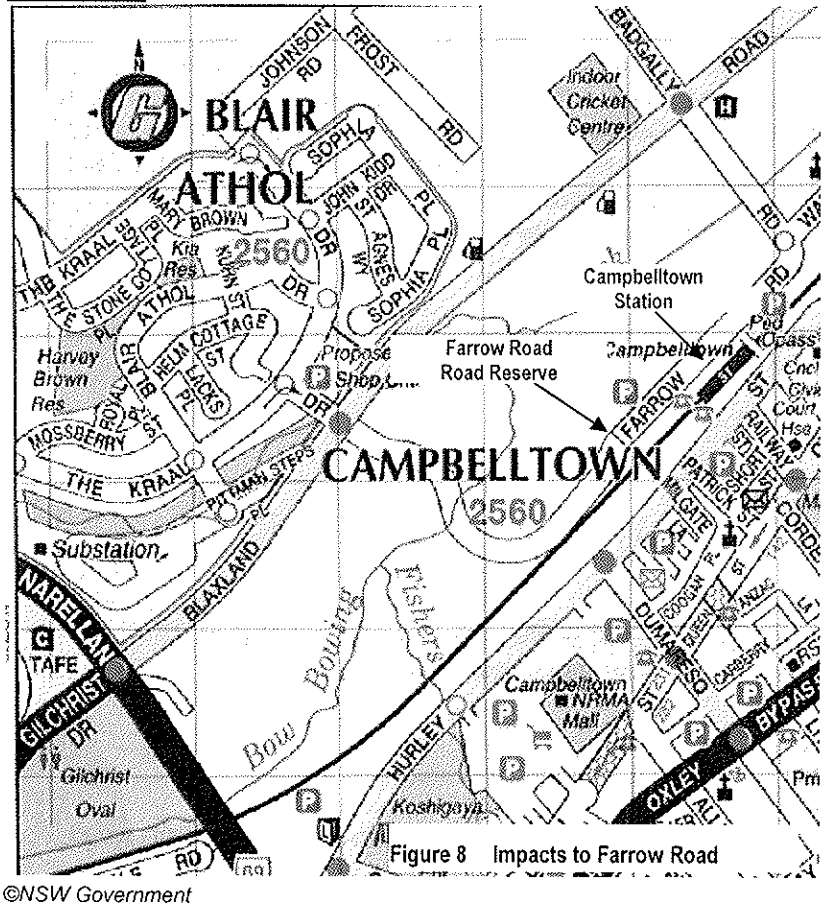


Figure 8 Impacts to Farrow Road

The SSFL would extend outside the rail corridor south of Campbelltown Station, requiring the acquisition of a 20m wide strip of the road reserve at the southern end of Farrow Road.

This would affect Campbelltown City's proposed route for the extension of Farrow Road to Blaxland Road and/ or Narellan Road to provide direct access to Campbelltown Station from these roads

The Proponent proposes to re-establish the road reserve further west of the rail line by acquiring a 20m wide frontage of two industrial properties on the western side of Farrow Road (no. 8 and 10. Farrow Road). This would ensure that Council's future plans for Farrow Road are not precluded however, would affect

existing property access, car parking and vehicle movement arrangements within these properties and require the relocation of the office component of the building at No. 10 Farrow Road.

### Submissions

Construction traffic impacts were raised as an issue of concern by a large number of community and public authority submissions.

### Key Commitments

To mitigate the construction traffic impacts of the project the Proponent proposes to develop a Traffic Management hierarchy (SoC 69-88 and Section 10.2.1 of the EA) including the preparation of:

- higher order Traffic Management Reports to explore cumulative impacts and interactions between multiple Local Government areas;
- Traffic Management Plans (TMPs) at major road works, and
- Traffic Control Plans for all construction works that will affect trafficable areas.

The Proponent has also committed to:

- consult with Councils and local traffic committees to determine the haulage routes and programming that would cause least disturbance to surrounding sensitive receivers;
- determine optimal haulage routes based on intersection performance modelling;
- not removing existing station access or parking spaces until the replacement facilities (or temporary facilities) have been provided;
- limit staff parking to designated construction compounds only; and
- continued consultation with Campbelltown Council and the affected property owners at Farrow Road to achieve an outcome that is satisfactory to all parties, including exploring options for initially constructing Farrow Road at reduced width, thereby delaying the acquisition of the properties until traffic volumes increase sufficiently as to require its upgrade to full width.

### Departmental Consideration

The Department considers that predicted traffic and access disruptions prediction for the project are largely short-term in nature and can be managed so as to minimise impacts to local communities. In addition, the Department notes that the construction traffic volumes predicted for the proposal are comparable to those generated by other large scale infrastructure projects in Metropolitan Sydney (e.g. the M7, Lane Cove Tunnel and Cross City Tunnel) and as with those projects can be managed to minimise congestion, capacity and road safety impacts on the surrounding road network.

To ensure that matters and commitments identified in the EA and Submissions Report are clearly identified, the Department recommends the inclusion of a number of Conditions of Approval relating to the:

- transport management hierarchy;
- part closure of Auburn Bridge Rd;
- requirements for further traffic modelling;
- maintenance of access; and
- parking impacts.

The Department is satisfied that with the implementation of the proposed mitigation measures and the recommended Conditions of Approval (CoA 54-58) that the impacts are considered acceptable.

In response to significant objections raised by Council, the community, the local MP and the Department in relation to bridge closure, traffic disruptions and diversions at Auburn Road, the Department sought to achieve a better outcome with the Proponent. Following negotiations, the Proponent has agreed to modify its construction techniques so as to only require part closure of the bridge during construction. In addition, the potential to include a cycle path in this location will be investigated further. This agreement has been incorporated into the recommended Conditions of Approval (CoA 59).

The Department supports the Proponent's commitment to determine a suitable outcome for Farrow Road in consultation with Council and affected property owner's. In addition, the Department has recommended that the

Project be designed to minimise the compulsory acquisition of individual properties and that the compulsory acquisition of any land shall be done in a responsive and sensitive manner (CoA 63).

The proposed changes to pedestrian facilities and access, bus facilities and parking spaces at station precincts would not result in any net loss of existing facilities however, would in a number of cases result in localised impacts (e.g. the relocation of parking spaces and bus stops further from the station entrance; the replacement of ramp facilities with lifts etc). These impacts are discussed in greater detail in sections 5.3.1 and 5.3.2 of this report. The Proponent has committed to having regard to relevant standards and guidelines (including *Disability Access Standards for Accessing Public Transport*) during the detailed design of the project. The Department supports this measure (CoA 24). All existing bicycle facilities, which would be affected by the proposal, would be replaced or alternative provision made (such as the 'shared zone' along Broomfield Street in Cabramatta) such that there would be no net loss of cyclist facilities when the project is operational.

The SSFL would generate additional rail traffic along the freight corridor thereby contributing to increased intermodal activity at existing rail terminals in Sydney, Melbourne and Brisbane and encourage the expansion/ creation of new intermodal facilities in these cities. Any increase in localised truck traffic resulting from increased intermodal activity would however be constrained by the capacity of the terminals and governing CoA for the terminals.

## 5.7 Biophysical Environment

### *5.7.1 Flora and Fauna*

**Issue**

Threatened Species/ Ecological Communities

One (1) threatened flora species (*Acacia pubescens*); 2 EECs (Cumberland Plain Woodland and Sydney Coastal River Flat Forest); and potential habitat for 2 threatened fauna species (Green and Gold Bell Frog and Cumberland Plain Large Land Snail) would be impacted by the proposal. The EA predicts the following impacts:

- 0.4 hectares of Cumberland Plain Woodland at Leacock Regional Park and Throsby Park;
- 1.4 hectares of Sydney Coastal River Flat Forest at Bow Bowing Creak to the north of Narellan Road; adjacent to the Georges River at Casula and Liverpool; and at Cabramatta and Prospect Creeks;
- one of five of populations of *Acacia pubescens* located in the rail corridor at the Regents Park Triangle, near Warwick Farm; and
- up to 1.25 ha of potential habitat for the Green and Gold Bell Frog (GGBF) and Cumberland Plain Large Land Snail from Leacock Regional Park and Throsby Park.

The Proponent concluded that the proposal was unlikely to significantly effect these threatened species/ ecological communities as:

- those to be cleared are limited to disturbed examples of these communities which are within or directly adjacent to the existing rail corridor and affected by edge effects including weed infestation and fragmentation;
- the *A. pubescens* population has low conservation value due to its size, isolation and poor reproduction;
- areas of Leacock Regional Park and Throsby Park affected by the proposal only provide marginal habitat for the Green and Gold Bell Frog (GGBF) and Cumberland Plain Large Land Snail. No evidence of these species presence was found during surveys.

Native Vegetation

Remnant vegetation within the study area consists largely of graded patches classified as "other vegetation" by the DEC (i.e. <10ha in size, not critically endangered and of low conservation value). Areas of higher value traversed including adjacent to Prospect and Cabramatta Creeks (>10ha in size, canopy cover of >10% and a priority area for restoration/ conservation).

The EA concludes that the amount of vegetation to be cleared is not significant as most is disturbed, is of low conservation value within or directly adjacent to the existing rail corridor and is already fragmented by the rail line.

Aquatic and Riparian Habitat

The SSFL will involve works adjacent to existing waterways, including:

- construction of five (5) rail bridges;
- the realignment of Bow-Bowing Creek (up to 250m) and the drainage gully at Glenfield Junction (up to 900m); and
- various works near the Georges River between the Leacock Regional Park and Liverpool Station.

These works would require the clearing of riparian vegetation at some locations (including EECs) and may impact on aquatic flora and fauna during construction and operation through erosion and water quality impacts and modifications to fish passage, in stream habitat and stream hydrology. The project also has the potential to impacts on groundwater dependent species through alterations to groundwater resources during construction (i.e. deep excavation works for culverts, cuttings and bridge footings).

Most of the waterways crossed or otherwise modified by the proposal are disturbed or altered to some extent by weed invasion, rubbish dumping, pollutants from hard surface runoff, and drainage control works including concrete lining. With the exception of the Georges River and Prospect creek, the sections of waterways affected by the SSFL exhibit poor habitat values.

**Submissions**

Issues raised in submissions included:

- Impacts to riparian and aquatic habitat and the integrity of waterways;
- Consideration of impacts to the Cooks River-Castlereagh Ironbark EEC around Leightonfield Station;
- survey effort questioned with regard to determining the presence of the Green and Golden Bell Frog in riparian habitats outside of Leacock Regional Park and Throsby Park or the presence of Pimelea spicata (another threatened species) within the project corridor; and
- impacts of the proposal on threatened species listed under the Fisheries Management Act 1994 (FMA) questioned.

**Key Commitments**

The Proponent made the following commitments in the EA and/or Submissions report:

- preparation of a detailed Biodiversity Management Plan (BMP) to clearly identify the location of threatened species, communities and habitats in relation to construction areas and the detail measures to be during construction (SoC 25- 26).
- further surveys for the Green and Golden Bell Frog and *Pimelea spicata* prior to commencement of construction;
- additional mitigation measures as a result of surveys to be incorporated into the BMP (SoC 27-28).
- consider species listed under the FMA (including relevant management requirements) during the preparation of its BMP (SoC 25).
- implementing a comprehensive landscape and rehabilitation strategy to offset an equivalent area of woodland vegetation lost as a result of the proposal (page 81 of Submissions Report)., the revegetation strategy to be prepared in consultation with the DEC At the Leacock and Throsby Parks to maximise opportunities for the retention and restoration of affected EECs (page 81 of Submissions Report).
- A range of measures to minimise and manage the impacts of the project on aquatic and riparian habitat (SoC 25, 49-50, 54-55, 57):

**Departmental Consideration**

The Department is satisfied that the flora and fauna impacts of the proposal would largely be restricted to already disturbed vegetation and habitat of low conservation values; and that the impacts to ECC and threatened species would not be significant such as to compromise their long-term survival or recovery. The Department is further satisfied that the measures proposed by Proponent are adequate to minimise, manage, mitigate and/or offset the ecological impacts of the project. In particular, the Proponent's commitment to replant at least equivalent to the woodland vegetation lost as a result of the proposal considering this to be an important compensatory measure to offset the impacts of the proposal is supported. The Department has incorporated this key commitment into its recommended CoA (CoA 49).

It is considered that the landscape and restoration works proposed as part of the project provides an opportunity to help improve and restore existing disturbed ecosystems and consequently to provide significant benefits to local communities and catchments. Consequently, the Department supports the Proponent's commitment to undertake all improvement and restoration works (including the waterway realignment works) with the aim of matching or bettering existing ecological conditions and values (CoA 49). The Department has incorporated this commitment and the following additional requirements into its recommended CoA (CoA 49):

- ensure that Bow Bowing Creek and the drainage gully at Glenfield Junction are not disturbed until the diversions at these creeks have been constructed to the satisfaction of the DNR and DPI (Fisheries); and
- incorporate the requirements for further assessment of impacts to groundwater dependent species in the proponent's BMP including, additional mitigation requirements.

### *5.7.2 Hydrology*

**Issue**

The operational impacts of the proposal relate to potential alterations to existing flood regimes, changes to the, hydrology and alterations to groundwater resources, resulting from drainage structures, waterway crossings, creek realignments and deep excavations.

A quantitative assessment of groundwater impacts was not undertaken, however it was noted that the proposal has the potential to change groundwater levels at certain locations, including the permanent de-pressurisation of standing water levels at the deep excavation/ cutting site at Sefton Park Junction. It was also noted that the construction of infrastructure in areas where groundwater is generally closer to the surface could raise groundwater levels, potentially creating waterlogging, saline corrosion and settlement problems on SSFL and other infrastructure. Raised groundwater levels could also cause localised releases of saline groundwater to surrounding surface water bodies. Potential impacts to surrounding bore users (7 irrigation bores occur within 1 km of the rail corridor), groundwater dependent waterways and species were not quantified, but deferred as part of detailed investigations to be undertaken prior to the commencement of construction.

**Submissions**

Several submissions raised concerns about the SSFL creating additional barriers (including noise barriers) to flooding in existing flood-prone areas within the Georges River catchment. Concerns were also raised regarding the lack of quantification of impacts in the EA.

The DNR and DPI (Fisheries) were particularly concerned about the hydrology and ecology impacts of the proposed works adjacent to and involving waterways.

**Key Commitments**

In response to these concerns the Proponent clarified that existing drainage structures (which currently provide for the flow of water across the rail corridor) would be extended to ensure that the SSFL does not create a barrier to flood movement across the rail corridor. The ARTC has committed to:

- matching the hydraulic capacity of existing drainage structures (under the Main South Line), on the SSFL side of the corridor, so that existing hydraulic capacity for flood movement is maintained across the rail corridor (SoC 53 and Section 12.2.3 of the EA);
- determining the hydraulic capacities needed for any temporary structures to maintain existing flows during construction. (Section 12.2.3 of the EA);
- assess whether existing drainage structures under the rail line (i.e. culverts & pipes) meet existing and future capacity requirements for the surrounding area and where this is not the case, make provision for structures to meet a 1 in 100 year flood standard on the SSFL side of the corridor
- Where required, 1 in 100 year standard drainage structures would be provided at locations where the drainage structure is not already located within the inundation zone of a 1 in 100 year flood.
- further detailed assessment (including the monitoring of groundwater quality and levels) to establish existing conditions and identifying groundwater risk areas where specific management measures for constructed and existing infrastructure would be required (e.g. provision of sub-surface drainage and the use of corrosion resistant materials; and
- quantify the likely changes to groundwater level resulting from the project and establish whether these changes would cause ongoing impacts on groundwater dependent ecologies (SoC 55).

**Departmental Consideration**

Flooding

The Department considers it possible that many of the existing drainage structures within the rail network do not meet existing drainage requirements of surrounding built up areas, as these were built prior to significant development. Consequently the Department considers that the ARTC's commitment to make provision for drainage structures that meet a 1 in 100 year standard on its side of the corridor, to be an important offset measure that would provide the opportunity for improving rather than just maintaining existing hydraulic capacity for flood movement across the rail corridor. The Department has incorporated this key commitment into its recommended Conditions of Approval (CoA 62).

The Proponent has predicted that the embankment widening required for the project would not significantly reduce the Georges River floodplain during a 1 in a 100 year flood event and noted that the proposed rail line would be built above the 1 in 100 year flood level in all areas except near the Georges River at Liverpool, where the existing rail embankment is lower than the 1 in 100 year flood level. However, the Department notes that increases to inundation levels and times have not been quantified. Potential localised impacts during smaller frequency events (i.e. 1 in 5, 10 or 20 year flood events), have also not been quantified. The Department considers that these additional investigations would provide a sound basis for the refinement of project design to take into account flooding impacts, however believes that the following additional requirements should be considered in these additional investigations (CoA 62):

- quantification of inundation level and time impacts on 1 in 5, 10, 20 and 100 year flood events as a result of the proposal; and
- design the project so as to not worsen existing flood conditions at a local and project scale.

Hydrology

The Department is satisfied that the project can be designed to minimise impacts and even improve existing conditions, by ensuring that:

- the waterway crossings and creek diversions are designed and constructed in consultation with DPI (Fisheries) and DNR, with the aim of meeting and/ or improving hydrological and ecological conditions; and
- ensuring that existing creek lines are not altered until the realignments have been constructed to the satisfaction of DPI (Fisheries) and DNR.

The Department has incorporated these requirements into its recommended Conditions of Approval (CoA 59).

Groundwater

The Department notes that while the lack of quantified groundwater impacts at the assessments stage is not ideal; the impacts of the proposal are likely to be comparable with other large scale infrastructure projects (such as the Epping to Chatswood Rail Link), which involved extensive excavations, however are located in areas that do not depend on groundwater as a primary water source. The Department considers that the additional investigations proposed by the Proponent prior to commencement of construction prior to commencement of construction would allow for appropriate management measures to be identified and implemented, and recommends that the following additional requirements to be incorporated into the investigations (CoA 60):

- incorporate the assessment and management of groundwater with acid sulphate soil management (including post-construction monitoring requirements); and
- Consider impacts of groundwater changes on surrounding bore users.

* * *

In summary the Department is satisfied that the impacts of the project on soil and hydrology can be managed to not worsen existing conditions through appropriate project design and mitigation measures.

## 5.8 Other Issues

The Proponent has also assessed the potential impact of the proposal on property and land use, visual amenity, heritage, air quality, waste management, hazard and risk, and energy and greenhouse. The Department is satisfied with the assessment, and the measures proposed by the Proponent to manage and mitigate any potential impacts arising from the proposal.

The Department's detailed consideration of these issues is provided in Table 6.

**Table 6** Other Issues

| Issue | Concerns Raised in Submissions | Department's Consideration | Relevant SoC or CoA |
|---|---|---|---|
| Property and Land Use | Impacts to parklands, and development potential | The proposal would require the acquisition of approximately 5 ha of public land comprised of road, road reserve, parkland, defence land and land adjacent to waterways; and 3 ha of private land comprised of the University of Western Sydney (0.004 ha of land adjacent to Bow Bowing Creek), Liverpool Hospital (0.1ha), two industrial properties on Farrow Road, Campbelltown (0.345ha), seven industrial and commercial properties on Watsford Road, Campbelltown including a radio station and a church (0.1ha), and the Glenfield waste facility (2.29 ha). No residential properties would be affected.<br><br>At the Farrow Road properties, the proposal would require the acquisition of a 20m wide strip of land from the front of the properties affecting existing access and parking arrangement and a part of one of the building at one of the properties. At Watsford Road the proposal would require the acquisition of a an 8m wide strip of land from the rear of the properties, affecting existing parking arrangements, earth mounds and landscaping. To minimise and mitigate the impacts of the proposal on affected properties the Department has required the proponent to:<br>▪ Design the proposal to minimise land take required in consultation with affected properties; and<br>▪ replace, relocate or otherwise compensate for any existing facilities (including buildings, access, parking or other arrangements) that are affected by land acquisition.<br><br>The Department notes that the proposed acquisition would not involve any land severance and would be limited to relatively small linear strips of land directly adjacent to the existing rail corridor. The Proponent has proposed a range of mitigation measures including noise barriers, urban design and landscaping measures to minimise the impacts of the proposal on surrounding land uses. For the above reasons the Department is satisfied that the proposal would not significantly compromise the nature, function and viability of existing land uses, severe communities or future development potential for the community. | SoC 46-48, 64-68, 89-98, CoA 24, 51,63 |
| Visual | Visual Impacts of SSFL and mitigation measures | The proposal is likely to generate moderate to high local impacts at those locations where the project extends outside of the existing rail corridor (e.g. Station precincts) and involves the construction of visually prominent features (e.g. Glenfield Flyover). Notwithstanding, the Department considers that the project as a whole would not significantly change the existing visual character of the project corridor or increase community severance as the project would essentially consist of a new rail line being constructed within (or directly adjacent to) an existing rail corridor.<br><br>The Department notes that the noise walls to be built as part of the project have the potential to affect foreground views although these would largely comprise of views of the existing rail corridor and need to be balanced against benefits of noise mitigation. The Department has recommended that the Proponent implement appropriate urban design and landscaping measures that would consider a range of matters including: property and land use; visual amenity; biodiversity; heritage; access, transport and traffic; and personal and passenger safety. This would be undertaken in consultation with Councils and affected receivers.<br><br>The Department is satisfied with the implementation of the proposed mitigation measures that a balanced outcome considering the needs and preferences of surrounding receivers can be achieved. | SoC 89-98, CoA 24 |

| Issue | Concerns Raised in Submissions | Department's Consideration | Relevant SoC or CoA |
|---|---|---|---|
| Built Heritage | Impacts on identified items | In addition to the station precinct items discussed in section 5.2.2 of this report, the proposal has the potential to impact on the following built heritage items: the Casula railway viaduct, Liverpool railway viaduct, early Liverpool town layout; railway viaduct over Cabramatta Creek; Carramar pedestrian bridge, at Canley Vale; and Carramar viaduct. Except for the Carramar pedestrian bridge which is listed on RailCorp's 170 register, each of the above items are LEP listed. The Department understands that the proposal would have minimal heritage impacts on these items as the works proposed would be structurally independent of (the Casula, Liverpool, Cabramatta Creek and Carramar viaducts) or only affect contemporary components of (pedestrian bridge on Carramar viaduct and Carramar pedestrian bridge at Canley vale) the subject items. The proposal would require works at the eastern limit of the Liverpool town layout and therefore would not directly affect any identified items but may impacts on areas of archaeological potential. The Department recommends that as part of the Built Heritage Management Sub Plan, that the Proponent undertake Historical Archaeological Assessment and if necessary a Statement of Heritage Impact of the early Liverpool Town Centre.<br><br>The Proposal would also involve works close to but not directly impact on the Casula Arts Centre (LEP Listed), Liverpool Station (SHR, LEP and 170 Register listed) and the Sefton Junction and Sub Station (LEP listed). ARTC proposes to undertake photographic documentation of all heritage items to be affected prior to the commencement of works, design all works to be sensitive to the heritage values and character of the existing heritage buildings/ structures. The Department is satisfied that with the implementation of the proposed mitigation measures, the heritage impacts of the project can be minimised so as to not result in unacceptable impacts. | SoC 31-36, CoA 71-73 |
| Aboriginal Heritage | Impacts on identified items | The proposal has the potential to affect one identified archaeological site of low cultural significance (SSFL 1) consisting of artefact scatter in a heavily eroded vehicle track near the University of Western Sydney. The Proponent proposes to recover the materials in consultation with affected Aboriginal groups. In addition, further archaeological assessments are proposed at Leacock Regional Park (once the footprint of the Glenfield Flyover has been finalised) and at the track bed next to Georges River north of Liverpool Station in consultation with Aboriginal stakeholders. If further materials are identified within the SSFL impact zone, management measures would be developed in consultation with affected aboriginal groups. The Department is satisfied that due to the highly disturbed nature of the proposal route, the project is unlikely to significantly affect Aboriginal heritage values in the area and supports the development of management measures for identified items. | SoC 29-30, CoA 74 |
| Air Quality | Exceedance of air quality goals | The proposal is likely to result in some fugitive dust impacts during the construction which will be managed using standard techniques including the watering of exposed surfaces, progressive revegetation and stockpile management as part of a Dust Management Plan. The Department is confident that the construction dust impacts can be effectively managed with the implementation of the proposed measures.<br><br>The Proponent has predicted that locomotive emissions would meet all relevant air quality guidelines except for annual average nitrogen dioxide ($NO_2$), which is predicted to exceed the $NO_2$ goal of 62 $\mu g/m^3$ by 21.5 $\mu g/m^3$ (at a distance of 50m) in 2018. A separation distance of 400m would be required in 2018 to achieve compliance with this goal at the receiver. Modelling indicates that the project would meet the 1 hour $NO_2$ goal. The exceedance of annual average goals was raised as an issue of concern in submissions. Notwithstanding, the ARTC is the infrastructure provider and does not operate the locomotives using the infrastructure.<br><br>The Department notes that annual average $NO_2$ is a measure of cumulative air quality impacts and that the locomotives using the SSFL would not be the only | Section 13.3.4 of the EA, SoC 60-62, CoA 75 |

| Issue | Concerns Raised in Submissions | Department's Consideration | Relevant SoC or CoA |
|---|---|---|---|
| | | contributor. The 1 hour $NO_2$ goals considers the direct contribution of $NO_2$ by the SSFL. Given that rail infrastructure as a whole is only estimated to contribute to up to 1.7% of $NO_2$ emissions in the Sydney Basin, it is considered that the SSFL's contribution to emission levels would not be significant. The Department further notes that the air quality assessment was based on highly conservative assumptions and predicted emissions based on the total forecast growth in rail traffic for the North-South Strategy, two thirds of which is likely to occur regardless of the SSFL. Consequently, the Department is satisfied that the contribution of emissions from the SSFL is likely to be small and would likely be offset by long-term modal shifts from road to rail freight, which the project would encourage.<br><br>The ARTC has committed to undertaking a further review of the air quality assessment to confirm the $NO_2$ impacts of the project and to working with rail operators and the DEC to progress improvements in emission control for diesel locomotives. The DEC recommended that the proposed review should focus on identifying options for preventing any exceedance of $NO_2$ criteria. The Department has incorporated the proponent's commitments and the DEC's recommendation into its recommended CoA. | |
| Soils | Erosion and Sediment Control and Acid Sulphate Soils | The proposal would require significant earthworks (approximately 158,775 cubic metres of spoil) and involve a number of works close to or within waterways. Consequently, the most significant impacts associated with the construction of the proposal are likely to be erosion, sedimentation and water quality impacts on surrounding waterways and the excavation and exposure of acid sulphate soils and associated impacts on surface and groundwater resources.<br><br>Although raised by several submissions as an issue of concern, the Department considers the risk of erosion and sedimentation of waterways during the construction of the SSFL to be manageable with the implementation of an appropriate Erosion and Sediment Control Management Plan as proposed by the Proponent. The Department has incorporated this requirement into its recommended CoA (CoA 59).<br><br>Construction works in the vicinity of alluvial and estuarine plains and saturated low lying areas along the Georges River, Cabramatta Creek and Prospect Creek (particularly the works ate Carramar Station) have the potential to excavate and expose acid sulphate soils (ASS). The Proponent has committed to preparing a comprehensive ASS management plan in accordance with the NSW Acid Sulphate Soil Management and Advisory Committee guidelines, prior to the commencement of construction detailing how potential and actual ASS (including from spoil, fill and stockpiles) would be identified, assessed, managed, monitored, contained and disposed of during construction. The Department supports this measures, however recommends that the ASS Management Plan be fully incorporated with the management and monitoring measures detailed in the Erosion and Sediment Control Management Plan and Groundwater Management Plan (CoA 59). | CoA 60 |
| Waste Management | Impacts of specific contaminated areas including sub-surface seepage<br><br>Integrate the management of spoil, waste, hazardous | The Department considers that the main impacts associated with waste management would be restricted to the construction phase of the proposal. Approximately 158,775 cubic metres of earth would be excavated, of which approximately 97,420 cubic metres would be unsuitable for reuse and require offsite disposal, constituting the largest source of waste generated by the proposal. Other waste streams include green waste (from clearing and grubbing); demolition waste (including timber); and general rubbish. The proponent has committed to managing construction waste in accordance with waste hierarchy principles (reduce, reuse, recycle) as part of a Waste Management Plan. | SoC 100, CoA 57,58,68 |

| Issue | Concerns Raised in Submissions | Department's Consideration | Relevant SoC or CoA |
|---|---|---|---|
| | materials and ASS. | During construction, hazardous material including contaminated land, asbestos, lead paint, petroleum and hydrocarbons maybe encountered onsite, which could pose a risk to construction workers and the environment (through the seepage of pollutants etc). The Proponent has undertaken a desktop assessment of the site and has identified several areas of potential contamination including deposits of steam train boiler ash along the rail corridor. The proponent has committed to undertaking a Phase 1 Contamination Assessment of the route prior to the commencement of construction in accordance with the *EPA Guidelines for Consultants Reporting on Contaminated Sites* (1997) to confirm areas of contamination, determine construction related impacts and develop appropriate management and remediation requirements. Contaminated soils would not be used in earthworks unless first remediated to appropriate standards. The ARTC has also committed to preparing a Construction Hazard and Risk Management Plan, detailing what management measures would be implemented on site to manage specific hazardous materials encountered during construction (including vapour and odour control and the management of sub-surface seepage).<br><br>The DEC has recommended that the management plans guiding the management of spoil, waste, hazardous materials and ASS be integrated as similar management and monitoring measures would be required by each of these plans (particularly sub surface groundwater monitoring). The Department agrees with the DEC and has incorporated this requirement into its recommended CoA. The Department is satisfied that with the implementation of the proposed SoC and the Minister's recommended condition of approval, the waste generated and encountered during the construction of the project can be appropriately managed. | |
| Hazard and Risk | Dangerous goods transportation | Hazard and risk during construction would include (as discussed above) the management of hazardous materials used for, or encountered during construction (e.g. diesel and other chemicals and contaminated land) and risks associated with construction close to live trains. The Proponent has committed to preparing a Hazard and Risk Management Plan to manage construction hazard and risks. The Department supports this commitment and has recommended that this be prepared in accordance with the Department's Hazardous Industry Planning Advisory Paper No. 7, "Construction Safety Study Guidelines"<br><br>Hazard and risks associated with the operation of the project relate to the transport of dangerous good and potential impacts to surrounding receivers and the environment in the event of an accident. The proponent's EA included a risk assessment undertaken in accordance with *AS: NZS 4360:2004 Risk Management*, which indicated that the operational risk with the implementation of standard rail safety protocols are likely to be 'negligible to moderate'. The Proponent has also identified the development of further emergency and contingency protocols in consultation with other rail freight providers (e.g. Pacific National) and RailCorp, to focus on particularity sensitive locations (such as the Liverpool Hospital). Notwithstanding these actions, the Department recommends that the Proponent undertake a peer review of operational systems, a Final Hazard Analysis prior to construction and to monitor dangerous goods movements. The Proponent will also be required to prepare and implement an Operational Hazards and Risk Management Plan, detailing an Emergency Plan and Safety Management System. | Section 15.3.1 of the EA, Section 4.6.1 of Technical Paper 1 of the EA, CoA 69-70 |
| Energy and Greenhouse | Increases greenhouse gas emissions | During construction the proposal is likely to result in energy consumption and greenhouse gas generation levels as a result of plant and machinery, that are comparable to other large construction projects in Metropolitan Sydney (e.g. Epping to Chatswood Rail Link) and is not considered to be a significant impact. The proponent has committed to implementing energy efficient work practices during construction wherever practicable (including reusing and | SoC 63, CoA 66 |

| Issue | Concerns Raised in Submissions | Department's Consideration | Relevant SoC or CoA |
|---|---|---|---|
| | | recycling material, switching off idle machinery etc) and this is supported by the Department. Notwithstanding the Department recommends that the Proponent use electrical energy derived from a renewable energy source for the supply of at least 50% of the on-site electrical energy requirements for the Project's Construction.<br><br>Although raised as an issues of concern in public submissions, the Department is satisfied that the proposal is unlikely to result in a net long-term increase in greenhouse gas emission (even though it will increase total freight volumes on the track) as the proposal would encourage modal shits of rail freight from road freight which is likely to constitute an annual saving of up to 245 tonnes of carbon dioxide emissions through reductions to road freight numbers and fuel consumption. | |
| Communication | Communication strategy should respond to socio- economic characteristics of community | The Proponent committed to a comprehensive communication and consultation strategy. However, in acknowledging concerns raised regarding the potential for this strategy to not adequately address affected communities, the Department recommends that the Proponent be required to prepare a comprehensive Community Involvement Plan that recognises the socio-economic characteristics of affected communities. | SoC 19-24, CoA 19 - 23 |

# 6 CONCLUSION AND RECOMMENDATION

The Department has undertaken a detailed analysis of the SSFL proposal which took into account:

- the Environmental Assessment;
- Submissions Report;
- issues raised in submissions; and
- technical advice and assistance provided by the DEC.

The key objectives of the SSFL proposal highlight the strategic need and benefits of the project to the wider community and the environment. In particular, the proposal in conjunction with the wider ARTC North-South Corridor Strategy has the potential to improve the reliability and competitiveness of rail freight services in the important Melbourne-Sydney-Brisbane corridor. The importance of the proposal is also identified in a range of Commonwealth and State Strategic Planning documents including Auslink and the NSW Metropolitan Strategy.

The Department acknowledges that there is considerable community concern that environmental impacts of the project would be borne by communities located adjacent to the proposal In particular, the SSFL has the potential to impact on communities at those locations where the proposal would extend outside of the existing corridor (particularly on the eastern side of Cabramatta Station) and on sensitive receivers located close to the existing Main South Rail Line (particularly in relation to operational noise). To address these concerns, the Proponent has committed to further consultation with the affected community and a range of actions to mitigate local impacts.

The Department notes that the proposal would largely be contained within the existing Main South Line rail corridor, which has been used for 24-hour rail freight for over 100 years. Freight would continue to grow on the existing line whether or not the SSFL proceeds, with forecast freight movements on a typical day in 2018 without the SSFL being approximately 42 movements, compared with 62 movements with the SSFL, from a base of 27 movements in 2005. This equates to the SSFL contributing approximately 20 more freight movements per day in 2018.

The Department in its assessment of the proposal considered the existing environment and future strategic plans for adjoining areas and the wider Metropolitan region. The Department considers that the location of the project when assessed against other route options is the most sustainable. With the project aligned primarily within the Main South Line rail corridor, it provides an optimal solution between operation (freight network efficiency

connections), technical (constructability), environmental (extent of works outside of the rail corridor and sensitivity of receivers) and economic impacts.

Notwithstanding this, the Department considers the mitigation measures proposed by the Proponent can be enhanced to improve the environmental outcomes for communities adjoining the project and has recommended specific Conditions of Approval. In particular, the Department has recommended enhanced mitigation measures relating to noise and vibration impacts, urban design and landscaping, and for works at the Cabramatta Station precinct. Other key issues of concern such as Auburn Rd bridge, level crossings at Liverpool Hospital and Casula, and flora and fauna impacts have been satisfactorily addressed in the recommended Conditions of Approval. These enhanced measures will enable the SSFL to be constructed and operated such that the proposal would not result in unacceptable specific or cumulative impacts to local communities.

The proposal also has the capacity to enhance the existing environment for much of the community adjoining the proposal. The mitigation measures proposed as part of the project would not only mitigate noise attributable to the Project but also provide a substantial improvement in the existing noise environment of the overall corridor.

The Department is satisfied that proposal with the identified mitigation measure outlined in the Statements of Commitment and Conditions of Approval provides a balanced and acceptable outcome between impacts to the community, corridor constraints and the strategic benefits of the project. In conclusion, the Department is satisfied that the proposal's benefits outweigh the costs and is in the public's interest. Consequently, the Department recommends that the proposal be approved subject to recommended conditions in Appendix A.