Southern Sydney Freight Line

Submissions Report

August, 2006

ARTC
AUSTRALIAN RAIL TRACK CORPORATION LTD

PB PARSONS BRINCKERHOFF
100 YEARS

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1. Introduction

1.1 Background

The Australian Rail Track Corporation (ARTC) engaged Parsons Brinckerhoff (PB) to prepare the Submissions Report for the proposed Southern Sydney Freight Line (SSFL) (the proposal). The SSFL is a proposed 30 kilometre rail freight line located in the existing rail corridor between Macarthur and Sefton.

ARTC is a company wholly owned by the Commonwealth Government. Its primary role is to manage the national rail network connecting Australia's major mainland capital cities. On 5 September 2004, the ARTC commenced a 60 year lease of the NSW interstate and Hunter Valley rail lines. This means that ARTC is now responsible for the operation, maintenance, investment and train operating control across the interstate standard gauge rail network of Australia, connecting Perth–Adelaide–Melbourne–Sydney–Brisbane.

In May 2006 ARTC exhibited an Environmental Assessment for the proposed construction and operation of the SSFL, a new bi-directional, non-electrified and dedicated freight line from Macarthur to Sefton in southern Sydney, to improve interstate rail freight services between Melbourne–Sydney–Brisbane, and also within NSW.

The proposal requires approval from the NSW Minister for Planning and the Commonwealth Minister for the Environment and Heritage. The Environment Assessment was prepared to satisfy the environmental assessment requirements of the Director-General of the NSW Department of Planning and the Commonwealth Minister for the Environment and Heritage.

1.2 Need for the proposal

ARTC has prepared the North-South Corridor Strategy for the Melbourne–Sydney–Brisbane interstate rail network. The $872 million investment program is aimed at reducing the transit times between these three capital cities, improving the availability of services to meet growing freight demand and improving the competitiveness of rail compared to road freight. The program targets priority rail infrastructure between Melbourne–Sydney–Brisbane. A key project of the north-south corridor investment program is construction of the SSFL to provide independent and priority freight train access through southern Sydney.

The operation of Sydney metropolitan rail network creates a bottleneck for freight trains because they are denied access during the morning and afternoon commuter periods and must give way to RailCorp's passenger services that have priority over freight trains at other times. As a result, freight trains cannot arrive or depart Sydney at the optimum time.

This bottleneck affects the availability of rail freight services and causes the transit times between Melbourne–Sydney–Brisbane to extend. Therefore, it has a direct effect on the competitiveness of rail freight compared to road freight. In addition, the reliability of passenger services are also affected by the dual use of the RailCorp network, whereby if a freight train breaks down or runs late, it can cause passenger service disruptions and delays.

1.3 Overview of the proposal

The proposed 30 kilometre SSFL commences south of Macarthur, where the electrified RailCorp passenger network finishes. The SSFL would be bi-directional, non-electrified and a dedicated freight line. (see *Figure 1.1*)

The SSFL would be located on the western side of RailCorp's Main South Line corridor from south of Macarthur through to Ingleburn Railway Station where it would connect into an existing 6 kilometre freight passing loop (that was constructed in 1995) that runs north to Glenfield Railway Station. North of Glenfield Railway Station the SSFL would cross from the western to the eastern side of the corridor on an overpass (or flyover). The SSFL would continue on the eastern side of the rail corridor through Cabramatta and then on the southern side through to Sefton Park Junction. At Sefton Park Junction the SSFL crosses in an underpass (or deep cutting) to enable connection with the existing Metropolitan Goods Line. The SSFL would be located adjacent to the RailCorp passenger network and within the existing rail corridor for the majority of the distance.

The Glenfield flyover and Sefton Park Junction deep cutting would avoid crossing conflicts between passenger and freight trains and provide operational independence from the RailCorp network. An overview of the proposed SSFL is provided in *Table 1.1* (*Page 1.2*) of Volume 1 and a more detailed description is provided in *Part B* of the Environmental Assessment.

ARTC would construct, operate and maintain the SSFL in the Main South Line Corridor under an agreement with RailCorp. Rail freight providers, such as Pacific National, QR National and Silverton Rail would operate the freight trains, as they currently do. The railway corridor would remain in the ownership of RailCorp.

1.4 Proposed modifications to the proposal

As a result of the submissions received during the public exhibition period (see *Chapter 3* and *Chapter 4*), ARTC is proposing to incorporate a number of minor modifications to the proposal originally described in the Environmental Assessment.

ARTC requests that these modifications be considered by the Minister for Planning and the Minister for the Environment and Heritage in their determinations with respect to the proposal. The proposed modifications relate to specific components of the proposal which were identified during the preparation of the Submissions report.

The proposed modifications are:

- Deletion of intermediate connections (i.e. crossovers) between the SSFL and the existing RailCorp network north of Glenfield and south of Casula, and
- At Leightonfield, modifying the SSFL alignment, deleting the previous 900 metre long crossover and proposing a 1,600 metre long passing loop created by connecting and extending the existing Leightonfield Yard loop approximately 300 metres to the west and approximately 350 to the east, to allow standing room for a 1,500 metre long freight train.

The modifications do not increase the environmental impact of the proposal.

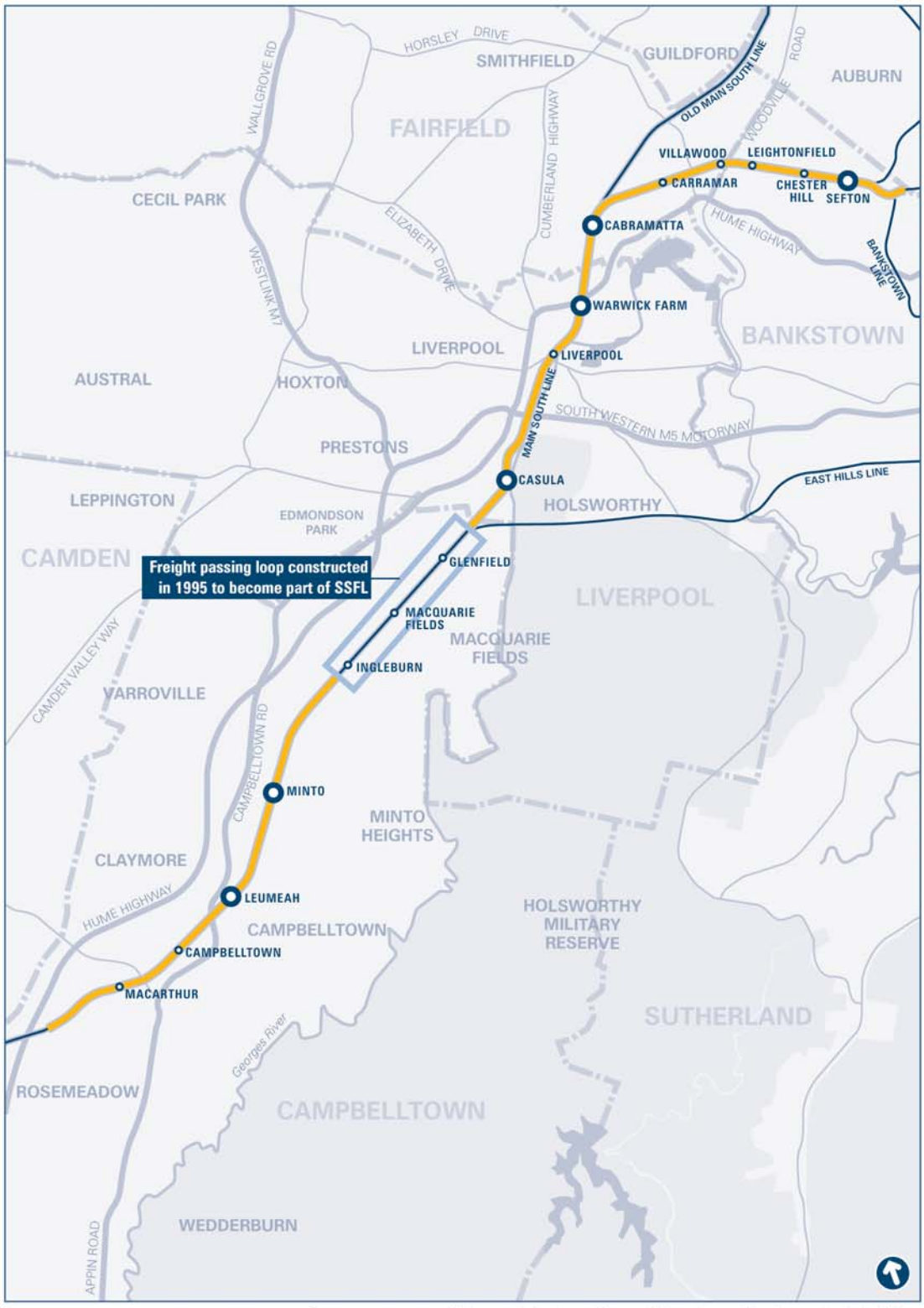

Figure 1.1 Location of Southern Sydney Freight Line

1.5 The determination process

ARTC has considered and responded to the issues raised by submissions to the Environmental Assessment. Issues raised in submissions, and their associated responses, are detailed in *Chapter 4* of this report.

Following submission of this report, the Director-General of the Department of Planning will prepare an assessment report on the proposal. The Director-General will then submit his report to the Minister for Planning, including a copy of the Environmental Assessment, the Submissions Report and any advice provided by public authorities on the proposal, for determination. The Minister will consider the Director-General's assessment report and accordingly determine whether to approve the proposal and the conditions which may apply to the approval. Following the Minister for Planning's determination, the Minister for Planning's determination and the Director-General's assessment report would be published on the Department of Planning's website.

This information would subsequently be provided to the Commonwealth Minister for the Environment and Heritage who would then determine whether to grant approval under the Commonwealth *Environmental Protection and Biodiversity Conservation Act 1999*. The Commonwealth Minister's determination would be published on the Department of Environment and Heritage's website.

1.6 The consultation program

Consultation for the Environmental Assessment has been ongoing since February 2005. Consultation activities undertaken during the preparation of the Environmental Assessment are shown in *Table 1.1*.

Table 1.1 Consultation activities undertaken during preparation of Environmental Assessment

Consultation activity	Date
Planning Focus Meeting	February 2005
Local government meetings	March/April 2005
Stakeholder and community issues identification meetings	May 2005
Distribution of community newsletter 1 (in English, Vietnamese and Arabic)	May 2005
Advertisements in English and non-English speaking newspapers	May 2005
Local business discussion day	July 2005
Individual landowner meetings	August/September 2005
Distribution of invitation flyer for stakeholder and community concept design and precinct plan meetings	September 2005
Stakeholder and community concept design and precinct plan meetings	September 2005
Environmental assessment pre-exhibition review briefing	November 2005
Web site information	Ongoing
1800 Project information line	Ongoing
Translating and interpreting service	Ongoing

Once prepared, the Environmental Assessment was placed on public exhibition from Wednesday 3 May 2006 to Monday 3 July 2006. Public submissions were invited and sent to the Department of Planning in the first instance. This Submissions Report is a response to the submissions received from members of the public and government authorities.

ARTC undertook further consultation activities to inform the community about the Environmental Assessment exhibition and to explain the submission process. These consultation activities are listed in *Table 1.2*.

Table 1.2 Consultation activities undertaken during exhibition of the Environmental Assessment

Consultation activity	Date
Notice of application for approval	April 2006
Distribution of community newsletter 2 (in English, Vietnamese and Arabic)	May 2006
Letters to individual landowners	May 2006
Staffed information days	May 2006
Local business discussion day	May 2006
Advertisements in non-English speaking newspapers	May/June 2006
Environmental Assessment public displays	May-July 2006
Poster displays at railway stations along the proposed SSFL route	May-July 2006
Web site information	Ongoing
1800 Project information line	Ongoing
Translating and interpreting service	Ongoing

A detailed outline of these consultation tools and activities is provided in **Appendix D** of the Environmental Assessment.

1.7 Frequently raised issues from submissions to the Environmental Assessment

During the exhibition period 87 submissions were received by the Department of Planning. The main areas of concern raised by the submissions received were similar to the ones raised during consultation for the Environmental Assessment and included:

- noise and vibration impacts during construction and operation of the SSFL, particularly in residential areas from Glenfield to Sefton
- impacts on local amenity during construction and operation, and the importance of environmental management measures such as noise walls, particularly for those residences adjacent to the railway line
- visual impacts of noise barriers (and the need for ongoing management of graffiti)
- air quality impacts of diesel trains
- potential temporary and permanent impacts on traffic and parking arrangements associated with precinct plan changes to local roads and parking facilities, especially in the Fairfield and Bankstown LGA
- provision of easy access for elderly and disabled persons

- consideration of the cumulative social and environmental impacts of the proposed SSFL from a state and regional perspective
- commercial viability of businesses during construction and operation
- social amenity of Casula Regional Arts Centre, Leacock Regional Park and Georges River Parklands.

ARTC's responses to these issues are provided in *Chapter 4* of this report.

1.8 Purpose and structure of the Submissions Report

This report reviews the Environmental Assessment and considers the submissions received and ARTC's responses to these submissions. The report also includes details of additional investigations that were undertaken to address some of the key issues raised in the submissions, outlines proposed modifications to the concept design presented in the Environmental Assessment, and a Statement of Commitments, which lists the management and mitigation measures that ARTC would undertake should the proposal be approved and undertaken by ARTC.

The report comprises the following:

- **Chapter 1 – Introduction:** Introduces the proposal and responds to key issues raised.
- **Chapter 2 – Consideration of the Environmental Assessment:** Considers the Environmental Assessment and the proposal described within, including statutory compliance, the proposal justification, and the environmental impact assessment of the environmental impacts of the proposal.
- **Chapter 3 – Community consultation:** Provides an overview of the consultation process undertaken.
- **Chapter 4 – Consideration of submissions:** Reviews the submissions responding to the Environmental Assessment and ARTC's comments on the issues raised in these submissions.
- **Chapter 5** – Additional investigations undertaken after exhibition of the Environmental Assessment: Summarises additional investigations undertaken during the preparation of this report.
- **Chapter 6 – Modifications to the project:** Describes and justifies the proposed modifications to the original proposal further to the exhibition of the Environmental Assessment.
- **Chapter 7** – Conclusion.
- **Chapter 8** – References.

2. Consideration of the Environmental Assessment

This chapter presents the consideration of the Environmental Assessment, both in terms of its compliance with statutory requirements and a review of environmental impacts and proposed mitigation measures.

2.1 Statutory compliance of the Environmental Assessment

2.1.1 NSW statutory framework

The *Environmental Planning and Assessment Regulation 2000* was amended in September 2004 to include special provisions relating to the operations of ARTC within NSW. These provisions provide a statutory framework for which all ARTC activities are to be assessed and provide that the ARTC may be recognised as a public authority for the purposes of Part 5 of the *Environmental Planning and Assessment Act 1979*.

In August 2005 the *Environmental Planning and Assessment Act 1979* was amended to include a new Part 3A – Major Project and Other Infrastructure for the assessment of major projects. A Ministerial declaration was made by Government Gazette of 29 July 2005 that in accordance with section 75B of *the Environmental Planning and Assessment Act 1979,* any activity for which the proponent is also the determining authority and would have required an environmental impact statement under Part 5 (but for the commencement of the new Part 3A amendments) will be assessed under Part 3A. The SSFL is one of these projects.

Further, clause 23 of Schedule 1 of the *State Environmental Planning Policy (Major Projects) 2005* identifies '*development that has a capital investment value of over $30 million for the purpose of railway freight facilities*' as a project to which the assessment and approval process under Part 3A of the *Environmental Planning and Assessment Act 1979* applies. The SSFL meets this definition.

Consequently, the proposal will be assessed as a major project under Part 3A of the *Environmental Planning and Assessment Act 1979*, and the Environmental Assessment has been prepared in accordance with all relevant requirements. Project Approval under part 3A is being sought for the proposal.

The Environmental Assessment Requirements of the Director-General of the Department of Planning are set out in *Appendix A* of the Environmental Assessment. As part of these requirements, the Director-General identified relevant government agencies for consultation, in addition to consulting with the community.

Government agencies and authorities who were consulted and provided further requirements were:

- NSW Department of Environment and Conservation
- Heritage Council of NSW
- NSW Roads and Traffic Authority

- Campbelltown City Council
- Bankstown City Council
- Fairfield City Council
- Liverpool City Council.

A checklist of the key issues to be addressed in the Environmental Assessment, as required by government agencies and authorities is provided in *Appendix B* of the Environmental Assessment.

The Environmental Assessment was lodged with the Department of Planning on 4 November 2005 for an adequacy review, prior to exhibition, in accordance with section 75H of the *Environmental Planning and Assessment Act 1979*. An application for approval from the Minister for Planning was made on 2 May 2006, in accordance with section 75E of the *Environmental Planning and Assessment Act 1979.*

2.1.2 Commonwealth framework

The Commonwealth *Environment Protection and Biodiversity Conservation Act 1999* applies to a proposal if it is determined to be a controlled action as defined in the Act. ARTC is a Commonwealth agency under the *Environment Protection and Biodiversity Conservation Act 1999* and the SSFL is likely to have a significant impact on the environment, and as such the project is a controlled action under the *Environment Protection and Biodiversity Conservation Act 1999* for which approval is required.

The Commonwealth Minister for the Environment and Heritage has determined that the proposal is a controlled action and has given approval to utilise the Environmental Assessment process under Part 3A of the *Environmental Planning and Assessment Act 1979* as an accredited assessment process under Commonwealth legislation for this proposal. This Environmental Assessment has been prepared to obtain this approval.

2.2 Development of the proposal

In accordance with statutory requirements, the Environmental Assessment justified the need for the proposal, considered alternatives and described the concept design (see *Chapters 2*, *3* and *4* of Volume 1 of the Environmental Assessment). A summary of these aspects is outlined in the following sections.

2.2.1 Need and objectives

Project need

ARTC was created by the Commonwealth Government to facilitate a commercially viable Australian rail freight industry through the introduction of new infrastructure and freight operator access arrangements, contributing to an efficient national transport system.

Since commencement of operations in 1998, ARTC has sought to increase utilisation of its network by assisting in maintaining and improving rail's competitive position in national and regional logistics markets.

Current rail performance in the Melbourne–Sydney intermodal market falls significantly short of the levels required to make rail competitive. In the Melbourne–Brisbane market, rail is currently competitive on door-to-door price, but reliability and capacity continue to constrain rail's ability to increase its market share. ARTC's north-south corridor investment strategy is designed to address alleviate these limitations with the aim of providing a significant boost to rail's market share.

The ability to offer a late afternoon departure from Melbourne and early morning availability of freight in Sydney (and vice versa) is critical to rail's ability to compete with road in this market. The prohibition imposed on freight operations in the Sydney metropolitan area during the morning and afternoon commuter peak periods, which has been imposed in the absence of a dedicated freight rail line, means that rail cannot currently offer the departure and arrival times required for rail to be competitive. Further, significant improvement has been constrained by the quality of rail infrastructure compared to road, and a disjointed approach to the management of, and investment in, the rail freight market.

The North-South Corridor Strategy investment will result in an improvement in transit times for Melbourne–Brisbane services down to 27 hours (down from the current 34 hours). The resulting improvements in rolling stock utilisation would be significant for operators. For example, currently four trains are required to offer a daily service between these cities, but the shorter transit time would result in a 72 hour cycle time, which would require only three trains to provide a daily service (a 25% saving). The SSFL will assist in achieving this by reducing timetabling constraints in this market.

This project is supported by the NSW Freight Infrastructure Advisory Board as part of a strategy to encourage transfer of mode share from road to rail to ease pressure on Sydney's roads. The project would, in effect, extend the existing metropolitan Goods Line to Macarthur and onto the interstate freight network. A dedicated freight line will provide improved opportunity for development of major intermodal terminals in south west Sydney.

Objectives

In consultation with relevant authorities, and having regard to ARTC's north-south corridor investment strategy, a set of objectives for satisfying the strategic project need have been developed.

- In relation to reliability and efficiency — improve reliability and travel times for rail freight services between Melbourne–Sydney–Brisbane.
- In relation to rail competitiveness — improve rail freight service competitiveness compared to road freight service.
- In relation to operations — reduce delays to passenger services resulting from conflicts with freight operations.
- In relation to economic development — support State and National economic development with provision of key freight infrastructure.
- In relation to environmental sustainability — 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
  - minimising construction and operational related impacts on the local community.
- In relation to economic and financial outcomes — achieve acceptable economic and financial outcomes.

2.2.2 Proposal alternatives

ARTC's North-South Corridor Strategy has been conceived as an integrated investment strategy with the SSFL as a key element of that strategy. The primary consequence of excluding the SSFL would be to severely compromise the ability to achieve the freight availability and reliability objectives of the strategy.

The Sydney Dedicated Freight Track Study (Maunsell, 2000) considered the feasibility of a dedicated freight track through Sydney from Macarthur to Hawkesbury River. The report examined four route options through southern Sydney from Macarthur or Waterfall to Chullora/Enfield and a fifth possible route was identified through northern Sydney using. the Main North Line corridor.

- **Option 1** – involves using the RailCorp corridor between Macarthur to Sefton and is the preferred proposal presented in the Environmental Assessment (see *Figure 1.1*).
- **Option 2** – is the same as Option 1 between Macarthur and Cabramatta Junction and from there the track would then proceed via an underpass under the Junction to the Old South Line corridor. The track would continue to Clyde Yard and Auburn on the eastern (Down) side of the Main West Line corridor. A second underpass under Auburn Railway Station would cross the freight track to the north (Up) side where it would run east to connect with the existing freight network at Flemington Junction via a third underpass under the Olympic Park lines.
- **Option 3** – is the same as Option 1 between Macarthur and Glenfield Junction and from there the track would then proceed on the north (Up) side of the East Hills Line to Wolli Creek Junction and then to Meeks Road Junction where it would join the existing freight network.
- **Option 4** – would utilise the existing Illawarra Line corridor between Waterfall and Meeks Road Junction. A flyover would be required at Wolli Creek Junction to separate the freight track from the East Hills and Airport Lines. All freight movements south of Sydney would go via Wollongong and Robertson and connect to the Main South Line at Moss Vale.

Option 1 was chosen as the preferred proposal as it was found to be the lowest cost, have the least environmental impacts and best operational benefits. The findings of the multi-criteria based assessment were that Option 1:

- has good compatibility with all existing and future freight terminal locations
- has the lowest capital and maintenance cost of any of the options considered
- is within the existing rail corridor used by interstate freight services for the majority of the route distance, giving rise to relatively fewer environmental impacts
- has a relatively low impact on future network infrastructure plans.

A partial alternative to the Southern Sydney Freight Line could be to construct significant intermodal terminals south of Macarthur where freight train access is possible without interference from RailCorp's electrified passenger network. While this option may prove to be useful, it will not solve rail freight access restrictions through Sydney for interstate freight services between Melbourne–Brisbane.

2.3 Benefits of the proposal

The key benefit of the SSFL would be the elimination of the existing transit time/availability impacts associated with RailCorp's passenger peak prohibition on rail freight operations through southern Sydney's commuter rail network (i.e. RailCorp's electrified Main South Line corridor). The current prohibition coincides with the optimum arrival and departure times for Sydney–Melbourne intermodal freight services.

Secondary benefits of the dedicated freight line are:

- Increased reliability throughout the day and night for both passenger and freight services
- Increased flexibility for timetabling of freight services. It is important to note that the constraints of the Sydney peak prohibition affect freight timetabling across and beyond the Sydney–Melbourne corridor.

2.4 General description of the proposal

2.4.1 Corridor design and operation

Corridor design

The proposed 30 kilometre SSFL commences south of Macarthur, where the electrified RailCorp passenger network finishes. The SSFL would be bi-directional, non-electrified and a dedicated freight line. The SSFL would be located on the western side of RailCorp's Main South Line corridor from south of Macarthur through to Ingleburn Railway Station where it would connect into an existing six kilometre freight passing loop, which was constructed in 1995, that runs north to Glenfield Railway Station. North of Glenfield Railway Station the SSFL would cross from the western to the eastern side of the corridor on an overpass (or flyover).

The SSFL would continue on the eastern side of the rail corridor through Cabramatta and then on the southern side through to Sefton Park Junction. At Sefton Park Junction the SSFL crosses in an underpass (or deep cutting) to enable connection with the existing Metropolitan Goods Line. The SSFL would be located adjacent to the RailCorp passenger network and within the existing rail corridor for the majority of the distance. The Glenfield flyover and Sefton Park Junction deep cutting would avoid crossing conflicts between passenger and freight trains and provide operational independence from the RailCorp network.

Although the SSFL is generally located within the existing Main South Line corridor, portions of several parcels of land adjacent to the corridor located at Campbelltown, Leumeah, Minto, Glenfield, Casula, Liverpool, Leightonfield, Sefton and Birrong; would need to be acquired. For a more detailed description of the particular land affected by acquisition, refer to *Sections 4.7* and *6.9* of Volume 1 of the Environmental Assessment.

Some minor changes in the vertical and horizontal alignment would be expected, however, as the detailed design is developed, and detailed survey and geotechnical data becomes available. The features of the proposed alignment in the southern section of the SSFL (between Macarthur and Glenfield) and northern section (Glenfield to Sefton), are summarised in *Table 4.1* (*Page 4.1*) and in other sections of *Chapter 4* of Volume 1 of the Environmental Assessment.

Operation

The SSFL would be the preferred route for all freight trains travelling through southern Sydney, between Macarthur and the Sefton Park Junction. The SSFL would provide a dedicated freight line that would remove the operational constraints of sharing the RailCorp network. There are a small number of freight services that would continue to travel via the RailCorp network rather than the SSFL and also in some situations, such as during train breakdowns, maintenance possession or infrastructure damage on the SSFL. Where freight services would remain on the RailCorp network, passenger trains would continue to have priority for the available train paths.

While diesel passenger trains could use the SSFL, the RailCorp network would continue to be the designated route for most CountryLink passenger trains because neither timetabled stops at Macarthur, Campbelltown and Glenfield Railways Stations, or unscheduled stops, can be accommodated on the SSFL. Circumstances could also arise however where unscheduled CountryLink passenger trains need to use the SSFL, for example, when the RailCorp network is blocked by a maintenance possession, train breakdown or affected by infrastructure damage. In these instances where an unscheduled CountryLink passenger train uses the SSFL, freight trains would take priority over passenger trains for the available train paths.

The ARTC would control all rail traffic on the SSFL from a control centre at a location to be determined. The control centre would be owned and resourced by the ARTC. Interface with the RailCorp network would be limited to the two connections at Ingleburn and Leightonfield. For these connections, dual train control of train movements would be required between the ARTC and RailCorp. The ARTC would be responsible for maintaining the SSFL track and corridor in accordance with its lease agreement with the NSW Government.

The SSFL would be capable of operating with maximum freight train lengths of 1,800 metres. Trains of this length currently operate on the interstate Melbourne to Sydney rail freight network. Most freight trains expected to use the SSFL would be shorter in length, ranging between 600 and 1,500 metres. However, it is expected that over time, the proportion of longer freight trains would increase.

The existing RailCorp rail network allows a maximum freight train speed of 115 kilometres per hour between Macarthur and Glenfield (and subject to the speed restrictions that currently apply to the rail network), and 80 kilometres per hour within the Metropolitan Rail Area due to signal braking distance requirements. The SSFL (including the signalling infrastructure) would be capable of allowing trains to operate at a maximum speed of

115 kilometres per hour, wherever possible; although a maximum speed of 80 kilometres per hour would apply north of Glenfield due to curvature or gradient constraints.

2.4.2 Station precinct design

Stations that would be substantially affected by the proposed alignment of the SSFL are:

- Leumeah Railway Station
- Minto Railway Station
- Casula Railway Station
- Warwick Farm Railway Station
- Cabramatta Railway Station
- Sefton Railway Station.

These 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. Precinct plans for each of these stations have been prepared and are provided in *Chapter 6* of Volume 1 of the Environmental Assessment.

The major works at these stations would include:

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

The SSFL would generally pass between the street access to the stations and the platforms, which would prevent direct platform access from the street. This would require station footbridge extensions to preserve access to the stations. The alignment would also typically affect parking space for commuters, taxi stand and kiss-and-ride and bus interchange facilities. These would have to be restored near the new station entries, with provision of landscaping, drainage, lighting and pavements. In some instances, the width of the adjoining streets would also be affected, requiring some local road works to ensure safe pedestrian and vehicular access.

Development of the SSFL through the stations listed above would generally be undertaken in five main steps:

- **Step A** – Extension of the station pedestrian footbridge (or provision of a new footbridge at Warwick Farm, and at Cabramatta and Minto, the construction of replacement ticket office on the foot bridge above the SSFL track) using prefabricated structures.
- **Step B** – Demolition of existing ticket office to provide access for piling and minor earthworks.
- **Step C** – Protection or relocation of services.
- **Step D** – Construction of works to the precinct, e.g. replacement car parking, bus stops, footpath and landscaping.
- **Step E** – Construction of the SSFL track, including signalling.

The objective of the construction sequence would be to maintain public access to the stations and station functioning. Facilities to maintain public access over the SSFL and replacement of station facilities that would be demolished for the SSFL would be constructed first to minimise disruption to the public and commuters.

2.4.3 Construction

Construction of the SSFL is expected to start in early 2007 and would be carried out in three main phases:

- **Phase A:** A preparatory phase to isolate the construction zone from the operating RailCorp rail tracks, and to relocate or protect existing services and utilities.
- **Phase B:** The phase of major civil construction, when the earthworks, culverts and bridges would be constructed.
- **Phase C:** A final phase of track construction and installation of signalling and communications facilities. This phase would include installation of connections to the existing RailCorp tracks, testing and commissioning.

The entire construction program is expected to take up to two and a half years with significant overlap between the construction phases. Phase A is expected to take approximately three to six months to complete, Phase B approximately 18 to 20 months, and Phase C approximately three to six months. The bulk of the construction work would be undertaken during Phase B, and it is during this phase that the main environmental and social impacts of construction would occur. Impacts on the operating railway would mainly occur during Phases A and C. The construction cost of the SSFL is estimated to be approximately $192 million.

The SSFL construction is expected to require a construction workforce of approximately 300 staff at its peak (not including weekend possession work when the workforce would be supplemented). Construction works would generally be carried out during standard construction hours which are: 7 am to 6 pm Monday to Friday, 8 am to 1 pm Saturday and not on Sundays or public holidays. The following exceptions would apply to these standard hours:

- if any bridge works need to be done at night to public road crossings of the corridor, for example if bridge decks or rail bridge girders need to transported to the site requiring local road closures
- works required during RailCorp track possessions – either 12 am to 5 am or a 48 hour planned weekend possession with approximately two nights of work.

In the event of these exceptions to standard construction hours, the community, and relevant State and local government authorities will be notified well in advance, in accordance with the Construction Environmental Management Plan, to minimise any inconvenience caused.

2.5 Environmental issues overview

2.5.1 Key issues

Traffic, transport and access

The existing environment and potential impacts of the proposal on local and regional traffic, transport and accessibility are detailed in *Chapter 10* of Volume 1 of the Environmental Assessment and in *Chapters 16* to *21* with respect to the six affected station precincts.

The phase of major civil construction, when the earthworks, culverts and bridges would be constructed would have the greatest potential impact on transport in the surrounding areas. It is expected that during the earthworks phase, up to 45 trucks per day would access the site gates serving the Glenfield and Sefton Park Junction work areas over a period of up to 20 months. Up to 30 trucks per day would access gates of all other work areas for an average of two months at each gate. The routes taken by heavy vehicles to these sites would be determined on a site by site basis and would generally be by the most direct route considering Roads and Traffic Authority road weight restrictions, bridge height clearances and local road impacts.

Traffic flow data for 2002 (Roads and Traffic Authority, 2002) has been used to assess the total impact of construction traffic on the surrounding road network (see *Appendix E* of Volume 1 of the Environmental Assessment). It can be seen that the worst case scenario shows the potential for an accumulation of up to 420 trucks (840 truck movements) on some of the main road links serving the route.

For local roads the impact of truck 'car equivalent movements' (by multiplying the additional number of trucks by a factor of 1.5) averages an increase of around 1.5 per cent. To put these results into perspective, it should be noted that fluctuations in traffic flows of between 5 and 10 per cent throughout average weekdays are common on these roads. Therefore, relative to these daily traffic fluctuations, the likely increase in car equivalent movements is minimal and unlikely to be noticed by the average road user.

Potential areas of increased congestion are likely to be at intersections where trucks are required to right turn from minor roads onto major roads. This is particularly relevant on routes where 180 truck movements are expected per day. It is proposed that individual intersections would be assessed with detailed modelling as part of proposed Traffic Management Reports and Traffic Management Plans as part of the Construction Environmental Management Plan.

Mitigation measures would be developed as part of Traffic Management Reports and Traffic Management Plans once more detailed information is available on spoil dump sites and work methods. Some potential ways to reduce the impact of truck traffic on specific areas are as follows:

- Where possible, use multiple routes to reduce the impacts to specific and constrained intersections and residential areas.
- Consult with local government and/or Local Traffic Committees to determine sensitive areas and adjust routes as required.

Bus and taxi operations would be mainly affected at stations where bus stops and taxi stands would be displaced. Along the corridor, buses and taxis would be affected at bridges during construction and through any diversions in place. Bus stop and taxi stand arrangements are likely to be displaced during construction at the Chester Hill Road Bridge. Temporary bus stops and taxi stands could be placed on Waldron Road and Wellington Road during construction. The relocation of bus stops/taxi stands and diversion of any bus routes would be assessed as part of the site specific Traffic Management Plans. These impacts would be discussed with the bus and taxi operators and appropriate mitigation measures taken to ensure minimal impact to operators and passengers.

Potential disruption and alternative traffic access for emergency services at bridge crossings over and under the corridor would be assessed as part of the proposed construction sequence in the detailed design stage and included in the Traffic Management Plans. The emergency services would also be consulted as part of the preparation of these plans.

All pedestrian cycle paths and pedestrian crossings along the corridor would remain open at all times during construction. Only temporary diversions would be required and the nearest crossing point/s would remain open. Access for pedestrians would be considered in the site specific Traffic Management Plans to be prepared.

During operation, no roads would have capacity reductions and there would generally be no change to traffic conditions. The exception being Campbelltown City Council's proposed road connection from Farrow Road to Blaxland Road, Campbelltown to provide more direct access to Campbelltown Railway Station. A staged implementation of the road connection has been developed (see *Section 14.2* of Volume 1 of the Environmental Assessment) that would be subject to further refinement and appears capable of meeting Campbelltown City Council's objectives. It would be finalised in the detailed design stage.

Local access and emergency services access would not be affected by the operation of the SSFL. All bicycle and pedestrian facilities, including corridor crossings, would be retained. At some stations, implementation of the SSFL would change pedestrian movements in accessing the stations, or in using station footbridges to cross the rail corridor. At some stations, pedestrian facilities and pedestrian safety would be improved by the provision of safe pedestrian crossing facilities adjacent to the station. There would be no impact on bus routes from the operation of the SSFL. There would be minor changes to the location of bus stops and taxi ranks at some stations.

The SSFL would generate additional rail freight traffic by improving access into and through Sydney, supporting increased intermodal activity at existing rail terminals in Sydney, Melbourne and Brisbane. The increased rail freight arriving at these terminals would generally replace, or be a substitute for, heavy vehicle trips on the interstate road network. It is estimated that there would be 182,468 fewer semi-trailer net tonne kilometre road trips by 2018 (based on the assessment in *Chapter 15* of Volume 1 of the Environmental Assessment), which is a benefit for the wider community.

Increased intermodal terminal activity would, however, generate increased local truck traffic on the adjoining road network that connects to these terminals. Growth in traffic associated with these terminals would be limited to existing terminal capacity and the approved conditions of operation.

Noise

The existing environment and potential impacts of the proposal on acoustic environment are detailed in Technical Paper 2 of Volume 2, and in *Chapter 11* of Volume 1 of the Environmental Assessment.

Maximum noise levels would occur when construction is at the nearest point to any location and when the noisiest plant items, such as hydraulic hammers, are in use. As the main focus of construction activity moves along the corridor, the noise levels would drop below the noise guideline levels. Maximum noise levels from construction activities are predicted to exceed the DEC construction noise criteria at all locations. Noise mitigation to minimise levels and associated noise impacts as much as possible; however, even with these measures in place, it would not generally be possible to meet the criteria (refer to *Table 11.3* of Volume 1 of the Environmental Assessment). Residents would be advised of the construction schedule and the likely type and duration of noise levels from construction activities. Noise from road traffic associated with the construction works would generally be acceptable, but specific controls may be required at certain locations. If necessary, these would be described in the Construction Noise and Vibration Management Plan.

Night-time works would be required for works such as bridge works and other works during track possessions. During night-time works, noise levels generated would be within criteria for the relevant activity. All feasible control measures would be adopted in these cases, including installation of temporary noise barriers around the equipment, scheduling of noisy activities in daytime hours and siting of stationary plant as far away from noise-sensitive receivers as possible. Again, residents would be advised of the construction schedule and the likely noise levels from these construction activities.

The results indicate that, without noise barriers in place, most noise catchment areas on the SSFL side of the corridor would experience a small increase in noise from freight operations and that noise levels in those catchments would be (and in many instances already are) above the criteria set under the NSW Department of Environment and Conservation's *Environmental Noise Control Manual*. However, in the absence of the SSFL, two thirds of the predicted freight operations would still occur on the existing tracks, with attendant noise impacts. Exposure to operational noise at night without noise barriers was predicted to be similar to the predicted daytime exposure.

Permanent noise barriers of 3 to 4 metres in height are proposed as part of the proposed SSFL along many parts of the alignment, subject to detailed design. The proposed noise barriers would significantly reduce noise levels to below the relevant criteria at most locations where they are proposed. Additional mitigation measures considered for operational noise are discussed in *Section 11.3.2* of Volume 1of the Environmental Assessment.

Maintenance of the proposed track would involve activities very similar to current maintenance of the existing RailCorp tracks and the frequency of maintenance for the SSFL would be lower then for the existing tracks. The assessment concluded that overall, maintenance of the proposed SSFL would not add significantly to existing noise levels at any location.

A Construction Noise and Vibration Management Plan would be prepared by the selected contractor prior to the commencement of construction. This would consider all reasonable and feasible noise mitigation measures where potential noise impacts exceed the relevant objectives. It would also outline noise monitoring procedures, auditing and reporting requirements, and community consultation protocols and reporting. A range of consultation mechanisms would be implemented during construction to inform the community of predicted noise impacts, and provide affected parties with the opportunity to obtain feedback during the works.

Biodiversity

Biodiversity issues are assessed in detail in Technical Paper 1 of Volume 2, and *Chapter 12* of Volume 1 of the Environmental Assessment.

Much of the vegetation within the rail corridor has been cleared. This vegetation is dominated by introduced grasses such as *Pennisetum clandestinum*, *Paspalum dilatatum, Chloris gayana* and *Cynodon dactylon*. Weedy herbs are also common, and remnant and planted trees are scattered within this area. No critical habitats (as listed in the *Threatened Species Conservation Act 1995* and *Environment Protection and Biodiversity Conservation Act 1999*) are listed as occurring within the rail corridor.

A total of 35 threatened species of plant or their habitats have been recorded within 10 kilometres of the proposed SSFL, as identified in *Appendix A*, Technical Paper 1 of Volume 2 of the Environmental Assessment. Only one threatened plant, *Acacia pubescens*, has been recorded within the rail corridor. Five populations of *Acacia pubescens* have been recorded in the rail corridor. The location of these populations are shown and described in *Table 12.5* of Volume 1 of the Environmental Assessment.

There are a number of patches of remnant or regrowth native vegetation, including 18 patches of endangered ecological communities (*Cumberland Plain Woodland and Sydney Coastal River Flat Forest*, National Parks and Wildlife Service, 2002a). However, most of the vegetation in these remnants is of low conservation significance due to the level of disturbance and weed encroachment. Most of the vegetation in these remnants is degraded and has been classified as 'other vegetation' — meaning that it is less than 10 hectares, is not critically endangered and is not a priority for conservation (National Parks and Wildlife Service, 2002b). Some areas of higher conservation priority have been identified within the rail corridor. Vegetation adjacent to Prospect and Cabramatta Creeks has been identified as 'core habitat' (remnants greater than 10 hectares with canopy cover greater than 10%) and provide a viable network for conservation (National Parks and Wildlife Service, 2002b). Although the vegetation at these sites forms a continuous corridor along the creek it is very narrow and has a high level of weeds.

The proposed Glenfield flyover clips the south eastern corner of Leacock Regional Park and passes along the western boundary of Throsby Park, which is of overall national conservation significance as it contains Cumberland Plain Woodland. However, the vegetation likely to be affected is in relatively poor condition. However, the overall conservation significance of the rail corridor is low due to the limited, fragmented and degraded nature of native vegetation.

Two threatened fauna species have potential habitat within the study area: Green and Golden Bell Frog (*Litoria aurea*) and the Cumberland Plain Large Land Snail (*Meridolum corneovirens*). However, despite targeted surveys, these species were not detected within the proposed SSFL corridor (see *Section 2.6.2* of Technical Paper 1 of Volume 2 of the Environmental Assessment).

The flora and fauna impact assessment concluded that a significant impact on threatened flora and fauna is unlikely. Impacts on plant and animal species of conservation significance can be summarised as follows:

- 0.4 hectares of Cumberland Plain Woodland would be directly affected in Leacock Regional Park and Thorsby Park and due to the condition, fragmentation and area of habitats to be cleared it is unlikely to have a significant impact on the long-term survival and recovery of the community.
- 1.7 hectares of Sydney Coastal River Flat Forest would be directly affected in remnant vegetation at Bow Bowing Creek to the north of Narellan Road; adjacent to the Georges River at Casula and Liverpool; and at Cabramatta and Prospect Creeks. Clearing of this vegetation is also not considered to be significant due to the condition, fragmentation and area of habitats to be cleared.
- Five populations of the threatened species, *Acacia pubescens*, were located in the rail corridor at Warwick Farm and Sefton. It is recommended in the Statement of Commitments within Appendix D of this report that detailed surveys are undertaken and individuals marked and protected as part of the Construction Environmental Management Plan. Further mitigation measures would be determined in consultation with the Department of Environment and Conservation and RailCorp.
- Marginal habitat located in the south of Leacock Regional Park and Thorsby Park was identified for the Green and Golden Bell Frog (*Litoria aurea*), however summer targeted surveys failed to detect this species. The current habitat is in poor condition and removal would not significantly affect these species.
- Marginal habitat located in the south of Leacock Regional Park and Thorsby Park was identified for the Cumberland Plain Large Land Snail (*Meridolum corneovirens*). The current habitat is in poor condition and removal would not significantly affect these species.

Impacts of the proposal on threatened flora and fauna are likely to be minor due to the limited extent of native vegetation within the corridor, its highly degraded nature and ongoing threats from adjacent urban development. Where possible, measures will be implemented as part of Construction Environmental Management Plan to minimise or avoid impacts on flora and fauna, and further measures are discussed in detail in *Table 12.9* of Volume 1 of the Environmental Assessment.

2.5.2 Other issues

Built heritage

The existing environment and potential impacts of the proposal on built heritage are detailed in *Chapter 13* of Volume 1 of the Environmental Assessment. The majority of the listed heritage items in the proposed rail corridor area would be unaffected by the proposal, as they are not in the direct vicinity of the proposed works. *Table 13.2* of Volume 1 of the Environmental Assessment provides a list of the affected or potentially affected listed heritage items.

Environmental protection measures for the footbridges that are required to be modified include design sensitivity to the existing structural and historic elements of the footbridges. Photographic documentation, including black and white photography of the footbridges and their immediate surroundings prior to the major stages of modification works, would be required. Design of extensions to footbridges and stairs would need to adopt the design principles outlined in *Section 3.4.6* of Volume 1 of the Environmental Assessment.

Surface water

The existing environment and potential impacts of the proposal on surface water are detailed in *Chapter 12* of Volume 1 of the Environmental Assessment.

The primary impact on groundwater during construction would probably be any de-watering required for deeper excavations for culverts, cuttings or bridge footings. As groundwater encountered may be of poor quality (with salinity of greater than 2,000 milligrams per litre of total dissolved solids), disposal of groundwater could require special consideration (such as permission from Sydney Water to dispose to the sewer).

The impact of construction of the SSFL on each drainage crossing would need to be assessed during the detailed design phase of the project. Without careful management, construction activities could affect both water quantity and quality. Disturbance of the soil surface cover by earthworks would provide a high potential for soil loss during storm events, with contamination of watercourses potentially of greatest concern. Other water quality impacts during construction may include spillage of hydrocarbon fuels used for powering construction equipment. Control of both these impacts would be necessary through soil erosion management and run-off quality control devices as defined in the former Environment Protection Authority's *Soil and Water Quality Handbook No.4* and the NSW Department of Housing's *Managing Urban Stormwater: Soils and Construction* (Blue Book, 2004).

Operation of the SSFL would have a limited effect on the surface water drainage systems that intersect the proposed SSFL alignment because of the existing Main South Line railway embankment. Once the existing drainage structures have been modified and the new drainage structures constructed, the operational issues would be limited to potential impacts during maintenance because the existing hydraulic capacity of all transverse waterway openings would not be altered. Water quality controls during operation of the SSFL would be limited to monitoring of installed water quality devices and regular maintenance of these devices.

Geology and soils

A detailed assessment of the existing geology and soils along the proposed SSFL alignment is presented in *Section 1* of Technical Paper 1 of Volume 2 of the Environmental Assessment.

For most of the proposed SSFL route, conventional engineering methods of design and construction are proposed. However, where the proposed SSFL route passes through lower-lying areas, crosses watercourses or passes through disturbed terrain, a greater level of geotechnical investigation would be required. A detailed geotechnical investigation would be carried out as part of the detailed design process. The detailed design of cut batters and embankments would be undertaken in consultation with RailCorp to ensure RailCorp's operations and maintenance requirements are addressed.

Management measures to avoid and/or minimise potential impacts of acid sulfate soils during construction are detailed in *Section 12.3.1* of Volume 1 of the Environmental Assessment. Potential impacts during operation of the SSFL would be negligible as upon completion of the construction works, any actual acid sulfate soils or potential acid sulfate soils would be stabilised as required by the Acid Sulfate Soil Management Plan that would be prepared to manage construction impacts. Acid sulfate soils disturbed during construction would also be monitored following completion of construction works.

Without careful management, the large volume of earthworks proposed for the project has the potential to cause erosion and sedimentation problems in areas close to rivers and streams. Methods such as drainage ditches, covers, terracing, contour cultivation, fences, soil stabilisation, and straw, hay or artificial turf would be used to control soil erosion and sedimentation during construction and operation of the proposed SSFL. An Erosion and Sedimentation Control Plan would be prepared to describe these measures in detail.

Visual character

A detailed assessment of existing visual character in the study area is provided in Technical Paper 5 of Volume 2 of the Environmental Assessment. Design principles for landscaping and noise barriers are detailed in *Table 3.2* of Volume 1 of the Environmental Assessment and would be developed in more detail during the detailed design phase to minimise visual and urban design impacts as much as possible. Best practice in both erosion control and visual character would be achieved through well resolved grading, earthworks and vegetation plantings.

A Strategy Plan has been developed to outline the concept for the urban design and treatment of the proposal, including guidelines for the subsequent design and construction processes. Details of the plan are provided in *Sections 3.4.6* and *4.5* of Volume 1 of the Environmental Assessment.

The visual and landscape impacts associated with the Glenfield flyover at Leacock Regional Park and Thorsby Park have been further assessed in *Chapter 5* of this report. Refinement of the Glenfield flyover concept design has also been undertaken.

Contaminated/hazardous materials and waste

Contaminated/hazardous materials and waste management issues are assessed in detail in *Section 2* of Technical Paper 1 of Volume 2 of the Environmental Assessment.

It is proposed that Phase 1 Contamination Assessments be undertaken along the proposed SSFL route to determine the potential for contaminated soil to be present, in accordance with the Environment Protection Authority's *Guidelines for Consultants Reporting on Contaminated Sites* (1997). The Phase 1 Contamination Assessments would determine if detailed field investigation is required.

To minimise any impacts on the surrounding environment during the proposed works and management of potentially contaminated soil and ballast, environmental controls would be included in the Construction Environmental Management Plan for the project.

A Waste Management Plan would be prepared as part of the Construction Environmental Management Plan.

Other potential impacts

The construction of the proposal over two years would contribute to the local and regional economies. The ARTC would require the lead contractor to use, where possible and practical, the materials, skills and services of locally and regionally-based firms. Where possible and practical, smaller and local firms would be invited to bid competitively for work.

Passenger amenity at the six stations where major works are proposed would be temporarily affected during construction of the SSFL. Impacts would primarily relate to construction noise and air quality (i.e. dust). Station platform possessions (see *Chapter 5* of Volume 1 of the Environmental Assessment) would be required for short periods, but adequate and safe circulation would be maintained on the platforms.

It is likely that there would be some temporary community severance impacts during construction of the proposed SSFL, particularly during works required to upgrade the various public crossings along the railway corridor, including the pedestrian footbridges, rail bridges and road bridges. In most cases, these impacts would be minimised through the incorporation of a staged construction process, with full access provided as soon as construction work is completed. The local community would be consulted before the works commence regarding the nature and duration of the works and any temporary changes in access.

A detailed Aboriginal heritage assessment is included in Technical Paper 4 of Volume 2 of the Environmental Assessment. The existing rail corridor area has low Aboriginal archaeological potential due to the nature and extent of previous disturbance and the likelihood that, if any Aboriginal objects remain within the corridor, the development is unlikely to result in further impact on these objects. Consequently, no Aboriginal heritage constraints were identified to the proposed development within the existing rail corridor.

2.5.3 Environmental management and Statement of Commitments

The Director-General's requirements for the Environmental Assessment included 'a draft Statement of Commitments, detailing measures for environmental mitigation, management and monitoring for the project'. This is included at *Appendix C* of Volume 1 of the Environmental Assessment. A revised Statement of Commitments is attached at Appendix D of this report, which contains the full environmental management measures that ARTC is committed to implementing to mitigate the specific issues identified and described in the Environmental Assessment, and issues raised in this report.

3. Community consultation

3.1 Consultation during preparation of the Environmental Assessment

3.1.1 Overview of process

A stakeholder consultation program was conducted to inform relevant stakeholders about the proposed SSFL and its potential environmental impacts. The consultations also sought comment from stakeholders on issues of concern to be addressed in the Environmental Assessment and the design of the proposed SSFL.

The approach to community consultation was guided by the need to draw from a large and diverse community and other stakeholders. An analysis of the information needs of stakeholders and the community also guided the development of consultation activities.

The aims of the consultation program were to:

- create stakeholder and community awareness of the SSFL and environmental impact assessment
- create stakeholder and community understanding of the constraints and opportunities relating to the project
- identify and consider stakeholder and community issues, values and concerns related to the project
- meet legislative requirements under the *Environmental Planning and Assessment Act 1979* and regulations in regard to identification of social impacts.

The objectives of the consultation activities were to:

- identify project stakeholders and understand their interest in the project
- establish a framework for providing the local community and other project stakeholders with an understanding of the project and the technical investigations being undertaken for the environmental impact assessment
- provide opportunities for community input through appropriate public material
- identify and document community and stakeholder comments and issues of concern

Stakeholder groups consulted included:

- Commonwealth, NSW and local government authorities
- Commonwealth, NSW and locally elected representatives
- Providers of utilities and services, such as gas, electricity, water, sewerage and telecommunications
- Non-government organisations, such as Local Aboriginal Land Councils and emergency services providers
- Non-government transport groups and companies, businesses and schools
- Local and regional community groups, such as business groups, senior citizens groups and multicultural associations

- Directly affected residents and businesses, including property owners adjacent to the rail corridor
- Train commuters
- The wider community.

3.1.2 Consultation tools and activities

Opportunities were created to ensure that individuals and groups could be directly involved in the process. Consultation activities included a planning focus meeting with government authorities; separate meetings with government authorities; separate briefings with local councils, community groups, and Commonwealth, NSW and locally elected representatives; community information meetings (eight) with directly affected residents adjacent to the rail corridor; stakeholder meetings (six) in relation to station precinct upgrades; distribution of approximately 28,000 project newsletters to directly affected residents and businesses between Macarthur and Sefton; establishment of a 1800 project information telephone line; establishment of a project website; and individual land owner discussions.

A detailed outline of these consultation tools and activities is provided in *Appendix D* of the Environmental Assessment.

3.1.3 How the input was used

Consultation with the community and stakeholders provided important input into identifying and assessing the social, biophysical and economic impacts of the proposal. Community and stakeholder involvement also assisted in guiding the development of the proposal, by responding to concerns and developing measures to mitigate impacts where possible.

Detailed community and stakeholder issues and concerns that assisted the development of the project are listed in *Appendix D* of Volume 1 of the Environmental Assessment. Community issues and concerns identified for each of the six station precincts are detailed in *Chapters 16* to *21*.

3.2 Consultation following exhibition of the Environmental Assessment

The Environmental Assessment was publicly displayed from Wednesday 3 May 2006 to Monday 3 July 2006. Public submissions were invited and sent to the Department of Planning in the first instance. This Submissions Report is a response to the submissions received from both members of the public and government authorities.

3.2.1 1800 Project Information Line

Seventy-five calls were made to the 1800 Project Information Line during the exhibition of the Environmental Assessment. Calls were made by directly affected landowners, State and Local Government agencies, business and community groups and interested members of the public. Many callers requested general information about the exhibition and staffed information days or requested a copy of the Environmental Assessment report or CD. Local members of parliament and community groups also contacted the 1800 Line to request meetings with ARTC to discuss the Environmental Assessment.

The table below outlines the key issues raised over the 1800 line during the exhibition period and the number of times they were raised.

Table 3.1 1800 issues and number of times raised

Issue	Number
Noise impacts/noise barriers	15
Design issues	6
Construction impacts	4
Land acquisition	4
Community amenity	3
Biological impacts	3
Health impacts	2
Vibration impacts	2
EA consultation process	2

3.2.2 Advertisements

In accordance with Part 3A of the *Environmental Planning and Assessment Act 1979* a notice of application for approval was advertised in the Sydney Morning Herald on April 24 2006 and six community newspapers on April 26 2006.

The community newspapers included:

- Liverpool City Champion
- Camden Advertiser
- Campbelltown Macarthur Advertiser
- Fairfield City Champion
- South Western Rural Advertiser
- Bankstown Canterbury Torch.

The Department of Planning announced the Environmental Assessment exhibition in advertisements placed in metropolitan and community English speaking newspapers. The Department also published an exhibition extension notice on the 1, 6 and 7 June 2006 in English speaking newspapers. The advertisement detailed the locations where people could access copies of the Environmental Assessment and the relevant contact person from the Department of Planning.

ARTC placed the Department's advertisements in non-English speaking newspapers listed in *Table 3.2*. The advertisement announcing the Environmental Assessment was advertised over two consecutive weeks and the exhibition extension notice over one week.

Table 3.2 Non-English speaking newspapers and distribution dates

Newspaper	Advertisement 1 Distribution Date	Advertisement 2 Distribution Date	Extension Notice Distribution Date
Chieu Duong (Vietnamese)	Tuesday 2 May 2006	Wednesday 10 May 2006	Wednesday 7 June 2006
Chinese Times (Chinese)	Friday 5 May 2006	Friday 12 May 2006	Friday 9 June 2006
El Telegraph (Arabic)	Wednesday 3 May 2006	Wednesday 10 May 2006	Wednesday 7 June 2006
Extra Informativo (Spanish)	Wednesday 3 May 2006	Wednesday 10 May 2006	Wednesday 7 June 2006
La Fiamma (Italian)	Wednesday 3 May 2006	Wednesday 10 May 2006	Wednesday 7 June 2006

3.2.3 Community newsletter

Approximately 30,000 community newsletters were distributed during the first week of the exhibition period. The newsletter described the concept design and precinct plans and outlined the Environmental Assessment exhibition process. The newsletter provided information on where the Environmental Assessment could be viewed, how to buy a copy, and invited public submissions to be sent to the Department of Planning.

Newsletters were sent to stakeholders who had been involved in the Environmental Assessment consultation process and also delivered to businesses and residences, approximately 200 to 300 metres on either side of the proposed route between Macarthur and Sefton, and handed out to commuters at the sixteen stations along the route over a period of four days during the morning peak hour period.

The newsletter was translated into Vietnamese and Arabic (approximately 5,000 copies per newsletter), and copies sent to key community organisations, schools and multicultural groups for distribution and collection.

3.2.4 Staffed information days

Staffed information days were held in each council area during the exhibition period. The information days served the purpose of providing members of the community within the Liverpool, Campbelltown, Fairfield and Bankstown Local Government Areas with the opportunity to engage with members of the SSFL project team about the Environmental Assessment, view the proposed precinct plans, seek advice in completing a submission and request further information about the Environmental Assessment.

Each venue was staffed by two members of the Environmental Assessment project team for three hours. Each venue exhibited copies of the Environmental Assessment report and CD, posters and newsletters to help stimulate discussion between members of the community and the SSFL project team.

Table 3.3 outlines the venue, dates and attendance of each information day:

Table 3.3 Staffed information days

Venue	Date	Attendance
Campbelltown Library	13 May 2006	1
Liverpool City Library	13 May 2006	4
Bankstown City Library	20 May 2006	3
Whitlam Library (Fairfield)	20 May 2006	8

3.2.5 Exhibition venues

A copy of the Environmental Assessment report and CD, posters incorporating details of the proposed concept design and precinct plans, and community update newsletters were provided at each venue during exhibition of the Environmental Assessment.

Venues included:

- Australian Rail Track Corporation
- NSW Department of Planning (Information Centre)
- Nature Conservation Council
- Bankstown City Council (Customer Service Centre)
- Chester Hill Library (Bankstown)
- Campbelltown City Council (Administration Centre)
- Ingleburn Branch Library (Campbelltown)
- Glenquarry Library (Campbelltown)
- Eaglevale Library (Campbelltown)
- Fairfield City Council (Administration Centre)
- Whitlam Library (Fairfield)
- Council Service Centre (Fairfield)
- Liverpool City Council (Administration Building).

Posters were also displayed at each of the railway stations along the proposed SSFL route. Feedback during the exhibition period was obtained through face-to-face discussions, telephone calls to the 1800 project information line and individual written submissions.

4. Consideration of submissions

4.1 Summary of submissions and analysis process

4.1.1 Overview

The Department of Planning received 87 submissions from the exhibition of the Environmental Assessment. These consisted of 48 letters from individuals or local residents, 11 submissions from government agencies, and 4 letters from private companies or business entities, 4 letters from community groups, 5 petitions with 461 signatures and 6 letters from politicians (one of which contained one of the petitions). A copy of all submissions received by the Department of Planning was provided to ARTC for review.

ARTC's responses to the issues raised in the submissions received form the basis of this section.

4.1.2 Analysis process

Upon receipt, each submission was assigned a unique number and analysed to determine the key issues it raised (these are listed in *Section 4.1.3*) and all of the specific issues. Details of the submission and the issues raised were then entered to a database. The specific issues were then analysed further and a response prepared. The list of all specific issues raised and ARTC's response are provided in *Section 4.2*.

4.1.3 List of issues

A breakdown of the key issues raised by the 87 submissions is provided in *Table 4.1*. Each number represents the number of submissions that raised the key issue at least once.

Table 4.1 Key issue count

Key Issue	Number of submissions[1]
Noise	60
Traffic and Transport	28
Contaminated/hazardous materials and waste	13
Ground and surface water	17
Biodiversity	11
Heritage	7
Visual Character	31
Air quality	14
Social amenity	16
Social equity	12
Land use, property and access	39
Consultation process	18
Proposal operation	10
Planning	21

Key Issue	Number of submissions[1]
Environmental Assessment process	21
Options	16
Other	13
Documentation clarification	6
Support for the proposal	21

Note 1 This represents the number of submissions that raised a particular key issue out of a total of 87 submissions

A list of all specific issues raised are provided in *Sections 4.2* and *4.3*, together with ARTC's responses to the issues raised. A full list of issues are provided in *Appendix A*

The main areas of concern raised by the submissions received were similar to the ones raised during consultation for the Environmental Assessment and included:

- noise and vibration impacts during construction and operation of the SSFL, particularly in residential areas from Glenfield to Sefton
- impacts on local amenity during construction and operation, and the importance of environmental management measures such as noise barriers, particularly for those residences adjacent to the railway line
- visual impacts of noise walls (and the need for ongoing management of graffiti)
- air quality impacts of diesel trains
- potential temporary and permanent impacts on traffic and parking arrangements associated with precinct plan changes to local roads and parking facilities, especially in the Fairfield and Bankstown LGA
- provision of easy access for elderly and disabled persons
- consideration of the cumulative social and environmental impacts of the proposed SSFL from a state and regional perspective
- commercial viability of businesses during construction and operation
- social amenity of Casula Regional Arts Centre, Leacock Regional Park and Georges River Parklands.

4.2 Responses to community submissions: noise and vibration

4.2.1 Noise impacts – general

Respondents to the Environmental Assessment raised the following issues in submissions 17, 26 and 81:

- An extra rail line would bring freight trains closer to residential properties which would increase noise levels.
- If current and future noise is not reduced, residents backing onto the line will be living in atrocious conditions.

Response:

The noise and vibration assessment undertaken in the Environmental Assessment was prepared to assess the noise and vibration impact of the proposed freight line to noise sensitive receivers in accordance with DEC's planning noise criteria. The proposed noise barriers would mitigate noise levels on the 'freight line' side of the rail corridor to achieve compliance with the DEC's planning noise criteria.

4.2.2 General construction impacts

Respondents to the Environmental Assessment raised the following issues in submissions 51, 62 and 79:

- The placement and compaction of fill material will require heavy vibratory equipment; there has been no assessment of how this will affect buildings.
- DEC recommend that ARTC commit to the installation of all physical operational noise management measures as early as practicable during construction.

Response:

As outlined in the Statement of Commitments, provided in Appendix D of this report, an assessment of possible impacts from each construction activity (including vibration) would be undertaken prior to their use to determine suitability for each location as part of the Construction Noise and Vibration Management Plan. Permanent noise barriers would also be installed as early as practicable to provide noise protection during construction where possible. (see Cl43 in the Statement of Commitments in Appendix D of this report.

4.2.3 General noise concerns in Cabramatta

Respondents to the Environmental Assessment raised the following issues in submissions 15, 23, 69, 55, 70, 78:

- Insufficient research and analysis has been undertaken for Council to have confidence that the proposed noise barriers will effectively screen out noise.
- Increased noise and vibration are a concern to the residents of Broomfield Street, noise catchment CM8 and Cabramatta East.
- Increased noise from the proposal is a concern to members of the Christian City Church located in Broomfield Street, Cabramatta also to the owners of the Stardust Hotel.
- How far along Broomfield Street will the proposed noise barriers be erected?

Response:

The Environmental Assessment was prepared in accordance with the Environmental Assessment Requirements issued by the Department of Planning. The Environmental Assessment, including the noise and vibration assessment, was reviewed and determined by the Department to adequately address these requirements and was determined adequate for public exhibition.

The noise and vibration assessment has concluded that noise barriers would be required along most of Broomfield Street, refer to *Figure 4.10* of Volume 1 of the Environmental Assessment.

4.2.4 Noise impacts on station staff facilities

A respondent in submission 74 to the Environmental Assessment commented that the Environmental Assessment does not discuss noise impacts at the stations resulting from the proximity of the SSFL. It is considered that mitigation measures need to include some measures to ameliorate noise in the booking offices and station managers' office (at Leumeah) in the event that these facilities are not relocated to the station footbridge.

Response:

It is considered that the proposal would not materially alter noise levels for station staff at Leumeah Railway Station as freight trains would be almost the same distance from the booking office (i.e. 4 metres) as they currently are.

4.2.5 Noise impacts due to increased rail freight traffic

Respondents to the Environmental Assessment raised the following issues in submissions 3, 8, 10, 26, 38, 57 and 87:

- Will the noise from the increased train numbers affect quality of life?
- There would be an unknown and possibly excessive number of freight trains an hour which would increase future noise and vibration issues.

Response:

The predicted number of freight train movements associated with the project was determined by ARTC and these are outlined in Section 7.1.8 of Volume 1 and also in Section 5.1 of Technical Paper 2 of Volume 2 of the Environment Assessment Volume 2. The noise and vibration assessment undertaken in the Environmental Assessment was prepared to assess the noise and vibration impact of the proposed freight line to noise sensitive receivers in accordance with DEC's planning noise criteria. The proposed noise barriers would mitigate noise levels where required on the 'freight line' side of the rail corridor to achieve compliance with the DEC's planning noise criteria. These criteria have been set by the DEC to provide for an acceptable level of amenity to residential areas.

4.2.6 Impacts on the Warwick Farm equestrian precinct

A respondent to the Environmental Assessment commented in submission 61 that consideration of vibration and noise impacts and proposed mitigation strategies need to be developed for the equestrian precinct at Warwick Farm.

Response:

The equestrian facilities at Warwick Farm currently operate successfully with maximum noise levels of close to 90 dBA from freight train traffic on the RailCorp tracks. The proposed SSFL operations would not significantly increase the maximum noise level and is therefore unlikely to impact the equestrian facilities.

4.2.7 Noise impacts in Casula

Respondents to the Environmental Assessment raised the following issues in submissions 11 and 61:

- The elevation of the rail line and removal of screening trees at the Glenfield flyover will increase the noise levels experienced from freight trains at residences in noise catchment CAS1.
- Noise measurements and predictions of future noise levels at Slessor Road Casula do not adequately reflect the situation in Hardy Place, Casula. Residences in Hardy Place are at a significantly higher elevation than those in Slessor Road and therefore experience less screening from trees and vegetation adjacent to the rail line.

Response:

The noise and vibration assessment included preparing a noise model that incorporates terrain data to account for height of noise receivers relative to the rail corridor and the proposed height of the Glenfield flyover. No adjustment to the modelled noise levels was made in the noise and vibration assessment for vegetation screening as it is not an effective noise shield.

4.2.8 Night time noise issues

Respondents to the Environmental Assessment raised the following issues in submissions 52, 81, 49, 66, 72 and 73:

- The proposal will allow noisy diesel freight trains to run day and night, disrupting the lifestyle of the residents and business owners of suburbs along the new line and others which lead to and from the line and also those further away.
- The level of noise and vibration are of particular concern with freight operations running 24 hours 7 days a week.
- Not all residents of dwellings along the track work during the day. Night shift workers will be adversely affected by repeated daytime freight movements.

Response:

The Main South Line railway corridor has had 24 hour freight train operations for over 100 and the proposal would therefore not alter train operating hours.

The noise and vibration assessment was prepared to assess the noise and vibration impact of the proposed freight line to noise sensitive receivers in accordance with DEC's planning noise criteria. The proposed noise barriers would mitigate noise levels where required on the 'freight line' side of the rail corridor to achieve compliance with the DEC's planning noise criteria.

4.2.9 Assessment of potential noise impacts in catchments VIL1 and VIL2

Respondents to the Environmental Assessment raised the following issues in submissions 30 and 54:

- Despite a substantial increase in freight movement between Sefton and Cabramatta Stations, the Environmental Assessment claims that the potential consequential impacts will not be substantial in noise catchments VIL1 and VIL2. The respondent questioned this conclusion, citing that these catchments will receive some of the highest contributions of noise from the SSFL of all catchments within the study.
- There will be a substantial increase in freight movement between Sefton and Cabramatta which will affect noise catchments VIL1 and VIL2. Particularly given these areas have a high proportion of poor quality, ageing housing stock, with poor insulation, which would suffer from the potential increased noise of the SSFL
- More information is required regarding the proposed cutting on the side of the line (at noise catchmentsVIL1/VIL2), including its depth, and whether it will deliver similar, if not better, noise mitigation than a barrier.

Response:

The noise and vibration assessment in the Environmental Assessment has concluded that noise levels in catchments VIL1 and VIL2 would fall due to noise shielding of the SSFL from a cutting on the side of the corridor where the SSFL would be located. Freight trains currently using the RailCorp tracks are further from the cutting and consequently less noise is shielded. ARTC have committed, within the Statement of Commitments in Appendix D of this report, that during the detailed design phase, the extent and height of noise barriers would be determined when more accurate survey and design data is available. During detailed design consultation would also occur with the directly affected residences in relation to noise mitigation measures.

4.2.10 Provision of noise barriers – General

Respondents to the Environmental Assessment raised the following issues in submissions 1, 2, 8, 9, 14, 22, 24, 25, 26, 30, 31, 35, 37, 40, 41, 42, 46, 51, 53, 54, 55, 57, 60, 61,62 65, 66, 70, 78, 79, 81, 85 and 87:

- Various respondents commented that noise barriers should be provided:
  - in noise catchment LIV1
  - from Glenfield to Ingleburn
  - along the eastern side of the railway at Minto
  - Riverpark Drive and extended all the way to Liverpool station to limit noise transmission to the Lighthorse Park Precinct
  - in Railway Parade and Edward Street, Macquarie Fields (Noise and vibration impacts have not been addressed in these areas)
  - between Sefton station and the Hector Street overpass
  - noise catchment CAR6

  - along the Casula/Liverpool links Estate
  - along both sides of the line in Chester Hill
  - along the entire length of Broomfield Street, Cabramatta
  - the VIL1 and VIL2 noise catchment areas (similar or greater noise than other catchments with noise barriers)
  - entire rail corridor between Liverpool and Casula
  - on both sides of the track in the Liverpool electorate
  - opposite side from the Hartley Oval side of the line where residential premises are located In Casula and Liverpool
  - east of Acadia Street Chester Hill.

- 351 residents signed a petition citing their concern with the lack of a noise barrier in the Casula and Liverpool area. These residents recommended that a noise barrier be installed as part of the proposal. The Member for Macquarie Fields endorsed this recommendation, adding that ARTC would be ignoring the social impacts of the freight line, and adversely and unfairly affect local resident amenity, if a noise barrier in Casula and Liverpool were not installed as part of the proposal.
- The ARTC approach to the provision of noise barriers is inconsistent and inadequate. ARTC appear to be trying to minimise costs by not installing noise barriers in certain areas.
- DEC should provide some assurance to Liverpool Council regarding the joint management of rail noise impacts between RailCorp and ARTC.
- It would be cheaper to establish noise barriers along the entire SSFL corridor as part of the SSFL construction process, rather than at a later date.
- The Casula Powerhouse upgrade and development along the Georges River will increase the potential for noise generation in the area. When these projects are complete, a greater number of vehicles will utilise the area which will result in further noise generation through motor vehicle noise. The cumulative effect of this additional noise generation, including noise from the SSFL, would necessitate the building of a noise barrier along the entire length of the rail corridor at Casula.
- It is ARTC's responsibility to work towards a reduction in noise generation. It is not appropriate to justify the mitigation measures by merely indicating that that the benefits of the SSFL outweigh the impacts.

Response:

In accordance with the provisions of Part 3A of the *Environmental Planning and Assessment Act 1979*, the Department of Planning reviewed the Environmental Assessment, prior to exhibition, to confirm that the Director-General's Environmental Assessment requirements had been adequately addressed. The Department of Planning indicated, in this review, that ARTC's responsibility to mitigate noise from the RailCorp corridor only relates to the potential noise impacts resulting from the SSFL proposal, rather than those impacts resulting from existing rail corridor noise generating activities. Accordingly, the noise and vibration assessment contained in the Environmental Assessment was prepared on this basis and endorsed by the Department of Planning as an appropriate methodology.

The noise and vibration assessment identified locations where the freight line would increase noise above the DEC's planning noise criteria and recommended the proposed installation of noise barriers. The installation of these proposed barriers by ARTC, which would be provided during the construction phase, would result in an overall reduction in noise levels from the RailCorp corridor.

The SSFL project has satisfied the DEC's planning noise criteria and the installation of additional noise barriers in the RailCorp corridor is a matter for the corridor owner, RailCorp and the NSW Government to consider and fund.

4.2.11 Noise exceedances with barriers

Respondents to the Environmental Assessment raised the following issues in submissions 6, 60, 61 and 78:

- The noise barriers proposed are only as tall as the freight trains and are a minimum of 5 metres from the rail lines. This means that taller buildings (above 3 storeys at a distance of 35 metres from the freight line) will be exposed to unmitigated noise from trains.
- Council's preliminary findings indicate that there is potential for significant impact from increased noise upon some residential areas in Bankstown.
- Thirty three residences in Bankstown will experience noise impacts in excess of acceptable criteria even if noise barriers are installed.
- Council seeks confirmation that the implementation of noise mitigation measures will be addressed where the target criteria are exceeded.

Response:

As outlined in the noise and vibration assessment, there are a limited number of multi storey residential buildings where reasonable and feasible noise mitigation (i.e. the proposed noise barriers) can not achieve the DEC criteria. In most of these cases some noise reduction would be achieved despite the upper levels of the buildings being above the height of the corridor.

4.2.12 Provision of noise barriers at Cabramatta and Villawood Stations

A respondent to the Environmental Assessment raised the following issue in submission 78:

- No noise barriers are proposed through Cabramatta and Villawood stations. At these points, the noise from the SSFL will not be attenuated and will directly affect a number of streets and properties on both sides of the track. This will compromise commerce, residential amenity and the character of these areas.

Response:

In undertaking the assessment of the potential noise impacts of the SSFL proposal, the application of DEC's planning noise criteria generally resulted in noise barriers being required where sensitive receivers (primarily residential uses) were located within close proximity to the side of the corridor where the SSFL would be located. The noise and vibration assessment concluded that noise barriers were not required at these stations as there are no sensitive receivers.

4.2.13 Noise barriers design issues

A respondent to the Environmental Assessment raised the following issues in submission 38:

- Will maintenance access points reduce the effectiveness of noise barriers?
- The proposed noise barriers would be lower than the height of a freight engine, so would not reduce impacts from the explosion noise which is generated above the engine.

Response:

Maintenance access to the SSFL between noise barriers would be designed so that noise mitigation performance would not be affected, and this would be assessed during detailed design. Where possible, it would be achieved by overlapping two sections of barrier, with the access to the corridor provided between them.

Noise barriers would be designed to mitigate freight line noise impact to a level that complies with DEC's planning noise criteria. The source of train noise (i.e. wheel, engine and exhaust) is not differentiated in the DEC's planning noise criteria and not required to be differentiated separately in the noise assessment.

Respondents to the Environmental Assessment raised the following issues in submissions 1, 45, 63:

- The noise barrier should not be made of timber.
- The noise barrier should not be made of concrete.
- Noise barriers along Wellington Road should incorporate large glass lights/screens/panels to maintain existing vistas.

Response

The exact type and/or combination of barrier and treatments would be determined at the detailed design stage in consultation with the directly affected residences. Detailed design and assessment of the proposed barrier and treatments in each locality would be undertaken. It is noted however that the surface of transparent panels can give rise to on going maintenance difficulties and would only be considered where solar access to a dwelling is significantly compromised.

Respondents to the Environmental Assessment raised the following issues in submissions 6, 45, 63, 64, 80:

- The noise barriers proposed for Wellington Road, Chester Hill should be placed some distance away from the fence line and of a height so that winter sunlight reaching the dwellings is not reduced.
- Resident is concerned about the possibility of a barrier being placed at their back fence as this will enclose their backyard and restrict sunlight. The barriers will make the resident feel like a prisoner in their own backyard and increase opportunities for graffiti.

Response

A sun shadow impact assessment will be carried out for those noise walls that face north (i.e. located between Cabramatta Junction and Sefton Park Junction) and are adjacent to residences. This analysis will input to the noise wall detail design during the detailed design stage in consultation with the directly affected residences. Refer to Cl 46(c)(i) of the Statement of Commitments provided in Appendix D of this report.

Design options and the exact placement of noise walls adjacent to the rear of residential properties will be subject to community input, see the Statement of Commitments in Appendix D of this report. However, it is noted that the required noise mitigation performance of the noise wall will limit the extent to which placement of the walls can be adjusted.

4.2.14 Noise barrier reflected noise

Respondents to the Environmental Assessment raised the following issues in submissions 8, 53, 61 and 78:

- Noise barriers on the opposite side of the railway line would amplify noise, as noise would bounce from the walls and directly back to residential premises opposite.
- The potential for noise to be reflected from noise barriers should be assessed prior to works commencing.

Response:

These issues have been considered in the noise assessment and the noise barriers would have a noise absorptive surface facing the rail corridor to prevent an increase in noise on the opposite side of the corridor due to reflected noise. This would be addressed in the detail design and monitored post construction to determine if stated planning noise criteria have been achieved, refer to the Statement of Commitments provided in Appendix D of this report.

4.2.15 Assessment of potential noise impacts on Liverpool Hospital

A respondent to the Environmental Assessment raised the following issues in submission 34:

- The Liverpool Hospital site warrants a high level of noise and vibration control measures. More extensive noise barriers and/or building acoustic work appear necessary for both the western and eastern sides of the corridor in this area.
- NSW Health needs to review the proposed design of noise barriers and landscaping treatment within and adjacent to the grounds of Liverpool Hospital to ensure their effectiveness in noise mitigation.
- NSW Health seek an assurance that proper consideration has been given to increased vibrations that may affect sensitive equipment or cause discomfort to patients at Liverpool Hospital.
- Liverpool Hospital management will need to be informed of construction activity in the vicinity of the hospital and provided with details of noise and vibration controls. The effectiveness of noise control measures should be discussed with the hospital and if necessary further measures be implemented to reduce construction noise and vibration.

- The proposed piling work north of Liverpool Station should not have an adverse impact on hospital operations or patient comfort. If such adverse impacts are likely, what measures are proposed to minimise this?
- Noise and vibration monitoring is required to be undertaken on the hospital site during construction.
- ARTC needs to consider the measures required to minimise noise and vibration impacts on Liverpool Hospital in both the design and construction phases of any future lines and turnback facilities.

Response:

The noise and vibration assessment has concluded that the proposed noise barrier at Liverpool Hospital would reduce noise noticeably at the day care centre on the 'freight line' side of the corridor. Noise levels on the other side of the corridor would not increase as a result of the project. During the detailed design stage, ARTC will liaise with NSW Health with regard to the proposed design of noise barriers (including materials and finishes) and landscaping treatments at Liverpool Hospital.

In terms of the risk of vibration levels from the proposal causing discomfort to patients at Liverpool Hospital or affecting sensitive equipment, it is the understanding of ARTC that existing freight traffic on the RailCorp tracks does not currently cause any vibration issues. As discussed in Section 11.2.2 of the Environmental Assessment, the predicted level of vibration from the proposed dedicated track was assessed against British Standard BS 6472:1992 for human comfort and was found to give rise to a 'low probability of adverse comment'.

The proposal will move most freight trains further away from the main hospital buildings which are located on the western side of the rail line, reducing noise and vibration levels to that side of the hospital campus. The Hospital grounds adjacent to the eastern 'freight line' side of the rail corridor would not appear to house any sensitive equipment. However, if there is any sensitive equipment in this area that requires vibration assessment, NSW Health should advise ARTC and a further assessment of construction and operational vibration impacts would be carried out during detailed design.

The proposed piling works associated with the proposed piled slab structure north of the Liverpool Railway Station would be bored piles, which unlike driven piles do not generate significant vibration. The Construction Noise and Vibration Management Plan would include an assessment of appropriate maximum noise levels in the vicinity of Liverpool Hospital and prepare a related mitigation strategy, as outlined in Cl37f in the Statement of Commitments, provided in Appendix D of this report.

The proposal by ARTC for the SSFL does not involve any stabling yard or turnback facilities at Liverpool Railway Station. The obligation that ARTC has is to ensure that future foreseeable works by RailCorp are not compromised by the proposed SSFL. Future assessment (including noise and vibration) would be required for these facilities.

4.2.16 Impacts on open space areas adjacent to Georges River

Submissions 46 and 61 to the Environmental Assessment commented that a 24 hour freight line directly parallel to the Georges River parks, without proper noise barriers, will infringe upon leisure activities and make what was to be a promising addition to the Liverpool community (enhancement of the Georges River corridor by Liverpool Council) into an area that attracts bad social behaviour.

Response:

The Main South Line railway corridor has had 24 hour freight train operations for over 100 years. The dedicated freight line would not change the essential nature of the railway corridor and it would not materially alter the experience of those undertaking leisure activities along the Georges River. In addition, the application of DEC's planning noise criteria has generally resulted in noise barriers being required where sensitive receivers (primarily residential) are located close to the 'freight line' side of the corridor. The DEC noise criteria considers that parkland is not a sensitive receiver and therefore noise barriers are not required.

4.2.17 Casula Powerhouse Arts Centre

Respondents to the Environmental Assessment raised the following issues in submissions 10, 61 and 83:

- The Casula Powerhouse Arts Centre will be hosting theatrical performances. A significant increase in freight operations on weekends or late at night will have some effect, despite the proposed 4 metre wall.
- There has been a high level of investment in the Casula Powerhouse Arts Centre. The Friends of the Casula Powerhouse Arts Centre are concerned by the noise and vibration from the proposed development and would like to see the noise and vibration mitigation strategy for the area around the Art Centre and an assurance from ARTC that any future rail infrastructure does not impact on the Art Centre's operation.

Response:

The proposed noise barrier at the Casula Regional Arts Centre would improve the existing noise levels considerably i.e. $L_{Aeq,\ 24hr}$ (dBA) would fall from 64.4 to 54.3 and $L_{Amax,\ 24hr}$ (dBA) would fall from 88.3 to 75.5. As stated in Section 18.4 of Volume 1 of the Environmental Assessment, the treatment of the noise barrier and embankment formation in the Casula station precinct would need to consider the adjacent Casula Regional Arts Centre to minimise visual impact. Detailed architectural plans prepared for the proposed precinct works in this precinct will involve input from Liverpool City Council, as stated in the Statement of Commitments Cl 93d.

4.2.18 Source Control Plan

Respondents to the Environmental Assessment raised the following issues in submissions 45, 51, 60, 61, 73, 78 and 79:

- DEC supports the proposal subject to ongoing review and, where necessary, enhancement of operational noise mitigation measures including source controls.

- ARTC should be requested to commit to the implementation of wayside noise detection systems on the network to prioritise rolling stock maintenance and to eliminate 'rogue trains'. Specifications for continuous welded rail, vibration isolation systems and maintenance regimes should be provided and performance monitored.
- The age of locomotives should also be considered, particularly since those operated by smaller freight operators are noisier and emit higher exhaust emissions.
- ARTC should commit to the preparation of a Source Control Plan which is to be developed prior to commencement of the operation phase of the project. This should identify strategies for source controls relevant to this project and include meaningful targets and an assessment and review process.
- The proponent will need to apply for an environment protection licence for both the construction works and operational activities. The environmental protection licence must be substantially consistent with the conditions of approval for the project.
- The Environmental Assessment does not report on any optimisation of rolling stock tonnage, train lengths, speed, locomotive types, track maintenance noise and delivery requirements that could be adopted to achieve a desirable acoustic environment. Further assessment of train management practices should be undertaken prior to commencement of any works associated with the SSFL proposal.
- ARTC should commit, prior to construction, to an appropriate process for the identification, assessment and mitigation of noise impacts in excess of relevant EPA (DEC) guidelines.

Response:

The concerns regarding operational noise impacts have been noted. As stated in Section 7 of Volume 2, Technical Paper 2, ARTC has proposed a number of management measures during the operation of the proposed SSFL.

ARTC will commit to working with the DEC to develop a Source Control Plan that identifies realistic opportunities for driving improvements in operator noise performance, subject to agreement on its scope and application.

4.2.19 Soundproofing

Respondents to the Environmental Assessment raised the following issues in submissions 37, 57 and 58:

- Will double glazing be provided to reduce the impacts of additional noise?
- A resident insists that their residence be soundproofed to ensure that the proposal does not have a detrimental effect on their living environment. The need for soundproofing of residences most affected by noise under the proposal in Riverpark Drive Liverpool needs to be considered.

Response:

The noise and vibration assessment was required to assess a range of reasonable and feasible mitigation measures for any noise levels that exceed the planning noise criteria. The installation of double glazing to dwellings is generally not considered a reasonable or feasible mitigation measure except in cases of extreme exceedances of planning criteria and where other mitigation measures such as noise barriers are impractical.

4.2.20 Noise as a hazard/nuisance

Respondents to the Environmental Assessment raised the following issues in Submissions 35, 44, 71 and 78:

- The SSFL is a potential hazard as rail noise would mask alarms/sirens.
- Additional noise from the freight line will create an unacceptable work environment for staff and visitors in Farrow Road, Campbelltown.
- There is potential for noise from the SSFL to interfere with verbal communication resulting in irritation, inconvenience and making it difficult to function.
- Noise from the SSFL will interfere with passenger line announcements at Cabramatta Station.

Response:

A less than 2 dBA increase in the maximum noise levels is predicted at Farrow Road and this would be unlikely to make a significant difference to the hearing of alarms and sirens operating in an industrial facility or to the work environment of these industrial premises.

The noise and vibration assessment has concluded that the proposal would result in an overall reduction in noise levels from the RailCorp corridor, therefore lessening the potential for rail noise to interfere with conversation and communication.

The proposal would result in no change to the maximum noise levels at stations and therefore announcements would not be adversely affected.

4.2.21 Flyover at Leacock Regional Park

Respondents to the Environmental Assessment raised the following issues in submissions 10, 11, 33 and 60:

- The proposed flyover construction includes extensive fill batters and retaining structures to enable the freight line to be elevated to provide the necessary vertical clearance of the Main Southern Line. The treatment of this area within the Environmental Assessment appears simplistic and does not appropriately address the significance and multiplicity of impacts created by this proposal. Importantly, noise attenuation does not appear to have been addressed in the context that the freight trains will operate under full power when traversing the approach ramps to this flyover.
- The Glenfield and Casula/Leacock Park area will be subject to greater noise intensity due to the engines powering up an incline, stopping, idling and starting on the passing loop.
- Alternative C for the Leacock Park flyover/passing loop is supported by the Department of Natural Resources due to the possible impacts near Georges River of alternative options.

Response:

The noise and vibration assessment has concluded, based on the operational characteristics of the proposed SSFL and passing loop in the Glenfield/Casula locality, that the proposal would result in a small but noticeable 5 dBA increase in the maximum freight train noise levels in that part of Leacock Regional Park and Throsby Park nearest the proposed Glenfield flyover; this increased noise would gradually reduce to levels that would not be noticeable nearer Leacock's Lane.

The dedicated freight line would not change the essential nature of the railway corridor and it would not it materially alter the experience of those undertaking leisure activities in Leacock Regional Park. The application of DEC's planning noise criteria generally resulted in noise barriers being required only where sensitive receivers (primarily residential) are located close to the 'freight line' side of the corridor. The DEC criteria do not consider parkland to be a sensitive receiver and therefore noise barriers are not required.

It is understood from the DNR submission that support is given to the combined passing loop and flyover at Glenfield.

4.2.22 Adequacy of the noise and vibration assessment (general)

Respondents to the Environmental Assessment raised the following issues in submissions 37, 58, 59, 61 and 78:

- An independent acoustic consultant should be engaged to conduct a peer review of the acoustic components of the proposal.
- Council has some major concerns as to the adequacy and sufficiency of the estimates used to identify noise and vibration impacts on residents and businesses in Fairfield LGA.
- Concern is raised that all appropriate noise sources may have not been adequately considered. Noise levels should take account of realistic background levels. If background noise levels are overstated, then true noise impacts will be understated as a direct consequence.
- In some instances, there were differences between measured noise and predicted noise at the same locations that were not addressed.
- Background noise levels at all existing residential locations should take into account that bedrooms in most two storey properties are usually located on the first floor and that many dwellings adjacent to town centres comprise multi-storey apartment buildings. Appropriate adjustments should be made to the noise projections to take into account building height and more specific information and analysis of the impact of topography and grades on the noise levels reported in the Environmental Assessment.

Response

It is considered that the Ove Arup report, commissioned by Liverpool, Fairfield and Bankstown City Councils has provided an independent assessment of the noise and vibration assessment prepared by ARTC. ARTC has responded to the Ove Arup Study on the noise and vibration assessment at the final response of this section.

The noise modelling undertaken for the noise and vibration assessment has included an appropriate level of background noise monitoring. These levels have not been overstated in the noise and vibration assessment.

The noise modelling undertaken for the noise and vibration assessment included data on the height and siting of dwellings and topography for the worst case locations in each noise catchment to allow predictions to be extrapolated across all residences in the noise catchment. At the detailed design stage, further detailed noise modelling would be undertaken to confirm the barrier design.

4.2.23 Main North Line comparison

Respondents in submissions 30 and 52 to the Environmental Assessment commented that the vibration assessment should have been carried out along the proposed SSFL rather than along the Main Northern Rail Line. It does not seem logical that the vibration impacts are not predicted to increase when you consider the weight difference between commuter and freight trains. With a dedicated freight line, the speed of freight trains would increase hence the vibration would increase.

Response:

A vibration assessment a vibration assessment was conducted for the construction and operation of the proposed SSFL. The vibration characteristics of a train on a similar track on the Main North Line are applicable to the Main South Line. Individual pass-by vibration from freight trains on the Main North Line was applied to the predicted traffic levels on the proposed freight line, providing a total vibration dose value for this project.

4.2.24 Location of the Somerset Street sensor

A respondent to the Environmental Assessment in submission 14 commented that the noise sensor placed in Somerset Street, Minto as part of the noise and vibration assessment was not placed in the noisiest location on that street.

Response:

The noise modelling undertaken in the noise and vibration assessment at the Somerset St, Minto (MIN 1) catchment has resulted in a proposed noise barrier of 4 metres. Whether in fact the noise monitor was placed at the noisiest dwelling, the recommended noise wall height and length would not change.

4.2.25 Consideration of explosive noise

A respondent to the Environmental Assessment in submission 38 commented that explosion noises from freight engines were not included in the noise and vibration assessment and engine mufflers are mentioned only briefly with no explanation of how or when they would be employed.

Response:

The noise model includes locomotive noise characteristics but the sources of train noise (i.e. wheel, engine and exhaust) is not differentiated in the DEC's planning noise criteria and not required to be examined separately in the noise and vibration assessment. Muffling of existing locomotive engine noise is considered beyond the scope of this proposal.

4.2.26 Limitations of the rail network

A respondent to the Environmental Assessment in submission 52 commented that the report fails to acknowledge that the current rail infrastructure is limited so therefore the modelling for increased rail traffic on the current rail system is not correct. This report does not appear accurate as a similar amount of rail traffic is used in both the no SSFL and the with SSFL models. The modelling appears to have been used to provide the results ARTC wanted rather than what will actually occur.

Response:

The noise and vibration assessment was prepared individually by the noise specialist without any directed outcome, and was required to assess noise impacts in accordance with the DEC's planning noise criteria. Noise modelling uses forecasts of growth in rail traffic based on existing track capacity and planned improvement works on the North-South Corridor (the eastern seaboard of Australia to connect Melbourne – Sydney – Brisbane) both with the proposal and in its absence. In this way precinct impacts can be identified. It is noted that he SSFL is a single line and will not provide for significant additional capacity in the interstate freight rail system; its main purpose being to provide improved availability and reliability of train paths into and out of Sydney (and Botany Bay) by avoiding the RailCorp passenger network.

4.2.27 Recommendations raised in submissions to address construction noise

Respondents to the Environmental Assessment made the following recommendations in submissions 22, 37, 51, 78, 61, 62 and 79:

- Specific recommendations for noise-related requirements are :
  - maximising the offset distance between noisy plant items (such as work sheds) and nearby residential receivers
  - avoiding the simultaneous operations of two or more noisy plant items in proximity and adjacent to residential receivers
  - scheduling the noisiest activities during normal business hours (7 am to 6 pm Monday to Friday and 8 am to 1 pm Saturday), or where this is not possible, to less sensitive times of the day
  - providing periods of respite (quiet) if activities occur for extended periods during the night
  - minimising consecutive night time activities in the same locality
  - orienting equipment away from residential receivers
  - carrying out loading and unloading away from residential receivers
  - siting access points and roads as far as possible from residential receivers
  - using structures to shield residential receivers from noise
  - planning for and conducting night time activities in ways that eliminate or minimise the need for audible warning alarms.

- The licence holder is also required to notify residents of any proposed railway maintenance or construction activity which is to be conducted outside normal business hours and which is likely to create offensive noise for those residents. Notification must be provided at least five days prior to commencement of activities or as soon as practicable after becoming aware of the need to undertake the work. Where emergency work is required, notification should be within 72 hours of work commencing.
- Any application (to DEC) for a licence variation to undertake out of hours work would need to justify why such works could not practicably be undertaken firstly during normal hours or secondly during day-time weekends as common construction activities have been found to be particularly intrusive and annoying to impacted noise sensitive receivers.
- Council requests that the Noise and Vibration Management Plan is prepared to the satisfaction of DEC and that it includes details on the following:
  - avoidance of impact piling where possible and avoid it completely within 20 metres of a building
  - limited hours for 'impulsive activities' such as rock breaking
  - installation of temporary noise barriers
  - scheduling of works to minimise noise impact.
- There is concern that maximum noise levels from some of the night time construction work will exceed the desirable noise criteria. Mitigation measures for construction noise need to be stipulated prior to the awarding of the construction contract.
- It is recognised that a number of factors, including worker safety and rail network integrity, may influence when certain construction works are able to be undertaken. However, wherever practical, construction methods and approaches that avoid sleep disturbance should be used.
- There is concern over construction noise and the potential location of a construction site in proximity to residential units and a nearby park. Construction equipment and facilities should be located a minimum of 30 metres from residential areas.
- ARTC should implement reasonable and feasible noise mitigation and management measures to minimise any offensive noise generated during construction activities, including the supply of emergency contact telephone numbers during the whole period that the activity takes place outside normal business hours.
- DEC requires ARTC to properly assess, effectively manage and monitor construction noise and vibration impacts:
  - consistent with the principles and processes outline in the Industrial Noise Policy and Assessing Vibration: a technical guideline
  - in accordance with relevant standards
  - in accordance with environment protection licence conditions.

Response:

It is recognised in the Environmental Assessment that construction related impacts would cause the greatest level of impact to residents. Accordingly, the Construction Environmental Management Plan and the Construction Noise and Vibration Management Plan (and as outlined in the Statement of Commitments provided in Appendix D of this report) are committed to by ARTC and will be prepared in consultation with the relevant stakeholders.

In preparing the Construction Noise and Vibration Management Plan, the plan would address, amongst other matters, erection of noise barriers as early as possible during construction to minimise construction noise impacts (see Cl43 in the Statement of Commitments in Appendix D of this report. Other strategies would be considered where reasonable and feasible to mange the construction related noise impacts.

The Construction Noise and Vibration Management Plan would be part of the Project Environmental Management Plan submitted to DEC to support an application for an environmental protection licence, as outlined in the Statement of Commitments provided in Appendix D of this report. Variations to approved work hours and proposals to undertake disruptive noisy or 'impulsive activities' would be subject to separate assessment and approval by DEC. (see Cl38 in the Statement of Commitments in Appendix D of this report

4.2.28 Impacts on residents within proximity to Carramar Bridge

Respondents to the Environmental Assessment raised the following issues in submissions 32 and 37:

- The residence, located 80 metres from the existing Carramar Bridge, does not seem to fit into any of the noise catchments detailed in the noise and vibration assessment.
- The noise caused by freight trains passing over the Carramar railway bridge seems to be increasing and at all hours of the day.

Response:

The approach adopted in the noise and vibration assessment was for the noise catchments to use monitoring at worst case locations and then, based on operational characteristics and the proposed concept design, to extrapolate predictions across residences in the noise catchment. The detailed design stage will incorporate further noise monitoring and survey data to allow greater refinement of noise impacts in each catchment and to confirm the barrier design in the detailed design phase; however any individual residence is not critical to accurate catchment modelling.

4.2.29 Implications of train length and speed

Respondents in submissions 38 and 45 to the Environmental Assessment commented that the Environmental Assessment does not appear to address increases in noise levels related to length and speed of trains.

Response:

The proposed operations on the SSFL are documented in Chapter 7 of Volume 1 of the Environmental Assessment. The length and speed of typical trains on a typical 24 hour timetable were incorporated into the noise model.

4.2.30 Effectiveness of noise mitigation measures

A respondent to the Environmental Assessment commented in submission 61 that further assessment of effective mitigation measures against noise and vibration should be undertaken prior to commencement of any works associated with the SSFL.

Response:

The Environmental Assessment has recommended that further noise modelling be undertaken during the detailed design phase to confirm the proposed noise barrier design prior to construction to ensure the predicted mitigation is achieved. Consultation would also occur with directly affected residences regarding the proposed noise barriers (material and finishes) and landscape treatments.

4.2.31 Impacts on future populations

Respondents in submissions 62 and 78 to the Environmental Assessment commented that the noise assessment should be reviewed to include predicted impacts of the fully operating SSFL populations of 2018.

Response:

The Environmental Assessment has considered known future development proposals where plans have been approved. However, it is not possible (and also it is not a requirement for noise assessments) to assess noise impacts to future resident populations in areas identified for future development where no current approvals are in place there are inherent uncertainties about the future form and scale of developments, if and when, they occur. The most efficient and effective means of mitigating noise to future residences built near a noise source (including rail corridor), and being consistent with established noise assessment principles, is to incorporate mitigation into the design process for future development proposals from the initial concept (i.e. site planning, building orientation and dwelling layout) right through to detail design of such features as window openings and various acoustic treatments.

ARTC have published the following documents as part of a joint initiative with RailCorp aimed at managing rail noise and vibration impacts associated with development near the rail corridor:

- *Interim Guidelines for Councils* – consideration of rail noise and vibration in the planning process. This aims to assist local government in considering and assessing rail noise and vibration as part of their strategic planning and development control functions.
- *Guidelines for Applicants* – consideration of rail noise and vibration in the planning process. This aims to assist those involved in the planning and design of developments near the rail corridor.

4.2.32 Consideration of cumulative impacts

A respondent to the Environmental Assessment in submission 8 commented that the cumulative impact of development within southern Sydney would result in increased noise.

Response:

The Environmental Assessment has recognised the cumulative noise impact in southern Sydney in Section 22.1 of Volume 1. However, the SSFL's contribution to this cumulative impact is small, although there would be very minor adverse changes to local amenity resulting from the SSFL, particularly in relation to air quality and noise.

4.2.33 Health effects of noise

Respondents to the Environmental Assessment raised the following issues in submissions 9, 30, 35, 37, 40, 49, 60, 72, 78 and 81:

- What are the health effects of noise levels exceeding guidelines, particularly noise induced hearing loss?
- Excess noise has been implicated in the development/exacerbation of health problems including hypertension and psychosis. What levels of noise would residents be exposed to?
- The community is concerned by noise-induced sleep interference from both construction and operation of the SSFL. There are long and short term adverse effects related to sleep interference (mood changes, poor performance at work and long term health).
- What impact does vibration have on human health, including noise caused by the rattling of objects as a result of vibration?
- The long term impacts of increased frequency of freight trains on residents and the community have not been adequately addressed, especially in regard to increased night movement and related vibration.
- Fairfield Council must give regard to long term scheduling projections; the increased train movements per day suggested in the projections would have significant implications for sleep disturbance in residential areas along the track.
- There are a number of issues/deficiencies that need to be addressed to ensure that the impacts on the health and wellbeing of Liverpool's residents and businesses are minimised.

Response:

The noise and vibration assessment, which was completed in accordance with the requirements of the Department of Planning and DEC's planning noise criteria, has concluded that the proposal with the recommended noise mitigation measures would result in an overall reduction in noise levels from the RailCorp corridor, reducing any potential for consequential health impacts. In any case, the recorded and predicted noise levels and exposure duration would not lead to any risk of hearing loss and are below the levels generally associated with clinical health problems.

4.2.34 Consideration of curfews

Respondents to the Environmental Assessment raised the following issues in submissions 1, 10, 17, 25, 38, 45, 62 and 81:

- A complete optimisation analysis should be conducted to quantify the parameters such that an acoustic environment in agreement with the community will be maintained.
- There is currently a curfew for freight trains between 11 pm and 3 am that should have been allowed for in the noise assessment.
- When freight trains pass along high sections of the existing rail line, they can be heard from as far away as three blocks from the tracks, especially at night.
- There should be a night time and weekend curfew on freight trains along the SSFL. The anticipated increase in the 'night' period is not much less than in the 'day' period.

Response:

Scheduling of a freight services is dependent on many factors not controlled by any one party, including available train paths, length of the train, transit time from origin to destination, crew scheduling and locomotive refuelling, and customer's loading and unloading cycle times etc. If possible, trains are scheduled to depart and arrive during business hours but ARTC's ability to control train running at noise sensitive times is constrained by the strong demand for train paths, managing passenger priority on ARTC's network and scheduling around RailCorp's restrictions on freight movement during the morning and afternoon commuter peak periods. The SSFL would improve this situation somewhat by avoiding RailCorp peak hour restrictions for freight services between Melbourne and Sydney (and Port Botany) but will not overcome the inherent inflexibilities in scheduling trains.

There is no freight train curfew between 11:00pm and 3:00am on the Main South Line, the only operational restriction for freight trains is the priority given to passenger services during the morning and afternoon commuter peak periods. A night time curfew is not proposed and would also be impractical for the reasons outlined above.

4.2.35 Management and monitoring

A respondent in submission 61 to the Environmental Assessment commented that ARTC should implement reasonable and feasible noise mitigation and management measures to minimise any offensive noise generated during maintenance activities, including the supply of emergency contact telephone numbers during the whole period that the activity takes place outside normal business hours.

Response:

ARTC acknowledges that maintenance activities could cause noise disturbance to nearby residents. The management of noise during maintenance is a noise licence requirement, including notice to residents and emergency contact phone numbers.

4.2.36 Consideration of maintenance regime

A respondent in submission 22 to the Environmental Assessment commented that proper maintenance can substantially reduce the level of noise generated by freight trains however there is concern that any maintenance regime will not be effective.

Response:

As outlined in Section 7.4 of Volume 1 of the Environmental Assessment, regular maintenance activities are proposed to be carried out by ARTC. It is in ARTC's interest to maintain the freight track to a high standard to minimise the whole of life costs of the freight line.

4.2.37 Noise sharing

A respondent in submission 10 to the Environmental Assessment commented that airport traffic is managed to 'share the load' with regards to noise, with flight paths being varied where possible to distribute noise more fairly. If the SSFL does proceed, will the East Hills Line also be subject to a proportionate increase in freight/diesel traffic?

Response:

The assessment of alternative routes for the SSFL is outlined in Section 2.6.2 of Volume 1 of the Environmental Assessment. The East Hills Line was not the preferred route for freight trains and the line would not be used on a regular basis for freight because it does not connect directly to freight terminals or the Main North Line.

4.2.38 Operational Environmental Management Plan

Respondents to the Environmental Assessment raised the following issues in submissions 62 and 79:

- ARTC should develop and implement a comprehensive Operational noise and Vibration Management Plan that includes, but is not limited to:
  - Six monthly (or as specified in the Environment Protection Licence) noise and vibration monitoring equivalent to 24 hours continuous attended monitoring at eight locations representative of worst case noise impact.
  - A program of condition monitoring for the purposes of minimising noise emissions from rolling stock, and additional to the requirements of maintenance. The program is to incorporate best practice, and to be updated to ensure application of best practice.
  - Measures to minimise noise and vibration impacts associated with maintenance activities.
- Bankstown Council requests that management plans, to mitigate impacts associated with noise barriers, be a condition of approval.

Response:

ARTC acknowledges that the proposal has operational noise impacts, and has agreed that an Operational Noise and Vibration Management Plan would be prepared for the SSFL. The Plan would including monitoring of noise and incorporate the Source Control Plan, as outlined in Cl47 in the Statement of Commitments and provided in Appendix D of this report.

4.2.39 Liverpool Turnback project

A respondent to the Environmental Assessment raised the following issues in submission 76:

- It is recommended that TIDC and ARTC liaise closely to identify opportunities for the collaborative development of noise mitigation measures for the SSFL and the Liverpool Turnback Project.
- Given the proximity of the Liverpool Turnback Project (to the SSFL), TIDC is keen to ensure that the detailed design of noise attenuation measures for the SSFL does not preclude the ability to provide noise mitigation measures for the Liverpool Turnback Project should they be required.

Response:

ARTC is already consulting and working closely with TIDC and RailCorp on the Liverpool Turnback Project so to coordinate works in this part of the SSFL route and to identify opportunities for collaborative development to maximise efficiency and minimise construction disruption.

4.2.40 Joint management for noise in the Main South Line corridor

Respondents to the Environmental Assessment in submissions 61 and 62 commented that the mechanism by which the responsibility for noise mitigation is divided between the ARTC and RailCorp should be spelt out as a condition of the development approval.

Response:

As described in Section 1.2 of Volume 1 of the Environmental Assessment, a variation would be required to the current ARTC Environment Protection Licence 3142 under the *Protection of the Environment Operations Act 1997* from the DEC in order to operate the proposed SSFL. In applying for the variation, ARTC will address the relevant heads of consideration under the *Protection of the Environment Operations Act 1997.*

4.2.41 Licensing

A respondent in submission 62 to the Environmental Assessment commented that any licence under the *Protection of the Environment Operations Act 1997* for this proposal can significantly help manage environmental impacts and recommends that the license include:

- stringent criteria in relation to noise, air emissions and other relevant forms of pollution
- provision for regular compliance monitoring of the conditions of the licence
- annual reporting of the results of the monitoring
- annual review of the licence, with renewal subject to compliance
- provision for varying the criteria to ensure that technological improvements that might result in improved environmental performance (such as improvements to rolling stock) are incorporated into the licence.

Response:

As discussed in Section 11.3.2 of Volume 1 of the Environmental Assessment, a number of noise mitigation measures have been incorporated into the project design. These measures include:

- The proposed new track was deliberately located on the western side of the existing line in the southern section and on the eastern side in the northern section, as this would minimise the number of residences potentially exposed to increased noise levels as a result of the project.
- New bridge structures are proposed to comprise either concrete or composite concrete/steel structures, which would avoid additional noise generation from the bridge structures.
- The proposed Glenfield flyover has been designed to accommodate the proposed passing loop, because the Glenfield location is well situated away from more sensitive residential land uses to the north and south.
- The ARTC recently commenced an initiative to identify specific freight train bogies and wheel sets that are responsible for emitting squealing and flanging noises during their operation. This information will be used to develop and provide cost-effective noise reduction strategies. It provides the ability for operators to take immediate corrective action by remedying or removing axle/wheel sets that are performing poorly in regard to noise emissions. In NSW, the ARTC will be working with operators to have any wagon with four out of ten measured noise exceedances removed for repair. In addition to the above, a range of other potential mitigation measures were considered for the project, including operational restrictions, use of quiet trains, individual building treatments and specific track/ structure designs (for further details refer to Section 7 of Volume 2, Technical Paper 2 of the Environmental Assessment).

4.2.42 Recommendations of the Liverpool Transport Taskforce

In summary, the Liverpool Transport Taskforce raised the following issues in response to the Environmental Assessment:

- On p11.8 Volume 1 of the Environmental Assessment it is stated that the DEC planning goals for ARTC are LA_{eq24hr} = 55dBA and LA_{max} = 80 dBA for residences. This is below international recommendations and will result in health impacts amongst the community. The European Commission's Future Noise Policy indicates that sleep disturbances starts at noise levels of 30 dBA.
- The Liverpool Transport Taskforce recommends the relevant government organisations adopt targets similar to, or better than, the Fifth Environmental Action Programme (who established a number of broad targets on which to base action up to the year 2000 in night time LA_{eq}).
- The Liverpool Transport Taskforce recommends that the DEC prepare legislation requiring a noise reduction for freight wagons as per Austria's.
- The Liverpool Transport Taskforce recommends that ARTC adopt differentiated freight charges based on the noise rating of wagons.
- The Liverpool Transport Taskforce recommends the Australasian Railway Association adopt Union of European Railway Industries targets.

- The Liverpool Transport Taskforce recommends NSW to match European Union best practice in managing railway noise.
- Some of the strategies that are contained in the European Commission's Position Paper on the European strategies and priorities for railway noise abatement are:
  - Priority should be given to measures at the source (vehicles and tracks) as they generally are more cost-effective.
  - For the abatement of rolling noise the first requirement is to apply measures to achieve smooth running surfaces on the wheels and the tracks (the strategy 'smooth wheels on smooth tracks' will lead to considerable synergy of effects).
  - The surface quality of the wheels and rails is subject to strong wear during operation. For durable noise reductions maintenance of vehicles and tracks is of utmost importance and should therefore be undertaken regularly.
  - Beyond managing roughness of other measures such as damping and shielding elements can be used to reduce noise radiation.
  - Due to the long lifetime of rail vehicles it is required to implement measures for new and for existing vehicles.
  - The best practice example of such a programme is the Swiss railway noise abatement programme with a fixed time table for the implementation of the reduction targets and reliable funding of the required financial means without using railway budgets.
- For the most important railway noise problem of freight transport the European Unions Working Group Railway Noise has identified two essential instruments:
  - Noise emission limits for new interoperable vehicles.
  - The retrofitting of the existing cast iron block braked freight wagons.
- For railway noise in general, the European Unions Working Group Railway Noise has identified the following most promising additional instruments:
  - Implementation of normal maintenance grinding programmes also taking noise emissions into consideration.
  - Public funding for noise abatement programmes.
  - Incentives for the use of low noise vehicles.
  - Noise emission limits for new non-interoperable vehicles.
  - Improved measurement standards for railway exterior noise.
  - Specifications for the noise emissions in procuring/ordering new vehicles and tracks.
  - Noise emission reduction by track upgrading or new design
- It is recommended that the DEC, ARTC, the rail freight industry, the Ministry of Transport, the Department of Regional and Transport and Regional Services, and the National Transport Commission develop and implement a strategy to reduce rail freight noise in urban areas.

Response:

DEC's planning noise criteria was required to be used in the noise and vibration assessment for this project by the Director-General of the Department of Planning. These criteria are considered appropriate to achieve acceptable residential amenity. In accordance with the Part 3A provisions under the *Environmental Planning and Assessment Act 1979*, the Department of Planning reviewed the Environmental Assessment prior to exhibition to confirm that the Environmental Assessment Requirements issued by the Director-General had been adequately addressed. The Department of Planning confirmed in this review that the planning noise criteria had been used and that ARTC's responsibility to mitigate noise from the RailCorp corridor relates to the SSFL project impacts rather than existing rail corridor noise. The noise and vibration assessment contained in the exhibited Environmental Assessment was prepared on this basis and accepted as adequate by the NSW Department of Planning prior to exhibition.

ARTC is actively engaged with operators to improve the wheel-rail interface as a source of noise, including profile grinding of rail and wheels and is introducing acoustic monitoring to identify rouge axle/wheel sets. Further information is provided in Section 7.5 of Technical Paper 2 of Volume 2 of the Environment Assessment.

4.2.43 Appropriate operation of machinery

Respondents to the Environmental Assessment raised the following issues in submissions 60 and 79:

- Maintaining and operating all environmental control equipment installed or used for the project in a proper and efficient manner.
- Undertaking project maintenance activities in a competent manner consistent with the commitments to environmental performance in respect of the construction phase of the project.
- All major infrastructure projects should be undertaken using least noisy feasible and reasonable construction methods, practices and plant and equipment.

Response:

As outlined in the Statement of Commitments within Appendix D of this report, the Construction Environmental Management Plan will include measures ensuring plant operators operate equipment in the most efficient manner, and conduct regular maintenance of plant and equipment to ensure machinery operates at optimum efficiency.

As outlined in the Statement of Commitments within Appendix D of this report, prior to the commencement of construction of the SSFL, a Construction Noise and Vibration Management Plan will be prepared as part of the Construction Environmental Management Plan. The plan would be developed with the approach of using least noisy equipment and construction methods, practices and methods where reasonable and feasible.

4.2.44 Defining substantial exceedances

A respondent in submission 79 to the Environmental Assessment commented that the commitment regarding the review of the adequacy of operational mitigation measures must include a quantitative definition of 'substantial exceedances' and a hierarchy of the additional feasible and reasonable noise mitigation measures to be implemented.

Response:

A suggested working definition of 'substantial exceedances' would be exceedance of the LAeq criterion by 2dBA, as measured or assessed over a one-week period, or exceedance of the LA_{max} criterion by 2dBA, measured or assessed as the energy-mean maximum noise level during freight train pass-bys, measured or assessed over a one-week period.

Feasible and reasonable noise mitigation measures have already been addressed in the Environmental Assessment. Any further measures will be addressed in the detailed concept design phase.

4.2.45 Recommended definitions

A respondent in submission 79 to the Environmental Assessment commented that the definitions listed below could be included in the statement of commitments and any planning approval to improve consistency between the approval and subsequent environment protection licences. For the purposes of Part 3A approval:

- 'AS 2659' – means Australian Standard AS2569.1 – 1988 – Guide to the use of sound measuring equipment – Portable sound level meters.
- 'continuous' – when used in reference to construction work, means any period during which there is less than an uninterrupted 60 minute respite between temporary halting and recommencing any of the work.
- 'control equipment' – has the same meaning as defined in the dictionary to the POEO Act.
- 'feasible and reasonable' – has the same meaning as defined in the New South Wales Industrial Noise Policy, January 2000.
- 'Group A waste' – has the same meaning as defined in Division 2 of Part 3 of Schedule 1 to the POEO Act.
- 'hazardous waste' – has the same meaning as defined in Division 2 of Part 3 of Schedule 1 of the POEO Act.
- 'industrial waste' – has the same meaning as defined in Division 2 of Part 3 of Schedule 1 of the POEO Act
- INP – means New South Wales Industrial Noise Policy, January 2000
- 'normal hours' – means 7.00am to 6.00pm Monday to Friday and 8.00am to 1.00pm Saturday, except when those hours occur on a public holiday.
- 'out of hours' – means those times other than normal hours and includes public holidays.

- 'unforeseeable' – means any event that results in a delay of not less than one hour in undertaking the works, which event could not have been reasonably foreseen by a competent person.
- 'noise sensitive receiver' – means any dwelling, units for aged persons, educational establishment, child care centre, hospital, place of worship, boarding-house or motel, all of which have the same meaning as defined in the *Environmental Planning and Assessment Model Provisions 1980*.

Response:

These recommendations from the submissions have been noted by ARTC.

4.2.46 Vibration

Respondents to the Environmental Assessment raised the following issues in submissions 8, 35, 61, 78 and 81:

- While sound barriers are of some help, they will not eliminate low frequency noise and below ground vibrations. Further assessment of low frequency noise and below ground vibrations should be undertaken prior to commencement of any works associated with the SSFL.
- Noise barriers will do little to protect residents from vibration.
- Are the Government going to completely compensate all who are affected and if so when? If not, residents of Wattle Avenue, Carramar will take whoever is liable (for vibration damage) to court and sue for damages.
- The proposed noise control measures do not account for/prevent damage to properties from vibration caused by freight trains.
- Resident would like assurance from construction authorities that there will be no damage to their property from vibration

Response:

As discussed in Section 11.2.2 of Volume 1 of the Environmental Assessment, relevant construction vibration criteria (German Standard DIN4150) for building damage require a maximum peak particle velocity (PPV) of 10 millimetres per second for residential buildings and 25 millimetres per second for commercial buildings. The closest buildings to either the existing or proposed future tracks would be at a distance of approximately 15 metres. The plant items or processes proposed during the general earthworks and track works are not sources of significant vibration. It can be safely assumed that the level of vibration generated would be well below the relevant criteria for structural damage to buildings.

The assessment of operational vibration, also discussed in Section 11.2.2 of Volume 1 of the Environmental Assessment, was based on results of a study by Wilkinson Murray (2005). This study measured operational vibration on the Main Northern Rail Line through Hornsby, which is a line of similar construction and usage to the proposed SSFL. The study measured vibration at three sites, and at each site, measurements were taken at 10, 20 and 30 metres from the line and at a nearby residence. At this distance, peak particle vibration velocity PPV values measured in the ground from either freight or passenger services did not exceed 1 millimetre per second at 10 metres from the track (Wilkinson Murray, 2005). Therefore, operational vibration from the SSFL would be expected to comply easily with the criterion of 10 millimetres per second for building damage based on the German Standard DIN4150.

Given the low risk of vibration impacts discussed above, the requirement for dilapidation reports is not considered to be required.

4.2.47 Low frequency noise and idle vibration

A respondent in submission 61 to the Environmental Assessment commented that:

- It is unclear if the issue of low frequency noise has been included in the noise predictions. This should be clarified.
- Land vibration by stationary engines must be attenuated and the noise generated by the combination of moving and idling trains in passing places should be addressed.

Response:

The noise model prepared for the noise and vibration assessment incorporated the noise frequency characteristics of locomotives and wagons. It also included the predicted frequency of passing loop use and likely occupation by waiting trains.

Vibration was also included in the noise and vibration assessment and as stated in Section 1.2.2 of Volume 1 it can be safely assumed that the level of vibration generated would be well below the relevant criteria for structural damage, and that impacts would be low.

4.2.48 Issues from the Ove Arup Report

The following responses addresses the issues raised in the Ove Arup report (60, 61, 62, 78) in response to the Environmental Assessment:

a) The assessment should individually identify all potentially noise sensitive receivers adjacent to the proposed alignment including places of worship, schools, hospital, and passive and active recreational areas.

Response:

Most noise-sensitive receivers adjacent to the route are, of course, residences. Other receivers such as schools, health care facilities and child care centres are generally assigned the same noise criteria as residences (see Section 4.2 of Volume 2, Technical Paper 2), and hence if these are in a residential area there will be no effect in terms of noise assessment or mitigation design. Where such receivers are not in an otherwise residential area, their presence is noted in Section 2.2 of the report and they are specifically accounted for in calculations.

An exception to the above is the Casula Regional Arts Centre, which is specifically noted and considered.

No rail noise criteria are set for either active or passive recreation areas, and noise impacts on these are generally not specifically considered in the report.

b) The measurement locations should be shown graphically on Figure 2.1 of the assessment so that their location and proximity to the rail corridor can be determined easily.

Response

This request has been noted.

c) The DEC should provide some assurance to Council regarding the joint management of rail noise impacts between RailCorp and ARTC.

Response

This issue has been noted; however it is a matter for DEC rather than ARTC. However, ARTC has committed to working with the DEC to develop a Source Control Plan to identify realistic opportunities for ARTC to assist operator noise performance, subject to agreement on the plan's scope and application.

d) It is suggested that the assessment should adopt 'acute' railway noise levels 10dB above the target criteria, i.e. 65dBLAeq 24hr and 90dBLAeq max from any one event, above which noise mitigation will be provided, even if there is no increase in noise levels due to the project.

Response

This suggestion appears reasonable in principle, but its adoption would have very significant impacts on all future rail projects. Such discussion goes well beyond assessment of noise impacts from a specific project. The procedures used in this project have been accepted by both the DEC and the Department of Planning as appropriate given present policy for rail noise assessment in NSW. Future policy may or may not adopt additional principles in determining whether mitigation is considered 'feasible and reasonable'.

e) The proposal will result in intensification of use on areas of the existing rail network beyond the study area. The assessment should also consider and address network-wide impacts from the SSFL.

Response

Explicit consideration of noise impacts throughout the entire NSW rail network resulting from construction of the SSFL would be a very large undertaking, and inconsistent with the level of detail generally provided in Environmental Assessment for rail (or road) projects. In this case, ARTC has indicated that in the absence of the project, growth in rail traffic on this section of the line would be about two thirds of the project growth with the project. This can be taken as a worst-case estimate of the additional growth in any other section of the network, and indicates that with the project, LA_{eq} levels would increase by at most 1.8dBA compared with the 'no build' case. Any finer analysis of network-wide impacts is considered beyond the scope of this assessment.

f) The assessment should provide a more detailed description of the likely night-time noise impacts, including an assessment of the potential for sleep disturbance, and the likely level of emergence, and number of night-time noise events. The assessment should indicate the expected difference between LA_{max} and LA_{eq} night-time noise levels.

Response

Noise from rail traffic can result in sleep disturbance, the level of which will vary between individuals. Some people will find this level of sleep disturbance to represent an impact on their life. Quantitative methods for the assessment of sleep disturbance are under development and not currently agreed.

However, as a result of the proposed noise barriers for the project, no residence adjacent to the line will experience higher maximum noise levels than they do currently, and many will receive substantially lower levels. Hence the overall impact of the project on sleep disturbance, however measured, will be positive.

g) The assessment should document the target barriers, and undertake an assessment using a procedure such as documented in Practice Note IV of the RTA's Environmental Noise Management Manual to demonstrate that the proposed barriers are 'feasible and reasonable'

Response

The concept of "target barriers" is derived from procedures for assessment of road traffic noise as set out in the Road and Traffic Authority's Environmental Noise Management Manual. These are barriers designed to achieve the "base criterion" (presumably equivalent to the planning criteria in the case of rail traffic), after which "assessed barriers" are determined using a complex cost-benefit procedure, and a choice between these two is made on the basis of further criteria. In the absence of specific policy advice, it was not considered appropriate to simply adapt detailed procedures developed for road traffic noise assessment and use them for rail traffic noise. Instead, a much simpler procedure was adopted by assuming that a four metre barrier generally represents the highest barrier which would be practically achievable, in most circumstances. (In fact, following the detailed Road and Traffic Authority's procedures very often results in a barrier of about this height being selected as the highest "feasible and reasonable" barrier).

However, as outlined in the report, barrier heights proposed may be altered in the detailed design phase of the project as a result of engineering requirements, residence comment and/or detailed design and survey becoming available.

h) The assessment should provide noise contours showing the extent of noise impacts from the proposal.

Response

This request has been noted, however information provided in the report is sufficient to allow determination of the project's impacts.

i) The assessment should clarify any source allowances or corrections used to account for tight radius curves, turnouts, joints or crossings, and where these features/items may be located on the proposed alignment.

Response

The major impact of a tight radius curve would be the possibility of generating wheel "squeal". ARTC is not aware at any point on the existing track where it is an issue, and given that the geometry of the new track is generally similar there

is no reason to expect that this would be a problem on the new track. If it is, then methods such as track lubrication would be investigated to eliminate it. As a consequence, the noise assessment has not made an allowance for tight radius curves.

Turnouts, joints and crossings are localised noise sources which would typically impact on noise levels within at most 40 metres of the relevant location. It is not possible to take account of such sources in an analysis on the level of catchment areas. There will be some locations where these effects would increase levels from the existing track, and some where they would increase levels from the new track. In general, turnouts, points and crossings on the new track are not close to residential areas, but assessment of their impact would be required in detailed barrier design.

j) ARTC should be requested to comment to the implementation of wayside noise detection systems on the network to prioritise rolling stock maintenance and eliminate 'rogue trains'.

Response

ARTC has committed to working with DEC to develop a Source Control Plan to identify realistic opportunities for ARTC to assist operator noise performance, subject to agreement on the plan's scope and application.

k) The assessment should provide a comparison between predicted vibration levels and limits fromAS2670.2 and/or the US Department of Transportation guidance, particularly for night-time train passages.

Response

The Standards referenced provide alternative assessment procedures to BS 6472, which is referenced in the report, but are generally consistent in their conclusions. In particular, for a residence at night AS 2670.2 effectively recommends a weighted acceleration value of 1.4 times a "base curve" value provided in the Standard. At the three locations described in Section 6 of the noise and vibration report (see Technical Paper 2 in Volume 2 of the Environmental Assessment), at 10 metres from the proposed SSFL, vibration levels from freight movements averaged between approximately 0.3 and 1.0 times the "base curve". Hence it can be concluded that at the nearest buildings to the proposed track (approximately 15 metres from the track) vibration levels will be within relevant criteria for human comfort. Note that in all cases these criteria do not ensure that vibration levels will be undetectable.

l) The assessment should provide a comparison between the source vibration level assumptions and those documented in the US Department of Transportation's "Transit Noise and Vibration Assessment"

Response

The measured vibration levels are consistent with levels quoted in this document, although the use of data recorded in Sydney, using similar rolling stock, is considered preferable to overseas data.

4.3 Responses to community submissions: other issues

4.3.1 Traffic and transport

Construction phase impacts on Cabramatta Station precinct

Respondents to the Environmental Assessment raised the following issues in submissions 20, 23, 66, 68, 52, 55, 68, 69, 70, 78:

- The Cabramatta Chamber of Commerce and Industry supports any proposal that will replace the loss of commuter car parking spaces with a multi-storey car park close to Cabramatta rail station.
- Both the five minute parking located directly outside the exit of Cabramatta station and the recessed area adjacent are essential and need to be retained. The area is heavily used and to relocate or remove it completely would create safety problems particularly as the Stardust Hotel is in close proximity.
- Cabramatta railway station and the roads servicing it on the eastern and western sides are unable to accommodate the level of traffic that they currently experience. This will be compounded by taking sections away to fit in additional tracks.
- The Cabramatta Chamber of Commerce and Industry recommends that road works in Cabramatta are co-ordinated so they do not create traffic problems.
- Construction will create traffic problems on Cabramatta Bridge.
- There is concern over the narrowing of Broomfield Street with respect to traffic flow and car parking. Most of East Cabramatta shops rely on Broomfield Street for deliveries; therefore any restraints on parking would severely affect business.
- Implementation of both options at Cabramatta should be preceded by a detailed Car Parking Survey and Study and a Pedestrian Access and Mobility Plan.
- A detailed investigation of traffic and pedestrian flows at Cabramatta during construction is required. Additionally detailed Transport Management Plans are required to manage specific construction impacts at Carramar station and at other sites.
- Christian City Church are concerned over possible public use of their private car park.

Response:

ARTC notes concerns regarding alternate parking arrangements in the Cabramatta Railway Station precinct. The Environmental Assessment includes a precinct plan for Cabramatta Railway Station. The plan has been prepared based on station/architecture, urban design, visual/landscape, transport interchange and planning assessments. As part of the precinct plan preparation a car parking survey was also undertaken.

The precinct plan includes the relocation of the existing ‘kiss and ride’ car parking spaces to the north of the station entry and the bus parking bays to the south of the station entry. These have been shown on the plan in Figure 6.5a of Volume 1 of the Environmental Assessment.

In relation to concerns regarding the relocation of car parking on the eastern side of Cabramatta and of pedestrian access and mobility, ARTC commits to undertaking a Parking Study and a Pedestrian Access and Mobility Plan during the detailed design stage for the Cabramatta precinct plan refer to Cl81(h) in the Statement of Commitments provided in Appendix D of this report.. Detailed traffic impact assessments would also be undertaken as outlined in the Cabramatta precinct plan assessment in Chapter 20 of Volume 1 of the Environmental Assessment.

The management of parking spaces on private land is outside the scope of this proposal and Environmental Assessment, and ARTC's proposal does not involve the erection of any multi-story car parking complex.

The management of traffic, transport and access through the Cabramatta Railway Station precinct during the construction phase, and the management of construction traffic, are recognised as key environmental issues from the Environmental Assessment. Accordingly a comprehensive management approach is proposed as part of the Construction Environmental Management Plan, as outlined in Section 10.4 of Volume 1 of the Environmental Assessment and committed to specifically by ARTC in the Statement of Commitments provided in Appendix D of this report.

Construction traffic impacts in the Bankstown LGA

Respondents to the Environmental Assessment raised the following issues in submissions 4, 6, 47, 49, 61, 62, 80, 81, 87:

- The transport management plan prepared for each work site must include intersection modelling to ensure optimum intersection operation during peak periods. These include, but are not limited to the following intersections identified in the Environmental Assessment:
  - Amy Street and Rookwood Road
  - Auburn Road and Hume Highway
  - Glenfield Road and Campbelltown Road.
- Bankstown Council's preliminary findings indicate that there is potential for significant traffic impacts within some residential areas in Bankstown.
- There is concern for the traffic impacts for residents of Sefton and Chester Hill.
- Construction of the SSFL will result in the digging up and destruction of recent street improvements in Chester Hill.
- The closure of roads and bridges at Auburn Road, Miller Road Villawood; Chester Hill Road, Chester Hill; Hector Street Sefton and, Regents Park will cause major disruption to residents and road users in these areas. Bankstown Council requests that ARTC agree not to close Auburn Road and install a temporary crossing during the reconstruction of the bridge.

- Bankstown Council requests that a Council approved Transport Management Plan be prepared prior to the commencement of any works. This plan should include the following:
  - alternatives to the closure of Auburn road, a full width temporary crossing which allows the safe access for pedestrians and cyclists should be provided. Council should be involved in the planning of a temporary crossing
  - plans to minimise traffic impacts for north-south bound traffic by staggering the half road closures at Hector Street and Woods Road.

Response:

The Environmental Assessment recognises that the construction phase of the proposal would have the greatest level of impact. In addition, ARTC note the detailed recommendations for local traffic management discussed above.

During the detailed design phase measures for the management of traffic, transport and access considerations will be addressed in detail as part of the preparation for the Construction Environmental Management Plans for the SSFL and site specific Traffic Management Plans for certain construction sites. Relevant local councils, including Bankstown Council, will be consulted during the preparation of higher order Traffic Management Reports (to manage cumulative impacts from multiple construction sites along the corridor) and the Traffic Management Plans. A specific plan would be developed (in consultation with Council) for Auburn Road bridge, including the feasibility of a temporary crossing for pedestrians and cyclists. This approach has been committed to specifically by ARTC in Cl69 in the Statement of Commitments provided in Appendix D of this report.

As discussed in Section 1.1.2 of the Environmental Assessment, ARTC commits to replacing affected landscaping, bus shelters/canopies, pedestrian/cycle pathways, signage and street furniture where affected by the proposal.

Construction impacts on bus services

Respondents to the Environmental Assessment raised the following issues in submissions 79, 82:

- ARTC should be required to review its draft commitments in relation to traffic, transport and access during construction to ensure that temporary and permanent changes to pedestrian access, kiss and ride, parking, station facilities, lighting and other infrastructure arrangements are designed and implemented to encourage public transport patronage.
- The Environmental Assessment does not reflect the NSW Government's bus reform agenda, the key role of the NSW Ministry of Transport in provision of bus services, nor the potential impact of construction of the SSFL on bus service timetables and reliability.
- Cumulative impacts on the local road network will affect additional bus services (other than those directly affected) Traffic Impact Assessments are required on proposed cumulative operational changes that affect bus operation.
- Traffic impact assessments and amelioration measures for the combined impact of works that affect bus operations will be a minimum requirement. Direct impacts of construction will affect at least 10 identified regular route services, plus school services. The closures mentioned in Sections 5.1.1 and 5.1.6 will impact on bus movements.

Response:

The Environmental Assessment recognises that the construction phase of the proposal would have the greatest level of impact and inconvenience to residents and the wider community as a result of the need to construct multiple bridges across the railway corridor and undertake works in the six directly affected station precincts.

During the detailed design phase measures for the management of traffic, transport and access considerations will be addressed in detail as part of the preparation for the Construction Environmental Management Plans for the SSFL and site specific Traffic Management Plans for certain construction sites. A specific plan would be developed (in consultation with council) for Auburn Road bridge, including the permissibility of a temporary crossing for pedestrians and cyclists (see Cl85 in the Statement of Commitments in Appendix D of this report). Impacts to bus routes will be assessed as part of this process. Relevant local councils and other stakeholders (including Ministry of Transport) will be consulted during the preparation of higher order Traffic Management Reports (to manage cumulative impacts from multiple construction sites along the corridor) and the Traffic Management Plans. This approach has been committed to specifically by ARTC see Cl70 in the Statement of Commitments provided in Appendix D of this report.

The submission from the Ministry of Transport has indicated that it requires a 3.5 metre wide bus lane, as per the AustRoads guidelines: A Guide for Traffic Engineers – Road-Based Public Transport and High Occupancy Vehicles. The reference to this lane width is on page 10 of the Guide “Carriageway and Lane Widths”. This issue is discussed below on page 66 refer “Bus lane widths in Broomfield Street”.

General construction impacts

Respondents to the Environmental Assessment raised the following issues in submissions 4, 17, 61, 62, 74, 78, 82:

- To ensure the minimum level of traffic impact on the road system adjacent to the construction sites, it is essential to restrict non-essential parking for staff and construction workers.
- Where road closures are proposed during the construction of road bridges, the Transport Management Plan must provide and submit detailed analysis of the impact of the network operation to the appropriate road authority for comment. Such analysis should include:
  - network modelling where required
  - traffic management measures to be provided to maintain optimum network operation and safety
  - provision for pedestrians and cyclists
  - parking control measures.
- Any temporary diversion of traffic and pedestrian and cycle routes must be clearly signposted. Priority must be given to pedestrians accessing public transport modes such as at railway stations and bus interchanges.
- Further assessment of public transport interchanges should be undertaken prior to commencement of any works associated with the SSFL.

- Further assessment of road and pedestrian access options and solutions for heavy vehicles should be undertaken prior to commencement of any works.
- Where the closure or use of a road involves a classified road, a 'Road Occupancy Licence' must be obtained through the Transport Management Centre of the RTA.
- Appropriate measures should be included in the construction management plan to ensure that all roads used by construction vehicles are kept clean and free from debris at all times. Routes for the movement of spoil must be specified in the transport management plans.
- Assessment of the impacts of importation and disposal of material, including analysis of affected routes should be undertaken prior to the commencement of works.
- Where any construction activities affect the operation of the road network or pedestrian crossings and pedestrian/cycle paths, a comprehensive Transport Management Plan (TMP) should be prepared in accordance with RTA's Manuals and by an approved traffic engineer and submitted to the relevant road authorities for approval prior to the issue of a "construction certificate". They will need to include alternative crossing points to ensure pedestrian and cyclist safety.
- Transport routes for all construction related traffic should be approved by Fairfield Council and identified in a traffic plan.
- Where traffic management may involve traffic diversions to other roads, the relevant local council's Traffic Committee should be notified and given the opportunity to comment.
- To enable time to review the document, the higher order comprehensive Traffic Management Report that is to be prepared for each of the 3 affected local government areas (Vol 1:10.22) needs to be prepared and distributed at least a month in advance of the bi-monthly Fairfield Traffic Committee meetings.
- With regard to the upgrade of bridges, if construction requires the closure of both lanes of the bridge, this should be carried out during weekends. During weekdays, at least one lane should be open for traffic with traffic controllers present to assist in traffic management.
- The biggest impact is likely to be from construction vehicles which may cause delays on the surrounding road network.

Response:

Impacts on accessibility and interchange configuration at the six directly affected station precincts have been assessed as part of the Environmental Assessment, with the precinct plans shown in Chapter 6 and detailed assessments contained in Part D of Volume 1 of the Environmental Assessment. More detailed considerations and further stakeholder consultation will be undertaken however as part of the detailed station precinct design phase.

ARTC notes the detailed local traffic management measures discussed above. These and other detailed measures for the management of traffic and transport will be addressed in detail as part of the preparation for the construction environmental management plan for the SSFL and site specific Traffic Management Plans for construction sites, including Cabramatta Railway Station. These considerations will address all relevant legislative requirements, and will be generally consistent with RTA guidelines *Sharing the Main Street*:

A Practitioner's Guide to Managing the Road Environment and Traffic Routes Through Commercial Centres (RTA 2000). In addition, where the closure or use of a road involves a classified road, ARTC will acquire a Road Occupancy Licence through the Transport Management Centre of the RTA. Refer to Cl71(b)(ix) in the Statement of Commitments provided in Appendix D of this report.

Traffic Management Plans will be prepared in accordance with the RTA's Procedures for use in the Preparation of a Transport Management Plan (2001b) and, where relevant, Section 2 of Australian Standard 1742.3-2002 Manual of Uniform Traffic Control Devices, Part 3: Traffic Control Devices for Works on Roads. These site specific Transport Management Plans will include identification of heavy vehicle routes, having regards to RTA road weight restrictions, bridge height clearances and local road impacts. The expected timing and duration of road usage will be stated.

As discussed in Section 10.4.5 of the Environmental Assessment, where proposed traffic management measures involve traffic diversions or road closures, the relevant local council will be notified. As discussed in Section 10.22 of the Environmental Assessment, a Traffic Management Report will also be provided to relevant Councils directly affected by the proposal. ARTC will provide the Traffic Management Reports at least one month before the bi-monthly Fairfield Traffic Committee meetings, and at least one month prior to the traffic committees of Bankstown and Liverpool City Councils.

Operational traffic management at Cabramatta Station precinct

Respondents to the Environmental Assessment raised the following issues in submissions 15, 23, 54, 61, 66, 70, 71, 78, 82:

- The incorporation of Cabramatta and Canley Vale stations would free up property at the old stations sites for car parking.
- The current operation of Cabramatta and Canley Vale stations is not ideal in terms of the definition of a transport interchange. The installation of the SSFL should provide a more effective transport interchange as part of the works.
- Section 20.3 Volume 1 of the Environmental Assessment states that during construction at Cabramatta, bus routes would not be affected. The Ministry of Transport believes that while the bus routes may remain unaffected by the proposed changes, it is difficult to see how timetables could remain unaffected.
- The issue with the shared zone in Broomfield Street (Section 20.3.3 Volume 1 of the Environmental Assessment) is that pedestrians may cross unexpectedly, causing buses to brake sharply and increasing the possibility of passenger falls. Parking manoeuvres delaying buses is also an issue. Traffic impact assessment is supported.
- Relocation of the car park adjacent to Cabramatta station raises safety concern. It is undesirable to have to walk several hundred yards to the car park after dark it will inconvenience and discourage commuters.
- The 'at grade' option includes a proposal to provide a shared vehicle/pedestrian/cyclist roadway for part of the Parramatta to Liverpool Trail Cycleway at Broomfield Street. Fairfield Council does not currently have any shared zones and would be reluctant to do so. A shared path would be particularly inappropriate because Broomfield Street is a collector road which carries approximately 6,000 vehicles per day.

- Any commuter parking further than 500 metres from the station represents 15 minutes walk. The Ministry of Transport believes that any commuter parking spaces beyond 400 metres should be deemed as lost. These commuters may well be discouraged from public transport, continuing their journey by car.
- An investigation is required as to whether the present allocation for kiss and ride and bus zones (at Cabramatta station) are sufficient, particularly as bus and train patronage can be expected to increase in the future.
- There is concern that SSFL will exacerbate existing parking problems in Cabramatta East and around the station and will result in direct impacts on station access, commuter parking and on the Cabramatta CBD.
- Any parking spaces lost due to the SSFL will compound the parking issue near Cabramatta station. Currently, at the northern end of Broomfield Street, Fairfield Council is constructing a leisure centre and on the southern side of the road bridge, the Cambodian Australian Welfare association brings more cars into the Street, especially when a function is held.
- The permanent loss of commuter parking at Cabramatta with the tunnel option is an unacceptable outcome. The proponent needs to consider the provision of an off-street parking area to replace any spaces that are lost.
- Loss of parking at Cabramatta station is a concern.

Response:

ARTC notes existing parking, modal conflict and local traffic constraints within the Cabramatta Station precinct. Detailed provisions for the management of alternate arrangements for bus services, traffic and parking impacts, pedestrian access and cycleway routes during construction will be addressed in the site-specific Transport Management Plans for the Cabramatta Railway Station station precinct as part of the Construction Environmental Management Plan for the proposal. As detailed in Cl 71(b) in the Statement of Commitments in Appendix D of this report, relevant local councils, bus operators and other relevant stakeholders will be consulted during preparation of site specific Transport Management Plans.

As detailed the Statement of Commitments in Appendix D of this report, ARTC make the following commitments:

- traffic impact assessment will be undertaken of the proposed shared zone in Broomfield Street
- the new pedestrian footbridge will be constructed prior to the closure of the existing access point
- new permanent on street car parking will be constructed prior to the removal of any car parking
- an alternative location for kiss-and-ride will be established while the existing location is closed
- the existing bus zone will be relocated while the Construction works take place for the shared zone and railway station entry
- Traffic Control Plans will be developed for works affecting Broomfield Street.

Measures to minimise risk of crime during construction, including the adoption of Crime Preventation Through Environmental Design principles will be considered during preparation of the detailed design. (see Cl 93(e) of in the Statement of Commitments in Appendix D of this report

As outlined in Section 20.3 of Volume 1 of the Environmental Assessment, existing commuter car parking at the Cabramatta Railway Station is located within approximately 300 metres walking distance of the station entry. The proposed precinct plan for Cabramatta provides for no loss of commuter car parking spaces, although less than 40 relocated parking spaces would be up to 520 metres at the furthest. While this is beyond the desirable walking distance for park-and-ride, the net impact for commuters would be small as more space would be provided for bus interchange which is given higher priority in interchange planning.

The tunnel option for the SSFL though the Cabramatta Railway Station precinct was not preferred as a result of the multi-criteria analysis undertaken in Section 3.5.5 of Volume 1 of the Environmental Assessment.

Consideration of the amalgamation of passenger stations on the RailCorp network is the responsibility of RailCorp and is not within the jurisdiction of ARTC or the scope of this Environmental Assessment.

Bus lane widths in Broomfield Street, Cabramatta

The Ministry of Transport in submission 82 to the Environmental Assessment commented:

- Section 20.3.2 of Volume 1 of the Environmental Assessment details the narrowing of Broomfield Street. The Ministry of Transport requires a 3.5 metre bus lane as per AustRoads guidelines: A Guide for Traffic Engineers – Road-Based Public Transport and High Occupancy Vehicles.
- Where the SSFL requires changes to the road network, the Ministry of Transport requires 3.5 metre lane widths for buses, suitable pedestrian connectivity to minimise major barriers to movement, and road and bus infrastructure (including all weather awnings, bright lighting and provision for real time passenger information, particularly at railway stations).

Response

The proposed solution for the Cabramatta Railway Station Precinct entails provision of a new overhead station concourse and new lifts and stairs to provide access to Broomfield Street. This requires the widening of the western footpath in Broomfield Street to provide a landing for the new stairs and lift, as well as a 2.5 metre wide footpath past the new station access structures. The precinct design also involves the establishment of a shared zone (with a proposed 10 kilometres per hour speed limit) some 75 metres long in Broomfield Street adjacent to the station entrance.

The layout of the proposed shared zone (which is intended to provide for safety for both pedestrians and other vehicles in an area of limited width) was based on the RTA guideline – *Sharing the Main Street – A Practitioner's Guide to Managing the Road Environment and Traffic Routes Through Commercial Centres* (RTA February 2000).

The proposed precinct plan for Cabramatta provides 3 metre lane widths near the station entry in Broomfield Street that are adequate for buses in a low speed environment where buses are approaching or leaving the interchange. Lane width was discussed with bus operators during the preparation and stakeholder consultation for the precinct plans and it was agreed that 3 metres was adequate under the circumstances. The shared zone provides an appropriate balance between the needs of all modes (including pedestrians) around the Cabramatta station entrance.

The circumstances at Cabramatta are not addressed directly in the Guidelines which recommend a lane width of 3.5 metres. The AustRoads Guidelines provides no guidance for lane widths in shared zones, or where desirable widths cannot be achieved, though it does acknowledge that blanket application of guidelines may not be appropriate. The provision of 3.5 metre wide lanes in both directions at the station would require the:

- deletion of kerbside parking and loading zones opposite the station entry (on the east side of Broomfield Street), or
- reduction of the width of the footpaths near the station entry to below the minimum desirable widths.

Operational impacts in the Bankstown LGA

Respondents to the Environmental Assessment raised the following issues in submissions 22, 47, 61, 62, 81, 82:

- If 26 freight trains pass end to end, when will passenger trains be able to pass through shared junctions taking the trains from Birrong to Regents Park?
- Council request clarification on the exact extent of Llewellyn Avenue to be acquired.
- Council requests that ARTC consider the impact that the acquisition of Llewellyn Avenue will have on existing traffic, including B-Doubles and other trucks.
- Council requests that ARTC clarify the amount of Wellington Road to be acquired. There is concern that the acquisition will affect traffic and parking.
- Designs of bridges over Hector and Woods Roads should comply with the height clearances of the RTA (where possible).
- The Hector Street Railway bridge should be constructed with an actual design minimum clearance of 4.61 metres so that it can be sign posted as low clearance 4.5 metres which is suitable for standard 4.3 metre high vehicles (RTA guidelines).
- The 5 metre road clearance at Woods Road Railway bridge shall be maintained.
- The proposed 900 millimetre diameter pier on the western side of Hector Street and Woods Road must be positioned to clear existing pedestrian footpath routes.
- ARTC needs to provide a RTA road design standard transitional road grade from the existing Miller Road Bridge over the new span, to make a smooth match to the road.
- In order to ensure safe traffic/pedestrian conditions and to facilitate future widening of the existing RailCorp Bridge, the transverse width of the new span of the Chester Hill Road bridge should match the prolongation of the western side kerb line of the approach road. The eastern side of the new span should match the existing bridge structure. The proposed widening would be approximately 1.5 to 1.6 metres in width.

- Pavement damage associated with detouring heavy vehicles shall be repaired such that the original pavement life is maintained.
- During construction there will be a direct impact on Bareena Street, Miller Road and Chester Hill Road Chester Hill and, Auburn Road Birrong which will have an effect on five bus routes.
- Bankstown Council and other relevant parties should be consulted in respect of the proposed traffic management and landscaping plans during the preparation of concept and final design plans for Sefton Station.
- A total of 26 car parking spaces and a bus and taxi bay will need to be relocated at Sefton station. The Environmental Assessment undertakes that these spaces will be relocated, but fails to specify where this will occur.
- There is concern regarding the loss of parking spaces at Sefton Station.
- Access for buses via the Woods Road underpass must be maintained.

Response:

As outlined in Section 4.1 of Volume 1 of the Environmental Assessment, an underpass is proposed at Sefton Park Junction to allow the passing of freight trains underneath the Bankstown Line and therefore avoid interfering with RailCorp's passenger train services.

The Environmental Assessment recognises that the construction phase of the proposal would have the greatest level of impact and potential inconvenience to residents and the wider community as a result of the need to construct multiple bridges across the railway corridor and undertake works in the six directly affected station precincts.

ARTC notes the detailed local traffic management measures discussed above. These and other detailed provisions for the management of parking and traffic impacts will be addressed in the site-specific Traffic Management Plans for each directly affected station precinct and construction site as part of the Construction Environmental Management Plan. As detailed in CI70 of the Statement of Commitments in Appendix D of this report, relevant local councils will be consulted during preparation of site specific Traffic Management Plans.

As detailed in the Statement of Commitments in Appendix D of this report, the Traffic Management Plans will require the preparation of road dilapidation reports for all roads that are proposed to be used by construction traffic, to the extent the Traffic Management Plan indicates that construction is likely to have a substantial impact on them. Copies of the reports will be provided to the relevant roads authority. Any damage resulting from construction, except that resulting from normal wear and tear, will either be repaired at ARTC's cost or an alternative arrangement for road damage negotiated with the relevant roads authority. Two road dilapidation surveys will be prepared for each construction work site: the first will be prepared prior to the commencement of construction at each respective work site and the second following the completion of construction at that work site.

Any specific road works to be planned during the detailed design phase will be compliant with relevant RTA and AustRoads guidelines.

As discussed in Section 4.7 of the Environmental Assessment, ARTC will liaise with relevant land owners, including Bankstown City Council, to clarify in greater detail acquisition requirements during the detailed design phase. It is at this stage that specific requirements will be known following detailed survey. However, acquisition in Llewellyn would not affect the roadcarriageway.

ARTC notes the specific issues relating to the detailed design of bridges and roads. As stated in Section 3.4.3 of Volume 1 of the Environmental Assessment, where possible, the design of bridges over road crossings would comply with the height clearances of the RTA.

Operational impacts within the Campbelltown LGA

A respondent to the Environmental Assessment raised the following issues in submission 82:

- Strategic bus corridor 31 (Liverpool-Campbelltown) crosses and runs adjacent to the Main Southern Line at Glenfield. Glenfield Road would be impacted by the construction of the flyover and by the main construction zone located on Roy Watts Road.
- The kiss-and-ride at Leumeah Railway Station is often used by elderly and disabled passengers. The accessibility and safety of any alternatives must be maintained with location as close as practicable to the station entry.
- Any potential narrowing of the footpath at Minto Station is a concern as adequate pedestrian footpath circulation immediately adjacent bus stops is required.

Response:

The site specific Traffic Management Plan relating to the Glenfield flyover would address in detail any proposed construction traffic route, access to the corridor and potential impacts to bus services as a result of the increase in temporary construction traffic.

Impacts on accessibility and interchange configuration at station precincts, including Leumeah and Minto Railway Stations, have been assessed as part of the Environmental Assessment. The precinct plans have already been prepared considering passenger accessibility and safety, replacement facilities (such as bus bays) located as close as possible to the station entry and pedestrian footpath circulation. However, the precinct plans will be refined as part of the detailed station precinct design phase.

Operational impacts on public transport services

A respondent to the Environmental Assessment raised the following issues in submission 82:

- Whenever possible, taxi ranks should be co-located with bus services to provide for future on-demand transport, along with kiss and ride provision.
- Noise barriers should not impact on pedestrian movement to the public transportation system. Compliance with the Disability Standards for Accessible Public Transport is to be maintained at all times.
- Where Traffic Control Plans are implemented by a contractor to manage traffic flows, these Plans should reflect the need to provide priority to buses.

Response:

As part of the detailed design phase where the SSFL requires changes to the public transport facilities on the road network, measures would be developed to provide suitable pedestrian connectivity to minimise major barriers to movement, and temporary road and bus infrastructure (including all weather awnings, bright lighting and signage). These measures would then be incorporated into the site specific Traffic Management Plans. The Traffic Management Plans would be prepared on the basis of providing priority to buses, where this was relevant and feasible.

Impacts on accessibility and interchange configuration at station precincts have been assessed as part of the Environmental Assessment. The precinct plans have already been prepared on the basis of interchange transport planning principles, including the co-location of taxi ranks with bus services. However, the precinct plans will be refined through more detailed considerations as part of the detailed station precinct design phase.

Detailed design of station precincts directly affected by the SSFL will have regard to the provisions of the Disability Standards for Accessible Public Transport. (See Cl76a in the Statement of Commitments in Appendix D of this report

Operational impacts within the Liverpool LGA

Respondents to the Environmental Assessment raised the following issues in submissions 60, 61:

- Significant constraints to the successful delivery of an access road already exist within the Shepherd Street to Casula Road area below the M5. ARTC must ensure that the construction of the SSFL in no way reduces or restricts Council's ability to deliver this road.
- Existing car parking and commuter bus facilities serving Warwick Farm Station need to be at least maintained and if possible, improved.

Response:

Further assessment of the provision of an access road from Shepherd Street to Casula Road will be undertaken in the detailed design phase, and include the embankment and retaining wall formation design for the SSFL underneath the M5 South Western Motorway. Liverpool City Council will be consulted regarding the SSFL detailed design in this location.

As discussed in Section 6.5 of Volume 1 of the Environmental Assessment, it is proposed that the affected station facilities and buildings at Warwick Farm would be replaced, including new pedestrian footbridge over the SSFL to the easy access standard, (i.e. of two new lifts) replacement of affected commuter car parking, kiss-and-ride parking and taxi stand.

General operational impacts

Respondents to the Environmental Assessment raised the following issues in submissions 4, 45, 68, 82:

- The respondent lives directly opposite a gate used by ARTC and City Rail vehicles and would therefore like to be consulted in the drafting of the Transport Management Plan.
- Taking up of commuter parking spaces around railway stations by construction workers is an issue which needs to be addressed.
- The Environmental Assessment states that six commuter car spaces would be removed at Carramar station during construction and notes that these spaces would be replaced elsewhere. More details need to be provided to ensure that commuters are not adversely affected by lack of car parking spaces.
- The Environmental Assessment states that there would be no net loss of commuter parking, an improved public transport interchange and facilities and enhancement to the streetscape and station precinct (Vol 1:3.20) however, there is insufficient detail to support this assertion.

- Replacement commuter carparking must be located in new sites, not in those already being used by commuters.
- Where impacts involve school zones and pedestrian crossings, consultation with the council and school(s) concerned should be undertaken prior to the formulation of the Transport Management Plan.
- There will be 15 new contract regions developed under bus reforms. The SSFL impacts mainly on Regions 2, 15, 3 and 13.
- Minto Station falls within new bus Contract Region 2, scheduled for 2008/2009.
- Currently bus access to Minto station (route 880) is via three streets to the West of the station: Somerset Street, Lincoln Street and Airds Road; as well as Ben Lomond Road, among others.
- A bus route travels along the Hume Highway at Casula.

Response:

ARTC notes the Ministry of Transport's advice regarding bus services within the SSFL corridor. Bus operators have been consulted in developing precinct plans and this process will continue as plans are required

Provisions for the management of parking, including construction staff parking, will be addressed in the site-specific Traffic Management Plans, as part of the Construction Environmental Management Plan for the proposal. Refer to Cl71(b)(x) in the Statement of Commitments in Appendix D

Where site specific Traffic Management Plans involve school zones and pedestrian crossings, consultation with the relevant council and school(s) concerned will be undertaken during the formulation of the plan. Refer to Cl71(b) in the Statement of Commitments in Appendix D

Based on the precinct planning work undertaken during the preparation of the Environmental Assessment, all directly affected commuter car parking spaces were identified and replacement spaces and their locations were identified on the precinct plans, see Chapter 6 of Volume 1 of the Environmental Assessment.

4.3.2 Ground and surface water

General

Respondents to the Environmental Assessment raised the following issues in submissions 60, 61, 78:

- Fairfield Council's Flood Risk Management Policy states that no adverse impact due to flooding can be permitted in the Fairfield LGA. Insufficient impact assessment has been undertaken with regard to this risk.
- Loss of (Fairfield LGA) floodplain storage due to filling within the floodplain for the extended embankment will also need to be addressed and compensatory measures provided.

- The Environmental Assessment states that 'The SSFL would not produce a significant decrease in the flood flow area of the river or significantly affect backwater volume of the Georges River'. The Environmental Assessment does not provide sufficient evidence or research for Council Officers to be confident that this statement is valid. In order to establish the validity of the assumptions of the Environmental Assessment/ARTC, the potential flooding impact created by this project must be reviewed and assessed taking into account the cumulative effect of flooding within the Georges River floodplain as set down in the Georges River Floodplain Management Study.
- Further assessment of potential for flooding and the requirements of the Georges River REP should be undertaken prior to the commencement of any works.
- The impact of all floods on the integrity of the structure and embankments will need to be considered. The proponents need to address possible embankment failure during floods and determine the flood frequency they want the wall to withstand.

Response:

As discussed in Section 12.2.3 of Volume 1 of the Environmental Assessment, local flooding due to the presence of the railway corridor is currently managed by the installation of culverts, bridges or other drainage structures. The capacity of existing drainage structures and the need to upgrade these structures for the proposed SSFL was considered during the concept design development to manage local flooding issues. In general, the existing structures would need to be extended through the rail embankment to maintain existing capacity as part of the SSFL proposal. In some instances, an increase in the drainage capacity of existing drainage structures would be required to facilitate the increased flows caused by catchment development or changes in design criteria. Where the latter is necessary, the additional capacity would be constructed under the proposed SSFL line only, and the increase in capacity under the RailCorp section of the corridor would be the responsibility of RailCorp to undertake during future upgrading works.

A temporary reduction in flow capacity could occur during modifications to existing drainage structures. Hydraulic assessment of the capacity of any temporary structures would be necessary during the detailed design phase. Operation of the SSFL would have a limited effect on the surface water drainage systems that intersect the proposed SSFL alignment because of the existing Main South Line railway embankment. Once the existing drainage structures have been modified and the new drainage structures constructed, the operational issues would be limited to potential impacts during maintenance because the existing hydraulic capacity of all transverse waterway openings would not be altered.

The 100 year average recurrence interval flood level on the Georges River in the vicinity of the SSFL at Liverpool is reduced level 9.25 metres Australian Height Datum. The existing railway embankment next to the Georges River is of low height, generally varying between 1-3 metres, with locally higher sections up to about 6 metres at minor creeks. At the M5 South Western Motorway bridge, for example, the top of the proposed formation would be reduced level 10.85 metres Australian Height Datum, and at the base of the embankment the level is at reduced level 7.5 metres Australian Height Datum. The embankment along the Georges River would need to be made between 6.4 metres and 8.35 metres wider (depending on whether there is maintenance track at the position involved). It has been estimated that the proposed SSFL embankment would occupy approximately 17 square metres out of a floodway cross sectional area of over 500 square metres for the 100 year average recurrence interval flood event. This represents less than 2 per cent of the cross-sectional flood area of the Georges River floodway which is a very small amount.

Considering the short length of earthworks for the SSFL below the 100 year average interval flood level as compared to the total floodplain in the Georges River catchment, the affect on backwater volume would be even smaller and unlikely to create an impact. There would be little afflux in the 100 year average recurrence interval event as a result of the SSFL. The route of the SSFL runs down the west side of the Georges River. The Georges River is one of two major watercourses that have the railway running down its flood plain rather than crossing it, as is the case with Cabramatta Creek and Prospect Creek.

At Prospect and Cabramatta Creeks, the top rail level would be above the 100 year average recurrence interval flood levels – reduced level 6.6 metres and 6.8 metres Australian Height Datum respectively.

As already discussed in the Environmental Assessment there has been no quantification of the impacts of the proposed SSFL for flood events with a recurrence interval less than the 100 year average recurrence interval flood event, such as the 5, 10 and 20 year average recurrence interval events. For these events, the proposed embankment between Casula and Liverpool would occupy part of the floodway area and hence have an impact (either local or wider) on flood levels for these events. Accordingly, it is proposed in Section 12.3 of the Environmental Assessment that further investigation of lower return period (more frequent) events be undertaken during detailed design and possible compensatory measurements examined. This assessment would be undertaken in consultation with Liverpool City Council and would have regard to the requirements of the Georges River Regional Environmental Plan. Estimation of these impacts is a necessary component of managing the flood risk by considering the full range of flood events, in accordance with the principles of the Floodplain Development Manual (Department of Infrastructure, Planning and Natural Resources, 2005).

Effects of noise barriers on flood levels

Respondents to the Environmental Assessment raised the following issues in submissions 37, 66, 68, 78:

- The proposed railway and noise barriers will have an adverse affect on flooding within the Fairfield LGA, with possible increases in velocities and impacts on creek bank stability and scouring.
- ARTC must ensure that the SSFL and noise barriers do not increase the potential for flooding in an already flood prone area (Cabramatta), sound proofing would be preferable.

Response

During detailed design, the local flooding and ponding effects of noise barriers and embankment widening would be further assessed to avoid stormwater impacts on adjacent properties. Refer to Cl46(c)(ii) in the Statement of Commitments in Appendix D

Waterway integrity

Respondents to the Environmental Assessment raised the following issues in submissions 33, 56:

- The Department of Natural Resources detailed design principles for stream alignment should be incorporated into the proposal.
- Bridges should replace culverts across any natural or semi-natural creek, particularly if some terrestrial vegetation is still located along the waterway.

- There must be no reclamation of the Georges River for this proposal.
- Any proposal to remove, realign or relocate woody debris must be done in consultation with NSW DPI, Aquatic Habitat Protection Unit.

Response

As stated in Section 12.2.3 of Volume1 of the Environmental Assessment, alteration of the courses of both Bow Bowing Creek at Narellan Road and drainage gully north of the Cambridge Avenue road bridge at Glenfield Junction would be required The proposed rail alignment at Bow Bowing Creek at Narellan Road would overlay the existing creek requiring a diversion of the creek into a culvert for less than 50 metres and a realignment of the creek for a distance of approximately 250 metres to the north of Narellan Road. Similarly at Glenfield Junction, the proposed rail alignment and flyover would overlay the existing gully alignment. It is proposed to realign the section of gully for a distance of approximately 900 metres, including moving the gully from the eastern side of a power substation to the western side. In both instances, the Department of Natural Resources' detailed design principles for stream alignment would be considered in the detailed design.

If the proposed realignment to either of these creeks or other proposed bridge or culvert works across other creeks involves the removal, realignment or relocation of woody debris, it would be undertaken in consultation with the NSW Department of Primary Industries, Aquatic Habitat Protection Unit. Consideration would be given in detailed design to reinstatement of natural channel, where possible. This commitment is included in the Statement of Commitments included in Appendix D of this report.

ARTC has not proposed as part of the SSFL project to reclaim any part of the Georges River. As outlined in Chapter 4 of Volume 1 of the Environmental Assessment, the proposed route does not cross the Georges River or the proposed embankment extend out into the river.

The concept design of the proposed SSFL involves the use of either bridge structures or culverts across creek crossings. Generally, if a culvert is currently used to cross the railway corridor, then ARTC proposes to extend the culvert under the widened embankment for the SSFL. Bridges are also proposed where bridges are currently used for creek crossings. This approach is supported by the findings of the ecological assessment (see Chapter 13 of Volume 1 of the Environmental Assessment) that stated that most of the creeks were highly disturbed and modified through weed invasion, rubbish dumping and drainage control works, including channelisation.

Glenfield, Cabramatta and Prospect Creeks were assessed in more detail and the habits were found to be in either a poor to moderate condition. These three creeks are proposed to be crossed by large span bridge structures that do not have piers within the beds of the creeks.

Constructed wetlands

A respondent to the Environmental Assessment raised the following issue in submission 33:

- It is recommended that no constructed wetlands or basins be located on-line of any creek/watercourse.

Response

As discussed in Section 12.2.4 of the Environmental Assessment, although the proposed SSFL involves the construction of a number of drainage culverts, underpasses and bridges there are no proposed alterations of existing flow regimes as existing structures would be duplicated.

It is very unlikely that the proposed SSFL will require the construction of wetlands or basins on-line on any creek or water course. However if constructed wetlands or drainage basins were identified as being required during detailed design, the Statement of Commitments within Appendix D of this report, recommends that no constructed wetlands or basins be located on-line on any creek/watercourse. If wetlands or drainage basins could not avoid being located on-line due to site constraints, ARTC will liaise with the Department of Natural Resources and the Department of Primary Industries to ensure impacts on aquatic fauna passage and sediment flows are minimised.

Water management plans

A respondent to the Environmental Assessment raised the following issue in submission 79:

- It is recommended that:
  - ARTC prepare its water management plan consistent with the ANZECC/ARMCANZ Australian and New Zealand Guidelines for Fresh and Marine Water Quality
  - Integrate its water management plan with its soil and water management plans; erosion and sediment control plans; and acid sulfate soil management plan.

Response:

It is intended that the water management plan be integrated with the erosion and sediment control plan; and acid sulfate soil management plan. ARTC has committed to the preparation of the erosion and sediment control plan in accordance with Cl 49a of the Statement of Commitments in Appendix D, which would address all erosion and sediment control issues.

Impacts on Bow Bowing Creek

Respondents to the Environmental Assessment raised the following issues in submissions 33, 56, 59:

- The major area of concern for the Department of Natural Resources is the proximity of works to Bow Bowing Creek and Georges River and the associated impacts.
- Aquatic habitat and riparian rehabilitation is to be incorporated into waterway crossing works and creek realignment works in consultation with NSW DPI Aquatic Habitat Protection Unit.
- The proposal to realign Bow Bowing Creek must be undertaken in consultation with NSW DPI Aquatic Habitat Protection Unit.
- In view of the potential future uses for this strategic site (Bow Bowing Creek between Narellan Road and Farrow Road), a high standard of restoration will be required that seeks to ensure a viable and attractive riparian corridor. The concept design and final design of this area is to be to the satisfaction of Campbelltown Council.
- Any realignment of Bow Bowing Creek should set the creek back a minimum of 25 metres from the top of the bank to any works, within the constraints of Narellan Road.

Response:

The proposed SSFL alignment at Bow Bowing Creek at Narellan Road would overlay the existing creek requiring a diversion of the creek into a culvert for less than 50 metres and a realignment of the creek for a distance of approximately 250 metres to the north of Narellan Road.

As outlined in Section 12.2.3 of Volume 1 of the Environmental Assessment, the principles for the detailed design of diverted and realigned Bow Bowing Creek would include:

- the hydraulic capacity and conveyance of the new channel would match the existing watercourse
- the channel would not cause flooding impacts to upstream or downstream properties
- the channel lining would incorporate natural form and materials (where feasible) and minimise risk of erosion
- bank stabilisation and vegetation of overbank areas would incorporate native species, where feasible
- consultation would occur with Campbelltown City Council and other relevant stakeholders (and as noted above, would also include the Department of Natural Resources and the Department of Primary Industries Aquatic Habitat Protection Unit.

Detailed hydraulic assessment would also be undertaken to determine the existing capacity of Bow Bowing Creek. ARTC intends to design the realigned creek to achieve a high standard of restoration which aims to improve the hydrological and ecological values of the riparian corridor. The detail design would also consider the potential to setback the realigned creek a minimum distance of 25 metres from the top of bank to the SSFL corridor. However, this may not be feasible due to physical and other constraints (e.g. Narellan Road Bridge and embankment).

Flood risk in the Bankstown LGA

A respondent to the Environmental Assessment raised the following issues in submission 62:

- Bankstown Council has undertaken investigations at six locations affected by the SSFL to determine the approximate size that each culvert needs to be constructed to convey 100–year floods and recommends:
  - Three parallel box culverts of 3.6 metres wide and 2.1 metres high and 10.8 metres wide and 2.1 metres high open channel convey 100 year ARI floods from Llewellyn Avenue to Christina Road (immediately east of Woodville Road).
  - Four parallel box culverts of 3.6 metres wide and 1.8 metres high and 14.4 metres wide and 1.8 metres high open channel upstream, downstream and between the culverts in the railway corridor to convey 100 year ARI floods from Llewellyn Avenue to Christina Road (near Monier Square).
  - Twin 1200 millimetre diameter pipes culvert to convey 100-year ARI flows from Wellington Road to Waldron Road (immediately west of Hector Street).
  - Twin 1500 millimetre diameter pipes to convey 100-year ARI flows in Hector Street under the railway bridge.

- That ARTC contact Sydney Water for information in relation to the system transversing Woods Road under the railway bridge.
- Adequate measures required to preserve the Council's and RailCorp's existing pipe and culvert system between Tewinga Road to Morris Street east of Auburn Road.

These upgrades should occur along the entire length of the culvert, the most important culvert being near Monier Square between Lewellyn Avenue and Christina Road.

If none of the culverts are upgraded for their full length then the additional lengths of all of the culverts should be constructed to a size capable of carrying 100-year floods. If this is not done then when RailCorp upgrades the culverts under the line, they will still be undersized.

Response:

ARTC has committed (within the Statement of Commitments included in Appendix D of this report) to not worsen existing flooding characteristics in any river upstream or downstream of the SSFL's elements, during the detailed design of the SSFL. In this instance, 'not worsen' is defined as:

- a maximum increase in inundation levels upstream of the SSFL of 50 millimetres in a 1 in 100 year average recurrence interval rainfall event
- a maximum increase in inundation time of 1 hour in a 1 in 100 year average recurrence interval rainfall event.

For the proposed SSFL, all new and modified culverts and bridges will be appropriately sized to carry design flows. Councils design suggestions would be considered in detailed design. As discussed in Section 12.2.3 of Volume 1 of the Environmental Assessment, local flooding due to the presence of the railway corridor is currently avoided by the installation of culverts, bridges or other drainage structures. The capacity of existing drainage structures and the need to upgrade these structures for the proposed SSFL was considered during the concept design development to manage local flooding issues. In general, the existing structures would need to be extended through the rail embankment to maintain existing capacity as part of the SSFL proposal. In some instances, an increase in the drainage capacity of existing drainage structures would be required to facilitate the increased flows caused by catchment development or changes in design criteria. Where the latter is necessary, the additional capacity would be constructed under the proposed SSFL line only, the flow capacity under the RailCorp tracks would be the responsibility of RailCorp to upgrade in the future.

Potential for flooding risk related to a tunnel option

Respondents to the Environmental Assessment raised the following issues in submissions 33, 78:

- With regard to the tunnel option through Cabramatta, since the proposed structure is situated in a floodplain, the tunnel will need to be protected from flood water.
- For any area where tunnelling will occur a full independent investigation is required to be carried out by suitably qualified people in the relevant specialist fields covering potential issues such as contaminated groundwater, salt water intrusion, ground subsidence due to water table lowering and adverse impacts to other groundwater licence holders or dependent ecosystems. Redesign may be required to overcome any issues raised by such investigations.

Response:

As discussed in Section 3.5 of Volume 1 of the Environmental Assessment, the tunnel option at Cabramatta Railway Station was not adopted for a number of reasons, and a tunnel at Sefton Park Junction was not preferred. However, if the tunnel option at Sefton Park Junction was chosen in the detailed design stage, then these and other detailed assessments would be undertaken by ARTC.

Management of acid sulfate soils

A respondent to the Environmental Assessment raised the following issue in submission 79:

- ARTC should commit to assessing and managing any acid sulfate soil and potential acid sulfate soil in accordance with the Acid Sulfate Soils Manual 1998 published by the NSW Acid Sulfate Soil Management Advisory Committee.

Response

As discussed in section 12.3.1 of the Environmental Assessment, an Acid Sulfate Soil Management Plan would be required for the construction phase of the project and would be prepared according to the NSW Acid Sulfate Soil Management and Advisory Committee guidelines. The Plan would be based on the outcomes of further investigation along the SSFL alignment, during detailed design post-approval, to assess the extent and severity of acid sulfate soils in proposed construction areas.

Sediment control

A respondent to the Environmental Assessment raised the following issue in submission 56:

- The sediment control plan is to be checked by a State Government Department (e.g. Dept of Natural Resources) and independently audited each year of the project.

Response

Whether concurrent approvals from NSW Government authorities are required as a condition of approval is the prerogative of the Minister for Planning.

ARTC commits to preparation of a site specific supplementary Erosion and Sediment Control Plan, as suggested in Table 2.1 of the Blue Book for each construction compound and work site.

As outlined in the Statement of Commitments included in Appendix D of the Submissions Report, the Erosion and Sedimentation Control Plan will, where relevant, be consistent with the Landcom guideline Managing Urban Stormwater – Soils and Construction (2004), the RTA's Guidelines for the Control of Erosion and Sedimentation in Roadworks and the Department of Planning's Constructed Wetlands Manual, and will be prepared in consultation with Councils and relevant state agencies.

4.3.3 Biodiversity

Potential loss of flora and weed management plans

Respondents to the Environmental Assessment raised the following issues in submission 45, 56, 78:

- Construction at various sites along the proposed route risks endangering advanced trees.
- A Vegetation Management Plan should be prepared prior to tenders being called for the project and be made available for public comment. The contract for landscaping should be awarded to a qualified contractor with experience in seed propagation and weed management in order to allow rehabilitation of the native grasses that exist along the corridor at present.
- Weeds should be managed during and post construction according to local or regional weed management plans – particularly for noxious weeds. If noxious weeds are to be removed for destruction, a permit may be required from NSW DPI. As of 1 March, all control class 1, 2 and 5 noxious weeds will require permits from NSW DPI. These control classes replace the previous requirements for W1 noxious weeds for permit purposes.

Response:

The Environmental Assessment in Technical Paper 1 of Volume 2 recognises that the proposal will result in a loss of some areas of native vegetation (for instance, at Leacock Regional and Throsby Parks associated with the Glenfield flyover which is unavoidable due to the operational and functional constraints of a curved track alignment on approach ramps); however, the impacts have been minimised due to the proposal being located with in the existing disturbed railway corridor which has low ecological value for the majority of the proposed route.

As detailed in the Statement of Commitments Appendix D of this report) ARTC is committed to conserving biodiversity and minimising impacts to flora and fauna during construction. A Biodiversity Management Plan will be prepared as part of the Construction Environmental Management Plan. The Plan will be prepared in consultation with RailCorp, the Department of Environment and Conservation and Councils. The Plan will include construction work sites plans that show the location of terrestrial and aquatic vegetation communities, important flora and fauna habitat areas, locations where threatened species, populations or ecological communities have been recorded, and areas to be cleared. The plans will also identify vegetation adjoining the areas affected by construction works that contains important habitat areas and/or threatened species, populations or ecological communities. Where possible, and in consultation with RailCorp, seed of locally native species within the areas affected by construction works will be collected (by a qualified bush regenerator) before construction commences to provide seed stock for revegetation and landscaping works.

The Biodiversity Management Plan would also contain a weed management strategy that includes:

- identification of weeds within the activity and adjoining areas
- weed eradication methods and protocols for the use of herbicides
- methods to treat and re-use weed infested topsoil
- strategies to control the spread of weeds during Construction.

If any class 1, 2 and 5 noxious weeds are located a permit from NSW Department of Primary Industries will be obtained. Refer to Cl26 in the Statement of Commitments in Appendix D

Georges River

A respondent to the Environmental Assessment raised the following issue in submission 42:

- Will the SSFL overhang the watercourse (Georges River) and despoil the last remnants of riverside bush?

Response:

The SSFL will not be overhang the Georges River at any point and the SSFL does not cross the Georges River. There are two locations where the SSFL comes close to the Georges River. First, is located at the northern end of the proposed loop to the south of Casula Railway Station. However, there is sufficient room for the proposed SSFL formation, despite the need for the corridor to be widened for a short distance, without compromising the bank of the river or overhanging the river. Secondly, north of Liverpool Railway Station where the SSFL is located on top of the steep bank to the Georges River, where a piled slab structure is required to take the load of the SSFL. Once again, there is sufficient room for the SSFL without the need for any overhanging of the river. (See Fauna passages and linkages and Cabramatta and Prospect Creek sections for further details on Riparian vegetation)

Farrow Road, Campbelltown

A respondent to the Environmental Assessment raised the following issues in submission 44:

- The proposal will result in the loss of the beautiful old tree lined frontage of the property at Farrow Road; this has a major ecological impact.

Response:

The combined land requirements for RailCorp's planned remodelling of Campbelltown Yard and the proposed SSFL require an approximately 20 metres widening of the rail corridor into the road reserve at the southern end of Farrow Road, Campbelltown (see *Figure 4.1* of Volume 1 of the Environmental Assessment). The acquisition of Farrow Road for the rail corridor would require that the road reserve be re-established across the frontage of two industrial properties at No. 8 and 10 Farrow Road. Consequently a 20 metre wide strip of land along the frontage to both properties is required for acquisition which would result in the removal of some of the trees along Farrow Road. The trees have no ecological value being but a moderate visual impact due to their landscape and aesthetic value.

There have been discussions with the land owners and Campbelltown City Council which will continue during the detailed design stage. Further investigations would also be undertaken as part of the detail design stage to determine the exact number of trees affected, and the type and extent of proposed landscape treatments having regard to the realigned road and other site works. Refer to Cl98 in the Statement of Commitments in Appendix D.

Potential loss of biodiversity

Respondents to the Environmental Assessment raised the following issues in submissions 8, 33:

- The overall impact of the proposal in relation to vegetation is a net loss for the Sydney area. All native vegetation throughout Sydney is threatened (no matter how degraded). There should be a requirement to ensure that a net gain of vegetation is achieved through replanting within a reasonable area to off-set any losses.
- The Environmental Assessment mentions that the proposal may result in a cumulative loss of biodiversity due to the removal of some areas of degraded habitat that may support threatened species. Australia can not afford to lose any more threatened wildlife.

Response:

As the Environmental Assessment recognises (see Chapters 13 and 22 of Volume 1) the SSFL would require the loss of 1.3 hectares of Leacock Regional and Throsby Parsk at Glenfield, of which 0.4 hectares is a degraded Endangered Ecological Community, Cumberland Plain Woodland. In addition the SSFL would also result in the removal of 1.7 hectares of Sydney Coastal River Flat Forest, (Endangered Ecological Community) from partly within the rail corridor at Bow Bowing Creek (north of Narellen Road), south of Casula, and at the crossings of Cabramatta Creek, Cabramatta and Prospect Creek, Carramar. There may be opportunities to re-establish appropriate species, using seed of endemic species, as part of Landscape Plans for the area.

There would be some loss of degraded habitat but it is unlikely to support threatened species as assessed under the current environmental legislation. The proposed impacts on threatened flora and fauna are likely to be minor due to the alignment of SSFL within the existing railway corridor for much of its distance, the limited extent of native vegetation within the corridor, its highly degraded nature and ongoing threats from adjacent urban and industrial development. The impact assessment assessments completed as part of the Environmental Assessment concluded that a significant impact on threatened flora and fauna is unlikely.

Within Throsby and Leacock Regional Park, the concept strategy for landscape design, as outlined in the Environmental Assessment, includes restoration of areas disturbed by the Glenfield flyover construction works using Indigenous vegetation plantings; restoration of the sand mining area adjacent to the northern approach to the flyover, with Indigenous vegetation; and consultation with the Department of Environment and Conservation and Liverpool City Council regarding the landscaping strategy. The detailed design of the southern ramp embankment would consider (at the detailed design stage) the material, form and landscaping of the ramp treatment in order to complement the existing vegetation and provide a screen to the train operations. The project would result in new planting of at least equivalent to the loss of woodland vegetation.

Acacia pubescans

A respondent to the Environmental Assessment raised the following issue in submission 28:

- The Acacia pubescens in the Regents Park Triangle should not be removed.

Response

As detailed in Table 12.5 of Volume 1 of the Environmental Assessment, the conservation significance of the *Acacia pubescens* at Regents Park Triangle was found to be low. The four other populations of *Acacia pubescens* along the rail corridor have higher conservation significance and would not be affected by the proposal. Further environmental management measures are outlined in Section 12.3.4 of Volume 1 of the Environmental Assessment and in the Statement of Commitments provided in Appendix D of this report.

A respondent to the Environmental Assessment raised the following issue in submission 28:

- The registering of a new *Acacia pubes*cens specimen at Location C near Birrong Girls High is to be applauded.

Response:

Noted.

Fauna passages and linkages

A respondent to the Environmental Assessment raised the following issue in submission 33:

- In terms of the proposed urban and landscape design guidelines/principles (*Table 3.2*), where corridor linkages have to be removed, alternative linkages should be enhanced to the same biological areas if possible, or should give a net positive environmental benefit to the local area.

Response:

It is unclear from the submission where the proposed design removes a corridor linkage. The function of important riparian habitat corridors for the movement of both terrestrial and aquatic wildlife would remain unaffected, as only minor disturbance would occur to riparian vegetation and associated habitats. The proposed works would be largely within cleared areas and any vegetation clearing would be linear and adjacent to the existing rail corridor. It is unlikely that the proposal would create any significant barriers to the movement of wildlife throughout existing corridors in the study area and the wider region. However, the detailed revegetation and landscape plans will consider ecological corridor functioning and potential linkages when selecting the kind of species to be planted in the locations shown along the route on Figure 4.10 of the Volume 1 of the Environmental Assessment.

A respondent to the Environmental Assessment raised the following issues in submission 33:

- A native vegetated riparian corridor 25 metres wide should be established on both sides of the realigned Bow Bowing Creek.
- A fauna passage should be considered to link Leacock Regional Park to Georges River on the southern side of the proposed 2.4 metres embankment as the embankment appears to constrain corridor function and riparian vegetation.

- It is of concern that the proposed line is so close to Georges River in many sections from Leacock Regional Park through to Liverpool Hospital. In all cases, opportunities should be found to minimise impacts on the river and natural environment.

Response:

The function of important riparian habitat corridors for the movement of both terrestrial and aquatic wildlife would remain unaffected, as only minor disturbance would occur to riparian vegetation and associated habitats along the Georges River. The proposed works would be adjacent to the existing rail corridor. It is unlikely that the proposal would create any significant barriers to the movement of wildlife throughout existing corridors in the study area and the wider region. Fauna passage is maintained between the Georges River and Leacock Regional Park by means of maximising the bridge spans across Glenfield Creek, thereby minimising piers into the corridor.

The proposed alignment of the SSFL follows the existing Main South Line railway corridor. The proposed concept design already incorporates measures to minimise impacts to the Georges River, for instance the piled slab structure on top of the bank near the Liverpool Railway Station to avoid impacts to bank stability and the planting of indigenous species where the SSFL comes close to the river bank.

A respondent to the Environmental Assessment raised the following issue in submission 33:

- The span of the proposed bridge over Glenfield Creek should be wider to enhance corridor function.

Response:

As detailed in Table 4.9 and Section 5.1.2 of Volume 1 of the Environmental Assessment, the proposed bridge of the SSFL over Glenfield Creek will incorporate a new three span bridge, as opposed to the current five span bridge. A single 25 metre long span over the waterway (with no piers being placed within the creek) is proposed, with piers on the side spans matching the positions of existing piers and having a span of about 8.6 metres. This design maximises corridor function along the Glenfield Creek corridor, and minimise impacts within creek itself.

Leacock Regional Park

A respondent to the Environmental Assessment raised the following issue in submission 13:

- The western approach embankment encroaches into a water body within Leacock Regional Park, significantly reducing its area. The embankment will impact the water birds which inhabit the pond.

Response:

The southern approach ramp will not reduce the area of the water body in Leacock Regional Park and Throsby Park. The concept design has been refined post exhibition of the Environmental Assessment and is shown in Chapter 5 of this report. Further detailed investigations will be undertaken during the detailed design phase to minimise environmental impacts at Leacock Regional Park.

Cabramatta and Prospect Creeks

A respondent to the Environmental Assessment raised the following issue in submission 78:

- The Environmental Assessment has downplayed the significance of remnant native vegetation. Vegetation adjacent to Cabramatta and Prospect Creeks has been identified by NPWS as core habitat and is the subject of active bush regeneration work. This remnant bushland also needs to be protected during construction.

Response:

Vegetation adjacent to Cabramatta and Prospect Creeks has been identified as core habitat by NPWS, that supports an Endangered Ecological Community (River-Flat Eucalypt Forest on Coastal Floodplains listed on the *Threatened Species Conservation Act 1995*) was identified as such in the environmental assessment. Core habitat means that the remnant is greater than 10 hectares and has a canopy cover greater than 10 per cent. This does not take into consideration the condition of the vegetation and although these creeks form part of remnants that are greater than 10 hectares, the width of this corridor in the vicinity of the proposed works means that the vegetation is entirely subject to edge effects and is in poor condition.

Within the railway corridor, these creeks were highly disturbed, degraded and provided limited habitat for flora or fauna. The proposed works are located immediately adjacent to the existing railway in areas already cleared of native vegetation and as such would not significantly alter the habitat or corridor values of these creeks.

Prospect Creek passes under the railway line at Landsdowne Bridge near Carramar Railway Station and connects with the Georges River system. The creek was approximately 50 metres wide and contains riparian vegetation including small amounts of the disturbance tolerant native *Phragmites* sp. There was a dominance of the introduced Fishbone Fern (*Neprolephis cordifolia*). Vegetation adjacent to the rail line had been previously cleared and consisted largely of mown grass with some weeds. *Allocasuarina cunninghamiana* were located nearby but it is unlikely that any would be cleared for the proposed works.

Cabramatta Creek runs under the railway line and adjacent to areas of residential, open space and light industrial development. The narrow creek has stabilised concrete banks and is highly disturbed, being overgrown with weedy riparian vegetation including noxious species. There were no significant stands of shrub understorey or tall trees in the riparian areas. Cabramatta Creek offered a limited variety of habitat features and contained terrestrial habitats that were in poor condition.

The impact assessment for River-Flat Eucalypt Forest on Coastal Floodplains included the construction footprint within both creek lines and concluded that the proposal was unlikely to have a significant impact on this community.

Creek crossings

Respondents to the Environmental Assessment raised the following issues in submissions 33, 56:

- There is greater environmental cost to the preferred option at the Glenfield flyover site. This option could impact upon the creek and native riparian vegetation. It is recommended that:

  1. Batters on the creek side should be vertical to minimise the footprint into the open space and maximise the setback from the creek.

  2. If the batter (and its construction) is closer than 15 metres of top-of-bank of the creek, then a ratio of 7:1 area of native vegetation (to any area lost) should be replanted along the creek to maximise corridor function and creek stability.

  3. If the batter (and its construction) is closer than 5 metres of top-of-bank of the creek, then the realignment of the creek should occur to enable a 15 metre setback and replanting of suitable native riparian vegetation.

  4. Stream alignment design principals must:

     - emulate a stable natural stream system that behaves as, and has the appearance of a stable natural stream system of the area (including floodplains, terraces and other typical natural features). Part of the form of the stream is to create suitable pool and riffle sequences, with suitable aquatic and terrestrial habitat. (Gabion or shotcrete structures are not supported).
     - not detrimentally impact upon flow.
     - prevent bed and bank instability up and downstream of the extent of works.
     - be designed and constructed to facilitate fish passage works for any bed and bank stabilisation structures. These must be consistent with the requirements of DPI (NSW Fisheries).
     - address and identified or discovered salinity issues.

  5. No permanent paths/accessways to be constructed between any batter and the creek.

  6. Fauna passage issues should be addressed through the batter/overpass to ensure the vegetation between the existing lines and the proposed line is not isolated for fauna.

- NSW DPI requirements must be incorporated into all waterway crossing designs as per the Policy and Guidelines documents for fish passage and all designs are to be forwarded to NSW DPI Aquatic Habitat Protection Unit for concurrence prior to the commencement of works.

Response

The concerns regarding the proposed Glenfield flyover and impacts to Throsby and Leacock Regional Park have been noted. Further visual and landscape assessments have been undertaken and the concept design for the flyover refined. This is presented in Chapter 5 of this report.

The proposed embankment design of the Glenfield flyover will undergo further refinement in consultation with the Department of Natural Resources and other stakeholders (e.g. Department of Environment and Conservation, Department of Primary Industries and Liverpool City Council) during detailed design phase.

Where possible as part of the proposed works in Leacock Regional Park, ARTC would use soil translocation methods from sites that are likely to contain a large soil seed bank. This soil would be used in combination with replanting in order to preserve the seed bank and enhance natural regeneration. Refer to Cl25(f) in the Statement of Commitments in Appendix D.

Section 12.2.3 of Volume 1 of the Environmental Assessment list the principles for the detailed design of diverted and realigned creeks (Bow Bowing Creek and the drainage gully at Glenfield) and include:

- the hydraulic capacity and conveyance of the new channel would match the existing watercourse
- the channel would not cause flooding impacts to upstream or downstream properties
- the channel lining would incorporate natural form and materials (where feasible) and minimise risk of erosion
- bank stabilisation and vegetation of overbank areas would incorporate native species, where feasible
- consultation would occur with relevant stakeholders.

The angle of the batters on the drainage gully side (of the southern approach ramp) would minimise the footprint into the open space and maximise, where possible, the setback from the gully. Vertical retaining structures would not be appropriate along the entire length of the realigned drainage gully, for instance, due to the potential visual and amenity impacts of a hard edge close to the playing fields in Throsby Park (to the south of Leacock Regional Park).

The proposed drainage gully at Glenfield is required to be realigned for nearly 900 metres, due to the location of the gully close to the corridor where the SSFL flyover is located. ARTC would prepare detailed plans for the realigned creek in accordance with the principles in Section 12.2.3 of Volume 1 of the Environmental Assessment, including revegetation and landscape plans and consult with relevant stakeholders (including the Department of Environment and Conservation). Areas of potential revegetation would be identified along the route of the realigned gully in consultation with the relevant stakeholders (for instance to provide continuity of vegetation for fauna passage), however a ratio of 7:1 area of native vegetation (to any area lost) is not considered to be required due to the degraded habitat of the current native vegetation along the drainage gully.

The SSFL and the proposed flyover would be located within five metres of top-of-bank of the drainage gully in some locations. The proposed drainage gully realignment would be designed, where possible and feasible due to the series of constraints (including Glenfield Road, the RailCorp substation, existing utilities crossing the corridor, playing fields in Throsby Park to the south of Leacock Regional Park), to achieve a 15 metre setback from the SSFL works.

The natural stream alignment principles noted in item 4 of the submission would be considered in the detailed design phase in conjunction with the existing principles in Section 12.2.3 of Volume 1 of the Environmental Assessment. As stated in the Statement of Commitment in Appendix D of this report, water quality will be evaluated for salinity (total dissolved solids), major anions and cations, and where relevant for construction purposes, corrosiveness. An assessment of potential groundwater dependent ecosystems will also be undertaken, to evaluate the effects of construction in any such areas.

The removal of permanent paths/accessways from between the batter and the drainage gully is not possible due to the operational requirement for a maintenance access track adjacent to the SSFL passing loop, which is co-located with the Glenfield flyover. The design and location of the maintenance access track would be considered in conjunction with the detailed design of the Glenfield flyover, the realignment of drainage gully and other works in this location.

Regarding item 6 of the submission, the vegetation that is located between the existing corridor and the proposed approach ramps of the Glenfield flyover is proposed to be removed due to the extent of earthworks that is required in order to construct the approach ramps. This extent of clearing was included in the biodiversity assessment completed as part of the Environmental Assessment. Given that the flyover and the land between the flyover and existing RailCorp corridor will come into the ownership of RailCorp and be managed as part of the railway corridor, the batters will be revegetated with appropriate species (for instance, indigenous grass species) to be complementary to the surrounding species in Leacock Regional Park whilst ensuring the functioning of the railway corridor and its easy maintenance.

As identified in Section 12.3.4 of the Environmental Assessment, the detailed design of waterway structures would be in accordance with the Guidelines for the Design of Fish and Fauna Friendly Waterway Crossings (Fairfull and Witheridge, 2003) and would be developed in consultation with the Department of Primary Industries. In addition, the Department of Primary Industries requirements would be incorporated into all waterway crossing designs as per the Policy and Guidelines documents for fish passage, and all designs would be developed in consultation with the Department of Primary Industries Aquatic Habitat Protection Unit.

Endangered species

Respondents to the Environmental Assessment raised the following issues in submissions 62, 78:

- Cabramatta Creek contains the Cabramatta Flying Fox Reserve. The proposed SSFL is located within 200 metres of the Grey-headed Flying Fox breeding colony (an extremely significant corridor for the migration of Grey-headed Flying Foxes) and is located in the flying fox foraging area. There is a high risk that if construction works are undertaken during September to November, that this will disturb flying foxes while birthing, causing them to drop their young It is vital that a Species Impact Statement is undertaken before the SSFL can proceed.
- Insufficient information has been provided about a possible northern entry/exit point to the entrenchment (under the tunnel option). A species impact statement would be required in relation to flying foxes and any threatened vegetation before the SSFL could proceed.

- Bankstown Council would like clarification on whether the stand of native trees observed at the entrance to Leightonfield station will be affected by the proposal. These trees are likely to be remnants of Cooks River-Castlereagh Ironbark which is listed as an Endangered Ecological Community under the *Threatened Species Act 1995*. If they are removed an appropriate assessment will need to be undertaken.
- Any removal of the remnant trees near Leightonfield station should be compensated by offset planting of a similar type and number of species removed, as advised by Bankstown Council.

Response:

The camp of the Threatened Grey-headed Flying-fox at Cabramatta is noted. Despite its location near to the SSFL, it is considered unlikely that the proposal will affect this species given that the works will be adjacent to the existing railway corridor and the corridor is also surrounded by residential, open space and light industrial development.

Cabramatta Creek runs under the railway line and adjacent to areas of residential open space and light industrial development. The narrow creek was highly disturbed, being overgrown with weedy riparian vegetation including noxious species. There were no significant shrubs or tall trees within the proposed development footprint. Vegetation proposed to be removed is not considered to provide significant foraging resources for this species.

It is recognised that piling (or similar percussive noise) could disturb breeding. As such ARTC commits to using only bored piles at Cabramatta Creek Bridge (see Cl26(b)(ix) in the Statement of Commitments in Appendix D of this report). A Construction Noise and Vibration Management Plan would be prepared for the proposed SSFL. This Plan would indicate management measures that would be used to minimise the effect of construction noise and vibration in the surrounding area. The Plan would also outline noise monitoring procedures, auditing and reporting requirements, and community consultation protocols activities and reporting.

The proposal is within an existing railway corridor which has successfully coexisted with the colony for many years. The operation of the SSFL will not change the nature of train operations in the corridor and is therefore unlikely to disturb this colony. There are a number of examples where flying fox camps (including maternity camps) are located less than 100 metres to linear infrastructure, including highways.

With the appropriate management of construction through implementation of a noise and vibration plan, the proposed works are unlikely to significantly impact this species. A Species Impact Statement is not a statutory requirement under Part 3A of the *Environmental Planning and Assessment Act 1979* and as such would not be prepared.

The proposed tunnel under Cabramatta Railway Station for the SSFL was not selected as the preferred alignment. The reasons are documented in Section 3.5.5 of Volume 1 of the Environmental Assessment. Therefore, the tunnel does not form part of the proposed SSFL. If at any time in the future a tunnel for the RailCorp tracks and new platform were to be proposed, then it would be subject to its own environmental assessment.

Remnant vegetation near Leightonfield Railway Station is mapped as Cooks River Castlereagh Ironbark Forest (NSW National Parks and Wildlife Service, 2002) which is listed as an Endangered Ecological Community under the *Threatened Species Conservation Act 1995*. This vegetation is mapped as occurring to the north of the station. Some trees are also

evident to the south of the station. Since the proposed works in the vicinity of Leightonfield Railway Station would be restricted to an area to the south of the station between two sets of rail tracks, this vegetation would not be affected and the proposal would not require the removal of any remnant trees in the vicinity of Leightonfield Railway Station.

Green and Golden Bell Frog

A respondent to the Environmental Assessment raised the following issues in submission 79:

- DEC recommend that ARTC commit to either:
  - submitting a more detailed description of the riparian habitats, where such a description provides adequate justification of the conclusions presented in the Environmental Assessment concerning Green and Golden Bell Frogs, or
  - undertaking comprehensive surveys for Green and Golden Bell Frogs.
- ARTC must also commit to the undertaking of such protective measures as may be necessary to protect populations and habitat of the Green and Golden Bell Frogs that may be revealed by the further environmental assessment required by the Statement of Commitments.

Response:

The rail corridor between Chester Hill and Villawood stations was not inspected in detail after preliminary visual inspections indicated these areas were highly modified (e.g. industrial areas) and did not contain water bodies suitable for this threatened species.

Habitat-based assessments were completed between Regents Park/Potts Hill and Sefton Station within the rail corridor following brief periods of rain between 9 and 11 July 2005. A Sydney Water channel runs under the rail line at Regents Park. Habitats in this area were highly disturbed from regular maintenance including slashing and mowing. A narrow drainage line shaded by weedy overgrowth with concreted sides occurred at a culvert running under the existing rail line. This drainage line terminated at a small ephemeral drainage basin. Other aquatic habitats near or within the rail corridor at the Birrong end of the project included small ephemeral drainage lines that were densely overgrown with weeds and highly shaded. These areas were not considered to be suitable habitat for the green and Golden Bell Frog.

ARTC notes the Department of Environment and Conservation's concern that the Green and Golden Bell Frog may occur in highly disturbed areas and that records exist for this species in the local area. As such ARTC commits to undertaking further detailed surveys for this species in potential habitats (that have not already been surveyed) that may be affected at the detailed design stage of the project. Should the species be found, then suitable protection measures will be implemented in consultation with Department of Environment and Conservation. (see Cl27 in the Statement of Commitments in Appendix D of this report

Pimelea spicata

A respondent to the Environmental Assessment raised the following issues in submission 79:

- DEC recommends that ARTC commit to either:
  - submitting a more detailed description of the habitats between Minto and Leumeah stations and between Carramar and Leightonfield, where such description provides adequate justification of the conclusions presented in the Environmental Assessment concerning *Pimelea spicata*, or
  - undertaking comprehensive surveys for *Pimelea spicata* in the above locations.
- ARTC must also commit to the undertaking of such protective measure as may be necessary to protect populations and habitat of the *Pimelea spicata* that may be revealed by the further environmental assessment required by this Statement of Commitments.

Response:

Areas targeted for survey for *Pimelea spicata* included areas mapped (in Cumberland Plain vegetation mapping as well as rail corridor maintenance maps) or observed to contain native vegetation. This included areas that did not have a native canopy but were dominated by native grasses.

Surveys were undertaken within the rail corridor for much of the section between Carramar and Leightonfield (approximately one kilometre) and this area contained mown or slashed grass dominated by introduced species. Approximately 300 metres of the track between Minto and Leumeah was found to be dominated by native grasses including *Themeda australis*. *Pimelea spicata* was not recorded within either of these areas at the time of the surveys (May to July).

This species is threatened by habitat disturbance, long-term weed invasion and regular mowing (three to four times per year) and as such other potential sites within the study area were dominated by introduced species or were disturbed and would provide only marginal habitat.

Given the difficulties and restrictions in accessing the rail corridor, areas of marginal or more disturbed habitats were not surveyed.

ARTC notes the Department of Environment and Conservation's concern that the *Pimelea spicata* may occur in highly disturbed areas and that records exist for this species in the local area. As such ARTC commits to undertaking further detailed surveys for this species in potential habitats between Minto and Leumeah Railway Stations and between Carramar and Leightonfield Railway Stations that may be affected at the detailed design stage of the project. Should the species be found, then suitable protection measures will be implemented in consultation with Department of Environment and Conservation.(see Cl28 in the Statement of Commitments in Appendix D of this report

Surveys for *Pimelea spicata* would be undertaken during its flowering period. This species flowers opportunistically depending on climatic conditions, particularly rainfall, with flowering noted between March and January. The surveys would be undertaken at a time when a known local population is flowering. This would maximise the chance of detecting the species if present within the site.

4.3.4 Heritage

General

Respondents to the Environmental Assessment raised the following issues in submissions 8, 17, 28, 59, 61, 62:

- The Environmental Assessment promotes the loss of Historical and Indigenous heritage.
- All impacted heritage items and properties such as the Collingwood viaduct in Liverpool and the footbridges at Sefton, Villawood and Leightonfield must be protected and returned to their present state following construction of the SSFL.
- The structures associated with the level crossing on Narellan Road and the Camden rail line extension must be documented and recorded and copies of all records taken are to be provided to the Campbelltown Library.
- The findings of the Heritage Assessment should be referred to the NSW Heritage Office for its confirmation.
- Where is the Sefton (Park) Signal Box which was assessed as of particular heritage significance? It disappeared overnight some months ago.

Response

Built Heritage

The majority of the listed heritage items along the rail corridor would be unaffected by the SSFL, as they are not in the direct vicinity of the proposed works. Table 13.2 Volume 1 of the Environmental Assessment provides a list of the affected or potentially affected listed heritage items.

The direct impact to modified footbridges would in most cases be low, as the proposed addition would be a straightforward extension over the new SSFL alignment leaving the overall character of the structure unchanged. Environmental protection measures for the footbridges that are to be modified under the proposal include sensitivity to the existing structural and historic elements of the footbridges in design. Photographic documentation, including black and white photography of the footbridges and their immediate surroundings prior to the major stages of modification works, would be required. All affected built heritage items, should be photographically recorded prior to commencement of work, and at the completion of the work. The black and white negatives, one set of prints, contact sheets and catalogue sheets, and one copy of the disk, should be stored together in a public archive such as The NSW State Library. Extensions to footbridges and stairs would be designed with consideration given to the design principles outlined in Section 3.4.6. Detailed architectural plans would also be prepared for the footbridge works prior to the commencement of construction.

Section 13 of Volume 1 of the Environmental Assessment outlines measures to manage impacts on built heritage along the SSFL corridor. Environmental management measures for specific heritage items are located within the affected station precincts are outlined in Sections 17.4, 18.4, 19.4, 20.4 and 21.4 of Volume 1.

A new bridge structure is proposed adjacent to the existing heritage Collingwood viaduct. It is proposed that the new structure would be separated by 3-4 metres, be structurally independent of the existing viaduct, with the rhythm of the viaduct maintained to ensure the new bridge is visually unobtrusive i.e. align the piers for the new bridge to the existing viaduct, with the spacing of the new piers at either every second or third viaduct pier.

For the footbridges at Cabramatta and Minto Railway Stations, although the proposed extensions involve additional concourse level ticket offices, the heritage impact would remain low due to the recent age of the structures. The environmental management measures proposed are to ensure that the design of the extensions is sensitive to the existing detailing and structure, and that the interface between the new and old structures is expressed in an appropriate manner.

Heritage structures close to construction areas (e.g. the signal box at Campbelltown Station) would be protected from potential damage by temporary barriers or screens.

As stated in Section 13.2.2 Volume 1 of the Environmental Assessment there are no direct impacts to any items listed on the State Heritage Register, or the Register of the National Estate. The extent of heritage impact of the SSFL project is manageable, and measures would be incorporated into the design and planning of the project to mitigate the impacts on affected items, as demonstrated by this assessment.

Aboriginal Heritage

Most of the works proposed for the construction of the SSFL pose no threat to the Aboriginal heritage values of the area. Further assessment will be conducted at the track bed next to the Georges River north of Liverpool Railway Station prior to construction, following vegetation clearing in this location. Further assessment is also proposed in the vicinity of Leacock Regional Park, when the final development footprint of the proposed Glenfield flyover is cleared of vegetation prior to construction occurring. If any other areas of significant ground disturbance are identified during the detailed design phase (in addition to the recorded Aboriginal sites SSFL1 and SSFL2), they would be subject to additional Aboriginal archaeology and heritage assessment.

Narellan Road

The concerns relating to the potential heritage impact to level crossing on Narellan Road and the Camden rail line extension are noted. ARTC is willing to commit to undertaking the documentation and recording of these structures with copies of all records to be provided to the Campbelltown Library. Refer to Cl36(b) in the Statement of Commitments in Appendix D.

NSW Heritage Office

Notwithstanding that the proposal only affects heritage items listed under RailCorp's Section 170 Register of the *NSW Heritage Act 1977*, the NSW Heritage Office was invited to, and attended, the Planning Focus Meeting on 10 February 2005. It also provided requirements for the proposed SSFL Environmental Assessment, which were included in the Environmental Assessment Requirements.

ARTC understands that at the beginning of the exhibition period the Department of Planning notified the relevant government agencies and that the NSW Heritage Office was advised of the exhibition of the Environmental Assessment.

The Environmental Assessment addressed all of the Environmental Assessment Requirements of the Director-General of the Department of Planning. These requirements were issued on 29 March 2005 and modified and reissued on 19 April 2006 following the introduction of the Part 3A approval process for major projects. In the pre-exhibition review the Department of Planning deemed that the Environmental Assessment met the requirements under Section 75H(1) Part 3A of the *Environmental Planning and Assessment Act 1979* and was adequate for exhibition.

Sefton Park Signal Box

The Sefton (Park) Signal Box was assessed as of particular heritage significance when the built heritage assessment was undertaken for the SSFL proposal. ARTC is not aware of the removal of the signal box. This concern should be forwarded to the corridor owner, RailCorp.

Aboriginal Heritage

A respondent to the Environmental Assessment raised the following issues in submission 79:

- DEC recommends that ARTC commit to:
  - taking necessary measures to ensure the location of Aboriginal sites close to the project are not published or otherwise made publicly known
  - further consultation with relevant Aboriginal community organisations regarding any decisions that may affect Aboriginal cultural heritage values or project sites, especially with regard to potential impacts on recorded Aboriginal sites SSFL1 and SSFL2
  - modifying detailed design, where necessary and practicable, to ensure Aboriginal sites are protected
  - undertaking further Aboriginal cultural heritage assessments prior to construction if construction or related activities are likely to have a direct or secondary impact on Aboriginal cultural heritage values of sites, where it is impracticable to ensure Aboriginal sites are protected.

Response

ARTC is planning the SSFL in accordance with DEC's requirements that Aboriginal sites are not made publicly known by not publicly issuing maps of Indigenous sites.

Consultation with Aboriginal communities was undertaken according to DEC guidelines; see Technical Paper 4 of Volume 2 of the Environmental Assessment for full details. An opportunity to undertake an assessment of the cultural significance of the two sites recorded in the study area has been provided to the Indigenous organisations identified in Technical Paper 4. To this point, no comments on the cultural significance of the study area or the sites recorded have been received.

As detailed in Section 13.3.1 Volume 1 of the Environmental Assessment, subject to further consultation with Aboriginal representatives, the following environmental management measures are proposed to address those areas where there is some potential for impact on Aboriginal heritage in the study area:

- SSFL 1 — Prior to any disturbance in the vicinity of this site, further consultation would occur with the relevant Aboriginal community organisations to determine a strategy for dealing with the recorded material. A possible strategy would include pegging of the

area of potential disturbance (including secondary impact areas) and collection of any surface artefacts. These would then be recorded and consultation undertaken regarding the appropriate way to relocate the items.

- SSFL 2 — If there is any chance that the artefact would be subject to secondary impact from construction within the area it would be removed and relocated after any threat from construction impact is past, in consultation with Aboriginal community representatives.

During the detailed design stage when the final development footprint of the proposed Glenfield flyover is determined ARTC will arrange for a suitably qualified archaeologist to undertake a final assessment of the potential impact of construction of the western side of the Glenfield flyover at Leacock Regional and Throsby Parks on recorded Aboriginal heritage items. ARTC will undertake this assessment in consultation with the representatives of the relevant Aboriginal groups. ARTC have already committed to act on the collective agreed recommendations of the archaeologist and Aboriginal groups in relation to any need for preparation and implementation of a heritage strategy for any Aboriginal heritage items identified during this inspection.

An Aboriginal Heritage Management Plan will also be prepared as part of the Construction Environmental Management Plan. This Plan will be prepared in consultation with the DEC prior to the commencement of construction and will include:

- Details of any archaeological investigations to be undertaken and any associated licences or approvals required.
- Procedures to be implemented if previously unidentified Aboriginal objects are discovered during Construction. If such objects are discovered, all work in the vicinity of the discovered objects will immediately cease and the DEC will be informed of the discovery in accordance with the *National Parks and Wildlife Act 1974*.
- An awareness program for Construction personnel on their obligations for Aboriginal cultural materials, which will be incorporated into site induction training.
- The Statement of Commitments contained in Appendix D of this report also outlines the commitments by ARTC to ensure no items of indigenous heritage value are affected.

4.3.5 Visual character

Noise barriers

Respondents to the Environmental Assessment raised the following issues in submissions 8, 10, 26, 45, 52, 59, 61, 64, 65, 66, 69, 70, 71, 74, 78 and 80:

- The proposal would create significant changes to scenic quality in the area through the erection of noise barriers. Noise barriers would encroach on road reserves, parking areas and nature strips.
- Noise barriers will create wind tunnel effects and create activity dead zones.
- Noise barriers will result in the loss of visual connection across the rail corridor and loss of views and will dominate the landscape.
- Further assessment of the visual impact of noise barriers will be required to be undertaken prior to the commencement of works.

- The aesthetics of noise barriers should be taken into account, especially in the Casula area where the Casula Powerhouse Arts Centre is being developed as an artistic/cultural precinct.
- The enjoyment of watching various trains passing will be lost as views will be blocked by four metre high noise barriers.
- Noise barriers will encourage graffiti.
- There would be negative impacts for all users of heavily graffitied areas, particularly on pedestrians. Graffiti is associated with both perceptions of crime and increased fears of safety on the street. In this case, graffiti will be associated with both perceived and actual loss of natural surveillance.
- The proposed noise barriers would not be owned by Council. Therefore, Council would not take responsibility for graffiti removal and is not willing to support proposals based on suppositions that graffiti would be regularly and swiftly removed from both sides of the wall by the State Rail Authority.
- Further assessment of maintenance programs for removal of graffiti should be undertaken prior to commencement of any works associated with the SSFL.
- Decorative treatments to the noise walls (within Campbelltown Council area) should be provided and/or landscaping treatments to reduce visual impact and to reduce graffiti opportunities. Where noise barriers are to be provided they should be accompanied by a vegetation plan and wall surface treatment should be applied to minimise graffiti.
- NSW Health need to review the proposed design of noise barriers and landscaping treatments at Liverpool Hospital to allow consideration of visual impacts and to co-ordinate the design of the new hospital facilities that will be located near the rail corridor.

Response:

Details of the proposed 'concept strategy' (urban design and visual screening measures) to minimise visual impacts in each locality are provided in Chapter 4 and shown on Figure 4.10 of Volume 1 of the Environmental Assessment. As discussed in Section 13.2.3 of Volume 1 of the Environmental Assessment, visual screens and noise barriers themselves have a visual impact on the environment in which they are placed. Some types of screens, such as planted vegetation screens, would generally be perceived as natural elements and, therefore, would be a positive intervention. Other types of screens, such as the typical concrete-walled noise barrier, require careful design to mitigate their visual impact. The proposed design principles for these structures are detailed in Table 3.2 (page 3.4 and 3.5 of Volume 1 of the Environmental Assessment) and would be developed in more detail during the detailed design stage to minimise visual and urban design impacts as much as possible. This would also involve consultation with relevant stakeholders, including directly affected residents, regarding the application of the design principles in each locality. (See Cl46 in the Statement of Commitments in Appendix D of this report

Noise barriers would be located approximately five metres from the nearest track (in most instances the SSFL) where the track is at grade or on the top of a cutting where the track is in cut. The barriers would also be located on existing or newly acquired rail corridor land to allow for maintenance by ARTC or RailCorp. They would not be located on private land and would not encroach into road reserves or parkland.

As stated on page 18.5 of Volume 1 of the Environmental Assessment, the treatment of the noise barrier and embankment formation in the Casula station precinct would need to consider the adjacent Casula Regional Arts Centre to minimise visual impact. Detailed architectural plans will be prepared for the proposed precinct works to define:

- the form and appearance of the structural works (e.g. noise barrier and embankment design)
- consideration of the existing built form
- landscape character
- hard and soft landscaping to create precinct character
- local heritage considerations.

The environmental management measures for visual impacts in Casula relate to developing detailed architectural plans and providing appropriate acoustic and visual screening to the arts centre, in coordination with Liverpool City Council.

As Section 4.6 of Volume 1 of the Environmental Assessment states, all noise barriers would need to be absorptive on the inside face to prevent an increase in noise on the opposite side of the corridor due to reflections.

Noise barriers along the corridor would be designed with materials and finishes to minimise graffiti. In addition, where corridor width and track formation allows, landscaping would be employed to minimise opportunities for graffiti.

The exact type and/or combination of barrier and treatments would be determined at the detailed design stage in consultation with the directly affected residences. Detailed design and assessment of the proposed barrier and treatments in each locality would be undertaken.

During the detailed design stage, ARTC will liaise with NSW Health with regard to the proposed design of noise barriers (including materials and finishes) and landscaping treatments and co-ordinate with hospital redevelopment plans (and if possible the construction works).

Vegetation and landscaping

Respondents to the Environmental Assessment raised the following issues in submissions 13, 17, 23, 24, 28, 31, 34, 53, 57, 60, 61, 74, 78, 81 and 83:

- The fig tree at Sefton should not be removed it is a heritage item. The trees proposed to replace it will take a long time to reach the same size.
- What is going to happen to the large trees near Sefton station, adjacent to the rail property? Will they be removed to make way for more car spaces?
- The Environmental Assessment does not allow for proper landscaping, extra tree planting or improved fencing alongside the railway line to add to the aesthetics of the area. Screening trees should be provided to reduce visual impacts of the SSFL.
- The mitigation measures need to state that urban design and landscape plans will be developed in consultation with key stakeholders (including RailCorp) in order to ensure the plans are consistent with existing corridor plans.

- Landscaping/revegetation of the embankment adjoining Lighthorse Park should be extended to include areas adjacent to Riverpark Drive as far as the Shepherd Street overpass.
- The proposed landscaping along the rail embankment facing east onto Lighthorse Park should be extended in a southerly direction so that it includes the entire embankment strip adjacent to Riverpark Drive. This landscaping should also include the degraded road access area at the bottom of the embankment and around the pylons beneath the Newbridge Road river overpass and onto the back of the Liverpool Railway station. This area has been degraded and neglected for many years now and is in need of further improvement and landscaping.
- The western approach embankment encroaches into a water body within Leacock Regional Park. The embankment will remove existing screening from the rail line, significantly affecting visual amenity for park users.
- Can ARTC ensure that the grounds around Casula Station and freight line are properly maintained and that any plantings are indigenous to the region?
- Where property acquisition of sections of Liverpool's open space is unavoidable, Liverpool Council seeks assurances that an asset plan for each park impacted by the proposal will be developed clearly identifying the roles and responsibilities of each party in managing the resulting landscape treatments.
- Can ARTC ensure that impact on the open space of Georges River Parkland is minimised and that sustainable native landscaping is used to beautify the parkland?
- Where property acquisition of Liverpool Council's open space is unavoidable, Council seeks assurances that batter and retaining treatments will align with the nature, form and use of any impacted parks and with Council's vision for the Georges River Corridor.

Response:

The fig tree referred to is not listed on either the Bankstown City Council LEP heritage schedule or on the NSW State Heritage Register. The visual assessment undertaken as part of the precinct assessment in Chapter 21 of Volume 1 of the Environmental Assessment recognises the contribution the fig trees make to the visual and landscape character of Sefton Railway Station. The fig tree located adjacent to the footbridge would need to be removed. This high visual impact is unavoidable as the extended footbridge and stairs, which would provide the new access to the station, would affect either the canopy or root zone of the trees, depending on which way the stairs face. ARTC will engage an arborist to advise on the feasibility of relocating the fig elsewhere in Wellington Street, depending on health of the tree, likelihood of survival following relocation and cost (Refer to Cl96(f) in the Statement of Commitments in Appendix D) If the fig tree can not be relocated it would, following completion of construction in the area, be replaced with two new fig trees of the same species.

The rail corridor at Sefton Railway Station needs to be widened by about two metres to accommodate the proposed SSFL. The existing trees located within the rail corridor (near the footbridge) would need to be removed. The precinct plan for this station proposes additional street tree landscaping to mitigate the loss of these existing trees.

The proposed approach for landscape treatments along the SSFL corridor is detailed in Section 6.3.4 of Volume 2, Technical Papers of the Environmental Assessment. As indicated in Section 4.5 of the Environmental Assessment, the landscape treatments prescribe a broad-scale approach and require a more detailed landscape planning and design at the detailed design stage, which will include consultation with the relevant local councils and the Community Liaison Group (see Cl89 in the Statement of Commitments in Appendix D of this report) Treatments would generally be applied to the rail corridor and adjacent reserve areas, including cut slopes and fill embankments. However, in a number of areas, the landscaping treatments would be extended to link with Indigenous vegetation communities and open space corridors. Landscaping treatments would be used in conjunction with noise barriers (where the corridor width and track formation allows) to provide appropriate screening to improve aesthetics along the railway corridor. Screening trees would be provided in appropriate locations to reduce visual impacts of the proposed SSFL.

Four landscape treatment categories are proposed to mitigate the visual impacts of the proposed SSFL, these include:

- Woodland/forest (Cumberland Plain Woodland)
- Rural woodland (Cumberland Plain Woodland)
- Riparian forest (Sydney Coastal River Flat Forest)
- Cultural planting.

The urban design and landscape plans would be developed in consultation with key stakeholders (including RailCorp) in order to ensure the plans are consistent with existing corridor plans. (see Cl89 in the Statement of Commitments in Appendix D of this report)

As suggested, consideration will be given to the extension of landscaping/revegetation of the embankment adjoining Lighthorse Park to include areas adjacent to Riverpark Drive in a southerly direction so that it includes the entire embankment strip adjacent to Riverpark Drive. This landscaping would be extended to include the degraded road access area at the bottom of the embankment and around the pylons beneath the Newbridge Road river overpass. The construction of the proposed SSFL to the back of the Liverpool Railway Station on the top of the embankment would require future landscaping plans to include revegetation of this embankment. (see Cl97 in the Statement of Commitments in Appendix D of this report

Within Throsby and Leacock Regional Park, the concept strategy for landscape design, as outlined in the Environmental Assessment, includes restoration of areas disturbed by the Glenfield flyover construction works using Indigenous vegetation plantings; restoration of the sand mining area adjacent to the northern approach to the flyover, with Indigenous vegetation; and consultation with the Department of Environment and Conservation and Liverpool City Council in developing the landscaping strategy. In particular, the detailed design of the southern ramp embankment would focus on complementing existing vegetation and establishing a screen to train operations.

The concerns relating to visual and landscape impacts to Leacock Regional Park and of the Glenfield flyover encroaching into a water body have been noted. Refinement of the Glenfield flyover concept design and further visual and landscape assessment have been undertaken and is provided in Chapter 5 of this report.

With regard to the further detailed landscape design for the Casula Regional Arts Centre and Casula station precinct, liaison would be undertaken with Liverpool City Council to provide appropriate visual screening (e.g. a line of cultural plantings combined with noise barrier). Responsibility for landscape maintenance would be determined during this liaison period as some landscaping would be located on either rail corridor land or on Council owned parkland.

As indicated in Section 4.5 of Volume 1 of the Environmental Assessment, liaison would be undertaken with Council to provide appropriate formal hard and soft landscaping (including batter and retaining walls) for all affected open space/parkland areas within the Liverpool LGA. The issue of asset plans and allocation of responsibilities would be discussed and confirmed during this liaison. Where areas of Georges River Parkland would be affected, restoration would be undertaken, following construction, using Indigenous vegetation plantings including riparian and aquatic (shallows) vegetation plantings where appropriate. Between Casula to Liverpool, where construction of the proposed SSFL involves embankment widening along the riverfront open space/parkland areas, the nature, form and future use of any impacted parks would be considered in the detailed design of the batter slope and/or retaining structures. An objective of the detailed design is to minimise the impact on the open space/parkland areas of the Georges River corridor. (see Cl89(e) in the Statement of Commitments in Appendix D of this report

As indicated in the Environmental Assessment, the design objective for the Casula to Warwick Farm area is to 'reinstate/restore the affected areas of natural bushland and riverbank ecology along the rail corridor and to reduce impacts on affected residential areas.' In addition to this objective, the detailed design would minimise the impact on the open space/parkland areas of the Georges River corridor, which is consistent with Council's vision.

Other

Respondents to the Environmental Assessment raised the following issues in submissions 23, 61, 78:

- A structure built over the rail interface at Cabramatta would unify East and West Cabramatta as it would lend itself to aesthetic treatment reflecting community aspirations.
- What will be the visual impact of plant, equipment and personnel and the temporary storage of these at specific sites on the corridor?
- An underground alignment requiring a ventilation shaft in front of the Star Dust Hotel is unacceptable as it would be visually unattractive.

Response:

ARTC is not proposing to replace Cabramatta Railway Station or construct a concourse over the current station. The impacts to the station caused by the proposed SSFL would be addressed with the provision of replacement station facilities as outlined in Section 6.6 of Volume 1 of the Environmental Assessment. The proposed facilities include an extended footbridge across the SSFL (with new stairs and one new lift with extra depth to accommodate multiple users with prams, shopping trolleys and bicycles), relocated ticket office to concourse level, and a canopy over the bridge and stairs to comply with easy access standards.

Visual impacts during construction would be minimised as much as practicable by further assessing the two main construction compounds (Sefton and Glenfield) and each work site location at the detailed design stage when specific size and equipment storage requirements, work schedules and construction force are known. Work sites are mainly required for the proposed works at affected stations and for the bridges (new and lengthened road, rail and foot bridges). Appropriate locations would be selected in consultation with the affected community. Greater visual impact would be associated with the construction compound located at Sefton due to the surrounding urban area (as opposed to Glenfield). However, the preferred location of the compound in the Sefton Triangle would avoid impacts caused by a residence sharing a common boundary. It is important to note that the visual impacts resulting from the construction phase of the project would be temporary and the land returned to the condition prior to the compound or work site being established.

The underground alignment of the SSFL at Cabramatta Railway Station considered in Section 3.5.5 of Volume 1 of the Environmental Assessment was not selected as the preferred design alternative for the proposed concept design in this area. This decision was based on consideration of the modified assessment criteria for Cabramatta (see Section 3.5.5 of the Environmental Assessment). Justification for selection of the surface alignment as the preferred option, included consideration of the potential adverse visual impact of the 12 metre high ventilation shaft on Broomfield Street, that would have been required for the underground alternative.

4.3.6 Air quality

General

Respondents to the Environmental Assessment raised the following issues in submissions 8, 15, 23, 25, 58, 72, 80, 81, 87:

- The proposal will result in increased air (including diesel) pollution and dust in the local area and the region.
- The cumulative impact of development in southern Sydney would diminish air quality.
- As a result of the SSFL, there would be an increase in greenhouse gas emissions.

Response:

Changes in air quality as a result of the proposal are discussed in Section 13.2.4 of Volume 1 of the Environmental Assessment. As stated in the Environmental Assessment, the predicted levels of key pollutants carbon monoxide, sulphur dioxide and particulate concentrations would all remain well within air quality goals, even in proximity to the freight line at commencement of operations in 2008 and in 2018.

The cumulative impact of development within southern Sydney is likely to result in marginally diminished air quality, however the SSFL's contribution to this cumulative impact is small, and in terms of regional air quality is likely to contribute to an improvement given the projected modal shift from road to rail freight transport.

The proposed SSFL is expected to result in a long-term reduction in greenhouse gas emissions as a result of fuel savings from the modal shift of freight from road to rail. The estimate of greenhouse gas (carbon dioxide emissions) savings at the commencement of SSFL operations in 2008 is 12 to 13 tonnes and in 2018 is 235 to 245 tonnes. This reduction would have regional air quality benefits.

There would be an increase in greenhouse gas emissions during the construction phase of the proposal in the form of carbon dioxide emitted by road vehicles and trains transporting and removing materials from the site and operation of site plant and machinery. The emission of greenhouse gases during construction would be managed and minimised during construction through the implementation of the energy and resource saving measures detailed in Section 15.2 of the Environmental Assessment and would be offset by the reductions in regional greenhouse gas emissions expected from the operation of the SSFL.

Management and monitoring

Respondents to the Environmental Assessment raised the following issues in submissions 59, 61, 62, 79:

- Improvements should be made to rolling stock to help manage air emissions.
- ARTC should prepare a Dust Management Plan to manage impacts during construction; this should be incorporated into the Construction Environmental Management Plan.
- ARTC should prepare an Air Quality Management Plan to manage operational air quality. It should be signed off by DEC and address management of NO2 emissions.
- ARTC should undertake further and more extensive monitoring of background air pollution levels, at different times of year to underwrite valid air quality projections.
- Air quality monitoring results should be required to be published on the ARTC website on an annual basis.

Response:

The proposal would contribute to a large shift of freight tonnage from road to rail across the eastern seaboard, and in doing so will significantly reduce consumption of fuel for freight transport purposes. This will ultimately translate to reduced diesel emissions arising from the combustion of diesel fuel. As detailed in Section 15.2.3 of Volume 1 of the Environmental Assessment, the estimated annual reduction in fuel consumption arising from the SSFL would be between 4,074 to 4,258 litres in 2008 and 78,334 to 81,782 litres in 2018.

Dust would be generated during the construction phase of the proposal. As detailed in Section 13.3.4 of the Environmental Assessment, dust suppression would be implemented during all construction work to minimise impacts throughout the local air shed. The implementation of effective management practices would minimise the potential for impact. In addition, a Dust Management Plan would be developed by the construction contractor and included in the Construction Environmental Management Plan for the project.

ARTC has no legislative responsibility or authority to enforce any non-compliance that is identified from an ongoing air quality monitoring program for nitrogen oxide, and therefore such a program is not proposed to be undertaken.

As detailed in Section 13.3.4 of the Environmental Assessment an operational Air Quality Management Plan is to be prepared for the SSFL project. This plan will outline management measures for use in minimising air quality impacts of managing its rail maintenance activities. As stated above we have no legislative authority to control emissions. The Air Quality Management Plan would be signed off by the Department of Environment and Conservation prior to operation of the SSFL.

Impacts and management of Nitrogen Oxide

Respondents to the Environmental Assessment raised the following issues in submissions 62, 73, 81:

- ARTC should identify the number and type of properties in Bankstown within 50 metres of the corridor which will experience exceedances of the NO2 emission criteria.
- Council requires additional information regarding the long and short term effects of NO2 exposure and consideration of these with regard to the existing and future population along the corridor.
- Bankstown Council would like a more convincing proposal to manage the impacts of NO2 exceedances.
- Council requests confirmation from DEC that all relevant pollutants have been assessed, that the emission criteria used in the Environmental Assessment are correct and that the PM 2.5 level criteria are only advisory (as ARTC decided not to assess PM 2.5).
- The EPA should restrict the operating licence of ARTC to prohibit the use of diesel locomotives for freight haulage in the Sydney metropolitan area.

Response

With respect to nitrogen oxide compliance was predicted with the annual average nitrogen oxide goal of 62 µg/m3 at 50 metres from the SSFL under 2008 conditions, but was exceeded for 2018 conditions. A separation distance of 400 metres was required under 2018 conditions to achieve compliance with the annual average of 62 µg/m3 (a nitrogen oxide level of 59.2 µg/m3 was calculated). However, as the Environmental Assessment states, the modelled increase in annual nitrogen oxide between 2008 and 2018 of 26 µg/m3 in 2018 is considered marginal given the conservative nature of the qualitative assessment, including adopted emission rates, forecast train movements, approach to modelling and the predicted conversion of nitrogen oxide levels. Also, it is expected that future improvements in emission controls for diesel locomotives may reduce the actual impact significantly. It is noted that the air quality assessment was based on the total forecast growth in freight rail traffic for the North-South strategy and two-thirds of this growth will occur in any case.

The concerns regarding the marginal exceedance of nitrogen oxide during the operations of the SSFL have been noted. ARTC are willing to commit to further detailed air quality assessment during the detailed design stage, which would include identification of site specific input parameters and re-running of the air quality model to identify any potential residual receivers (see Cl59 in the Statement of Commitments in Appendix D of this report). In addition, ARTC have already committed to working with the rail operators and the Department of Environment and Conservation as the licensing authority to minimise nitrogen oxide locomotive emissions as much as possible.

The proposal has been fully assessed (in terms of all environmental, social and economic impacts) in accordance with the Department of Planning's Environmental Assessment Requirements issued for the project. The proposed use of diesel locomotives forms part of the proposal (as the SSFL is not to be electrified and no stabling or marshalling yard is proposed) and the Environmental Assessment has concluded that notwithstanding the localised marginal exceedance of the nitrogen oxide goal by 2018, there would be regional air quality improvements based on the modal shift of freight from road to rail. The suggested restriction of the ARTC operating licence to prohibit diesel locomotives would represent a significant impediment to the viability of the freight rail haulage and an unreasonable restriction to the rail operators who do not form part of this proposal.

As outlined in Section 13.3.4 of Volume 1 of the Environmental Assessment, the proposed approach to addressing locomotive air quality impacts would be through state-wide or Australian-wide strategies driven by the licencing authorities that lead to progressive reduction of vehicle air emission standards (which would force continual improvements to rolling stock).

Regarding Council's request for confirmation from the Department of Environment and Conservation that all relevant pollutants have been assessed, that the emission criteria used in the Environmental Assessment are correct and that the PM 2.5 level criteria are only advisory (as ARTC decided not to assess PM 2.5), the responsibility for these issues lies with the Department of Environment and Conservation, and not ARTC. It should be noted that in the submission from the Department of Environment and Conservation that this issue was not raised.

4.3.7 Social amenity

Local character

Respondents to the Environmental Assessment raised the following issues in submissions 8, 10, 61, 83:

- The ambience of Casula Arts Centre, Leacock Regional Park and former golf course will be gradually lost as operations on the SSFL increase.
- The Friends of the Casula Powerhouse Arts Centre are concerned that the SSFL will have an adverse effect on the operation of the Arts Centre.
- The cumulative impact of development within southern Sydney would reduce amenity within the region and alter the local/regional character.

Response

Further visual and landscape assessment has been undertaken for the Glenfield flyover at Leacock Regional Park. The results of this assessment are provided in Chapter 5 of this report.

The proposed landscape treatment and noise barrier is complimentary to the redevelopment of the Casula Regional Arts Centre. The proposed approach for landscape treatments along the SSFL corridor is detailed in Section 6.3.4 of Volume 2, Technical Papers of the Environmental Assessment. As indicated in Section 4.5 Volume 1 of the Environmental Assessment, the landscape treatments prescribe a broad-scale approach and require a more detailed landscape planning and design at the detailed design stage, which will include consultation with the relevant local councils and the affected community. In addition, specific precinct based visual and landscape management measures are proposed in Section 18.6.2 of Volume 1 of the Environmental Assessment.

Specific operational noise criteria (Section 4.2 of Volume 2, Technical Paper 2) were applied at the Casula Regional Arts Centre theatre and art gallery. As Table 11.6 Volume 1 shows, the proposed noise barriers would significantly reduce noise levels to below the relevant criteria at most locations where they are proposed, including at the Casula Regional Arts Centre.

There may be some changes to local character as a result of the SSFL project in relation to embankments and permanent noise barriers. The Glenfield flyover would significantly change the visual character at this location. However, the environmental amenity of areas adjacent to the railway corridor is already shaped by the existing rail infrastructure and train movements along the rail network. In many instances, local environmental amenity would generally be improved for residents and other sensitive receivers that adjoin the corridor, as noise barriers are proposed along approximately 7.5 kilometres of the route. These barriers would improve the existing acoustic environment as there will be less noise from the corridor generally than currently is the case. In addition it is possible to avoid longer term minor impacts to air quality from freight trains with the management strategies outlined above.

Community values and economy

Respondents to the Environmental Assessment raised the following issues in submissions 52, 54, 60, 61, 66, 69, 70, 77, 78, 85:

- The majority of the Asian based community oppose the line as it will disrupt business in a community based suburb and will also disrupt the hundreds of school children who pass through the station on a daily basis.
- Cabramatta needs investment for redevelopment and growth. Should the SSFL proceed in its current form, it will be sending the wrong signal to investors and further isolate it from the mainstream. There is concern that the SSFL will affect Cabramatta as a tourist destination.
- The SSFL and associated noise barriers will form not only a visual but also psychological barriers further hampering East Cabramatta's commercial viability, and encouraging a return of the drug and criminal culture that was once synonymous with Cabramatta. The proposed alignment of the SSFL will divide east and west Cabramatta.
- Liverpool Council has concerns that the value to the community may be limited by the severity of social and environmental impacts unless the issues raised in Council's submission are successfully ameliorated, the project has the potential to significantly inhibit the growth and development of Liverpool and Fairfield.

Response

As discussed in Section 13.2.5 of Volume 1 of the Environmental Assessment, the proposed SSFL would not worsen the existing severance of communities during its operation as it would follow the existing RailCorp rail corridor. The proposal does not involve the creation of a new rail infrastructure corridor through established communities. The proposal would not close any existing public crossings along the existing corridor. All existing crossings would remain open to the public including vehicle and pedestrian crossings, although during construction temporary partial or full closures would be required. The frequency of use of the Cabramatta Railway Station footbridge would be considered in the development of the detailed construction staging plan for these works and the supporting consultation and stakeholder plan.

The Cabramatta Railway Station precinct was the focus of urban design, traffic planning and transport interchange planning to ensure stakeholder's concerns were identified early in the process and that pedestrian access across the corridor was provided to a similar standard to that which currently exists. The proposal will not contribute to the social divide within Cabramatta, as streetscape improvement works are proposed on both side of Broomfield Street to improve the civic amenity and streetscape (see Section 6.6 of Volume 1 of the Environmental Assessment).

The proposed noise barriers have a visual impact on the environment in which they are placed as discussed in Section 13.2.3 of Volume 1 of the Environmental Assessment. In some localities the proposed noise barriers could create a visual barrier, and as already committed in the Environmental Assessment, design treatment for the proposed noise barriers (in consultation with directly affected residences) would be developed at the detailed design stage.

It is unlikely that the SSFL would discourage investors or businesses from operating in Cabramatta as it will not alter the essential character of the rail corridor or town centre. However, the construction along Broomfield Street is recognised as a potential impact, although temporary in nature. The proposed streetscape works to Broomfield Street should improve the civic amenity and attractiveness of the east side of Cabramatta and therefore contribute to the amenity of the town centre.

As the proposal would form part of the existing RailCorp rail corridor it is unlikely to change perceptions of Cabramatta as a tourist destination (or as a viable economy). The proposal would lead to a number of significant regional, state and national economic benefits through improvements in the competitiveness of rail freight along the North–South Corridor (Brisbane-Melbourne). Improvements of this nature would collectively benefit the NSW and national economies. There is unlikely to be any direct local economic benefit apart from construction employment opportunities; however the regional benefits would filter back down to local economies.

Consultation would play a vital role in the construction and operational phases of the SSFL to mitigate social impacts. Information would be provided regularly to community members and stakeholders during the construction phase to ensure people are adequately informed of potential changes or impacts.

Design issues

Respondents to the Environmental Assessment raised the following issues in submissions 22, 60, 78:

- Liverpool Council requests that the design of the viaducts under the rail formation include a focus on 'safer by design' principles through the use of lighting, pathways, removal of screening plantings etc.
- In an attempt to minimise the social impact of the proposed embankment on Georges River Parklands Liverpool Council does not wish a man-proof fence to be constructed along the toe of the fill batter. The batter itself needs to be seen as an extension of the parklands. The interests of RailCorp could be addressed by suitable fencing at the top of the embankment to prevent access to the railway.

- The proposed soil wall at the Jacquie Osmond Softball Centre and Warwick Farm Recreation Reserve and the noise barrier at Hartley Oval in Canley Vale will increase the physical isolation of these areas and reduce passive surveillance thereby reducing the perception of safety in the parks.
- Lighthorse Park is an important component of Liverpool's future development. However, this area will be alienated due to the acquisition of 25 metres of the park for the SSFL. The practical impact of this is even greater because beyond these 25 metres, the land will slope away. A proper review should be undertaken to assess whether this land alienation can be minimised.

Response

'Safer by design' principles will be adopted in the detailed design of landscape treatments along the corridor. During the detailed design stage, ARTC will also liaise with Liverpool Council with regarding the design of proposed structures along the SSFL route adjoining the Georges River parkland from Casula to Liverpool. Consideration will also be given to the placement of the corridor fence at the top of the batter slope in order to improve the visual interface between parkland and the railway corridor. (see Cl89 in the Statement of Commitments in Appendix D of this report)

As discussed in Section 4.5.2 of Volume 1 of the Environmental Assessment, a portion of land less than 25 metres at the widest point (with average of between 10–20 metres), to provide for the future upgrading of the stabling yard, would be required along the western boundary of the park as far south as Riverpark Drive. The Liverpool City Council has prepared a Master Plan and Plan of Management for the riverfront parkland (Liverpool City Council, 2002). The key impact of the proposal is the extension of the rail corridor formation/earthworks batters onto the parks landform. The proposed landscape concept plan of the Lighthorse Park interface provides for a smooth landscaped transition between the batter slope and the park area to visually unite these elements around a new pedestrian access to the Newbridge stairs. The concept will be further refined during the detailed design stage in conjunction with Liverpool City Council.

The final design of the noise barriers has not been decided. Noise barriers require careful design to mitigate their visual impact and affects on social amenity. The proposed design principles for these structures are detailed in Table 3.2 (page 3.4 and 3.5 of Volume 1 of the Environmental Assessment) and would be developed in more detail during the detailed design stage to minimise visual and urban design impacts as much as possible. This would also involve consultation with relevant stakeholders, including directly affected residents, regarding the application of the design principles in each locality.

Living standards

Respondents to the Environmental Assessment raised the following issues in submissions 8, 38, 41, 78:

- The outcomes of the SSFL will encourage residents who can afford to move away from the railway stations to do so, creating a residential retreat from stations along the SSFL, particularly from Cabramatta CBD, parts of East Cabramatta and Villawood. If railway stations along the freight line become areas of mostly run down or inexpensive housing, they will become no-go areas. This will reinforce the flight from stations and rail passenger services. This would be a serious and negative outcome from Council's point of view as well as being a significant waste of the resource represented in the presence of each railway station.

- The SSFL will reduce living standards for residents adjacent to the line.
- The noise and fumes from freight trains will affect the enjoyment of terraces and balconies (an essential part of our outdoor lifestyle given our climate).
- Of particular concern is the long term impact of social exclusion of children. Socially excluded children face long term disadvantage and propensity to crime. In addition, to the extent that social exclusion is transmitted intergenerationally, social exclusion of children may create even deeper divisions within society that amplify across generations.

Response

Proposed improvements to freight and passenger transport infrastructure within southern Sydney would lead to cumulative, improved regional access. The SSFL would improve passenger rail reliability by separating freight from passenger services. The SSFL would be expected to assist in reducing road-based freight movements, and in turn, improve amenity and public safety on a national basis.

The preferred route of the SSFL, (i.e. the existing Main South Line railway corridor) was selected as it had the least environmental, social and economic impacts. Using the existing railway corridor (which has been established for many years as one of Sydney's passenger and freight rail lines serving south and south-western Sydney, regional New South Wales and Melbourne) would have less social, environmental and economic impact than creating a new corridor.

The proposal would not significantly alter the nature of the rail corridor or its impacts to the community. The proposed environmental management strategies (including reduced noise levels from much of the corridor) would minimise the potential for indirect social consequences that changes in amenity might give rise to (for instance social disadvantage and socio-economic decline).

Noise and vibration and air quality issues have been responded to in Sections 4.2 and 4.3.7 of this report respectively.

4.3.8 Social equity

Impact on disadvantaged communities/individuals

Respondents to the Environmental Assessment raised the following issues in submissions 23, 40, 41, 61, 78:

- There is a very real concern that the residents of the public housing estates and other low income housing will experience severance, polarisation and exclusion from their local facilities and services. Particularly as the pedestrian over/under passes at Canley Vale, Cabramatta and Carramar are the most frequently used access points to community services and facilities.
- The SSFL will result in an increased risk of severance and social exclusion among already disadvantaged and vulnerable populations. This will particularly occur at Broomfield Street on either side of Cabramatta station and at Lansdowne Road; at Canley Vale where the proposed noise barriers will isolate houses along Fraser Road and at the approach to Hartley Oval; at Wattle Street, Carramar; and at Carramar station.

- Further assessment of the important issues of community severance, loss of amenity, changes to the road, cycleway and bus networks, accessibility, parking and noise impacts should be undertaken prior to consent being granted (particularly with regard to Cabramatta town centre and residential areas).
- The resident feels that Cabramatta is being discriminated against because it is classed as a working class community. The proposed SSFL will re-create the social divide between east and west Cabramatta that the community has been working to overcome over the last two years.
- Resident objects to the proposed SSFL because it would destroy Cabramatta and would cause unnecessary stress and anxiety for senior citizens, those with low levels of education or poor English skills.
- Many residents of the Casula/Liverpool Links Estate do not have the ability or capacity to make a submission even though they hold strong opinions on the proposal.
- The SSFL proposal represents an increased risk of psychological distress among disadvantaged residents who are unable to avoid construction and operation impacts. For example, should dwellings close to construction/operation activities be provided with air conditioning, most will be unable to afford the running costs.
- The Environmental Assessment needs to acknowledge that relocation options available to residents in public and low income housing are limited. No allowance has been made for the consequences of the development on residents who will be most affected by construction impacts.

Response:

As discussed in Section 13.2.5 of Volume 1 of the Environmental Assessment, the proposed SSFL would not lead to severance of communities during its operation as it would be part of the existing RailCorp rail corridor and does not involve the creation of a new rail infrastructure corridor through established communities. The proposal would not close any existing public crossings serving communities along the existing corridor. All existing crossings would remain open to the public including vehicle and pedestrian crossings, although during construction temporary partial or full closures would be required. The frequency of use of the over/under passes at Canley Vale, Cabramatta and Carramar would be considered in the development of the detailed construction staging plan for these works and the supporting consultation and stakeholder plan.

Available land within the existing rail corridor is proposed to be used for the SSFL, along with public and private acquisition of land adjacent to the corridor where the corridor width is inadequate.

The proposed SSFL would not inhibit the community's access to local facilities and services. The public crossings over/under the rail corridor during the operation of the SSFL would be lengthened or modified, but retain existing capacity.

The Environmental Assessment has included a full assessment of traffic, transport and access, noise and vibration, visual and landscape issues in accordance with the Environmental Assessment Requirements issued by the Department of Planning. The Cabramatta Town Centre has also been fully assessed in terms of the Cabramatta Railway Station precinct assessment outlined in Chapter 20 of Volume 1.

In Cabramatta, the proposed station precinct works would contribute to reducing the existing severance by opening up of views from east Cabramatta to the west where the toilet and ticket building are currently located (these buildings need to be demolished to make way for the proposed SSFL and therefore remove a visual barrier from the streetscape). The proposal would not therefore sever the Cabramatta community.

The proposed noise barriers have a visual impact on the environment in which they are placed as discussed in Section 13.2.3 of Volume 1 of the Environmental Assessment. In some localities the proposed noise barriers could create a visual barrier, and as already committed in the Environmental Assessment, further detailed assessment of proposed noise barriers (in consultation with directly affected residences) would occur at the detailed design stage.

As discussed in Section 20.2 of Volume 1 of the Environmental Assessment, Cabramatta Railway Station is a focal point of the town centre, but it also separates the centre into an east and west side. This has been the case since the town centre was first constructed around the station. The high level of community concern regarding the potential for the proposed SSFL to further affect connectivity between the two sides of the town centre was recognised as an important issue in the precinct planning process.

The Cabramatta Railway Station precinct was the focus of urban design, and transport interchange planning to ensure that pedestrian access across the corridor would be of a similar standard to that which currently exists. The proposed streetscape improvement works on Broomfield Street would improve the civic amenity and streetscape (see Section 6.6 of Volume of the Environmental Assessment) of the east side, ensuring the proposal does not contribute to perceptions of a social divide between the two sides of Cabramatta.

The construction of the SSFL would cause noticeable noise, dust, traffic and other amenity related impacts to local residents along the corridor. These have been assessed in the Environmental Assessment (see Part C of Volume 1 of the Environmental Assessment) and environmental management measures proposed. The Environmental Assessment anticipates that construction related impacts (e.g. from construction noise or traffic) would be managed so that temporary relocation of residents would not be required.

Community and commuter consultation regarding the proposed SSFL has been undertaken throughout the planning and assessment stage of the project. Consultation with the community and commuters would continue to be undertaken prior to and throughout the construction phase of the project. Consultation would play an important role in the preparation and implementation of the construction phase environmental management plans, as already committed by the ARTC in the statement of commitments.

In order to properly identify and address this issue, a particular focus was placed on the Cabramatta Railway precinct during community consultation activities for the project. In particular, consultation activities were tailored specifically for the needs of the large Vietnamese communities living and working in the area. In addition, prior to and throughout the construction phase of the project, consultation would continue to be undertaken with businesses, community and commuters in the Cabramatta station precinct area using foreign language consultation material and translators.

Disproportionate social impacts

Respondents to the Environmental Assessment raised the following issues in submissions 10, 40, 49, 51, 78, 81, 87:

- While it is agreed that every community needs to bear some of the burdens demanded by the economy as a whole, it is important to ensure that such burdens are not distributed disproportionately.
- Residents of the Casula/Liverpool Links Estate feel that they are once again being treated as second rate citizens.
- It appears that the Environmental Assessment provides ARTC with a reduced overall cost in an attempt to make the rail system more profitable at the expense of local residents.
- There needs to be a balance between the objectives of the proposed project and amenity. There are certain matters that affect this balance. The following areas will be impacted:
  - Wellington Road, Birrong – impact on residential areas
  - Wellington Road, Sefton – residential areas
  - Waldron Road Chester Hill – residential impact
  - Sefton commercial centre
  - Sefton Station
  - Chester Hill Station
  - Chester Hill commercial centre
  - Sefton commercial area at Helen Street
  - Residential areas at Morris Street Dana Parade, Hope Street, Maude Street Regents Park
  - Community uses along Waldron Road – child care centre, Chester Hill Neighbourhood Centre, guides hall and fire station
  - East of Chester Hill station – residential development which adjoins the proposed site for the freight line
  - Chester Hill High School
  - Birrong Boys and Girls High Schools
  - Some homes on Cooper Road near Birrong Girls High
  - Hector Street – where residential
  - Residential to Woods Road from Sefton Station including along Wellington Road to Auburn Road to Tewinga Street.

Response

Four corridor alternatives for the proposed SSFL have been assessed in Section 2.6.2 of Volume 1 of the Environmental Assessment and evaluated using a multi-criteria analysis methodology. Cost was one of the criteria used in the analysis (considering capital and maintenance costs), together with three other criteria (being operational, environmental and economic impacts). This provided a balanced analysis of the four corridor options.

The social impacts of the proposed SSFL have been assessed in Chapter 13 of Volume 1 of the Environmental Assessment. The social impacts correlate to residents and communities along the rail corridor, given that the rail corridor is the preferred route for the proposed SSFL. Using the existing railway corridor (which has been established for many years as one of Sydney's primary rail links serving south and south-western Sydney, regional New South Wales and Melbourne) would have less social, environmental and economic impact than creating a new corridor. It is very unlikely that the residual amenity impacts of the proposal would be significant enough to give rise to indirect social consequences such as socio-economic decline or disadvantage.

The local impacts of the proposed SSFL have been considered with the broader impacts in the cumulative and strategic impact assessment described in Chapter 22 of Volume 1 of the Environmental Assessment.

Urban renewal

Respondents to the Environmental Assessment raised the following issues in submissions 61 and 78:

- Since 1986 a number of Fairfield's suburbs along the railway line have been experiencing a loss of population. This loss of population from areas targeted for urban consolidation is a matter for considerable concern. These suburbs are among the most socially and economically disadvantaged in western Sydney. Potential areas such as Villawood, Carramar and Canley Vale are ready for urban renewal, given their proximity to public transport nodes. However the SSFL will result in serious detriment to these already vulnerable communities and would constrain the future opportunities for growth and redevelopment of these suburbs.
- High levels of freight transport along the proposed track will require large, unsightly and frequently ineffective noise mitigation strategies, which will directly hinder Council's efforts to revitalise town centres and encourage urban renewal in communities along the track.

Response

The proposed SSFL is not considered to be a serious detriment to any future urban renewal of Villawood, Carramar and Canley Vale. Urban renewal plans would have had to consider and mitigate the noise impact of the existing rail corridor; this constraint would apply with or without the proposal. The proposed works in the Sefton Railway Station precinct (including new footpath and landscape treatments to define the precinct character) could contribute to amenity and encourage investment in urban development. The exact type and/or combination of noise barrier and treatments would be determined at the detailed design stage in consultation with the directly affected residences in these communities. The ARTC would liaise further with each Council and other relevant state agencies (e.g. RailCorp) prior to construction to confirm what other works could be co-ordinated by ARTC during the construction of the SSFL.

Other

Respondents to the Environmental Assessment raised the following issues in submissions 10, 20, 54, 61, 78, 81:

- The impact of construction of the SSFL and associated disruption to local business and suppliers may lead to job losses and a reduction in local employment opportunities.
- It is essential that the SSFL is delivered to the community in the most effective way possible. The design, construction and operation of the railway must avoid negative environmental and social impacts. The residents of the communities along the corridor have a right to expect that the freight line will deliver its macro benefits without unreasonable or unacceptable local downsides.
- Overall there is nothing positive for the residents of Casula living along the rail corridor. They will be subject to probable loss of cycleway connection between planned riverside cycleway and Leacock Park cycleway and greater noise frequency and volume (especially the Leacock Park area).
- There is concern that acquisition of public land is actually taking something away from the community.
- The SSFL will harm future generations.
- There is a risk of adverse health impacts in the long term due to noise, diesel emissions, run-off and potential spillage. This will impact on a population that already suffers from a disadvantaged health profile.

Response

As discussed in Section 13.2.5 of Volume 1 of the Environmental Assessment, the construction of the proposal over two years would contribute to the local and regional economies. The ARTC would require the lead contractor/s to use, where it is possible and practical, the materials, skills and services of locally and regionally-based firms. Where possible and practical, smaller and local firms would be invited to bid competitively for work (e.g. landscaping, car parking and precinct streetscape works).

In general terms, growth and infrastructure development in southern Sydney would improve local, regional and national employment opportunities, and encourage further development and changes in land uses. The cumulative economic impacts of changes within southern Sydney are expected to be beneficial.

Amenity issues such as noise, visual and air quality impacts during construction and operation of the proposed SSFL would be mitigated through environmental responses as detailed in Chapter 11 and 13 of Volume 1 of the Environmental Assessment.

The appropriate sequencing of construction activities would be managed to ensure that impacts on the community are minimised, and replacement infrastructure is constructed prior to the demolition of existing infrastructure, allowing its continued operation with minimal impacts.

Consultation would also play a vital role in the construction and operational phases of the SSFL to mitigate social impacts. Information would be provided regularly to community members and stakeholders during the construction phase to ensure that all community members are adequately informed of potential changes or impacts. This information would provide an opportunity for the community to make arrangements (where preferred) in advance of construction impacts occurring.

As discussed in Section 13.2.5 of Volume 1 of the Environmental Assessment, cyclist access and circulation would not be substantially altered as a result of operation of the proposed SSFL. No public crossings would be closed as a part of the proposal and existing cyclist crossings would be retained and upgraded as required to cater for ongoing public use. The crossings would require upgrading to ensure that cyclists can continue to cross the rail corridor safely.

The opportunity to provide a cycleway through Leacock Regional Park and to connect it with the Georges River corridor has not been precluded by the proposed SSFL. The proposed cycleway connecting the Liverpool CBD to Lighthorse Park would need to be cantilevered from the proposed SSFL piled concrete slab structure on top of the Georges River bank north of the water. Further liaison with Liverpool City Council would occur at the detailed design stage to establish if any preparatory work could be undertaken by Council during the construction of the SSFL. Refer to Cl83 in the Statement of Commitments in Appendix D.

The concerns relating to visual and landscape impacts to Leacock Regional Park and of the Glenfield flyover encroaching into a water body have been noted. Refinement of the Glenfield flyover concept design and further visual and landscape assessment have been undertaken and is provided in Chapter 5 of this report.

In the long term, the proposed SSFL is expected to benefit south-west Sydney through reduced air pollution from motor vehicles, reduced congestion resulting from the shift of freight haulage from road to rail, improved amenity and interchange of railway stations as a result of associated upgrade works, and through an improved corridor appearance resulting from the proposed landscaping treatments along the rail corridor.

The proposal would not cause health impacts to neighbouring residences along the route given the findings of the noise and vibration and air quality assessments.

4.3.9 Land use, property and access

Access to open space areas in Liverpool LGA

Respondents to the Environmental Assessment raised the following issues in submissions 60, 61, 83:

- Council is extremely critical of any proposal that diminishes the availability of open space in Liverpool or impairs access to such open space for the residents of Liverpool.
- The present surface railway at Liverpool imposes a barrier to Lighthorse Park.
- The proposed SSFL bisects the Liverpool CBD and the Georges River; therefore the issue of connectivity needs to be explored across both the proposed line and along the Georges River.

- Council has attempted over a number of years to determine a solution whereby pedestrian access from Liverpool Station can be provided directly to Light Horse Park. This connectivity is seen as essential to returning Georges River to the residents of Liverpool. Council has developed access options and wishes to ensure that the construction of the SSFL will not prevent or prejudice such options from implementation. Council would like to meet with RailCorp/the State Government to develop a cost effective solution and a realistic timeline for this mutually beneficial initiative.
- The Friends of the Casula Powerhouse Arts Centre support Liverpool City Council's strategy in seeking suitable access to the Georges River Park land and the Casula Powerhouse Arts Centre through Shepherd Street. Can you confirm that the pocket of land (under M5 Bridge) critical to the proposed access road will be available?
- The Casula level crossing is indicated to remain under the current proposal with restricted access. It is considered that the restrictions are such that, in the interests of public safety, it is incumbent on the ARTC to provide an appropriate and suitable alternative vehicular access to the Georges River corridor and the Casula Powerhouse. Council's preferred option is for ARTC to deliver a suitable access road from Shepherd Street to the Casula Powerhouse.

Response:

As discussed in Section 4.5.2 of the Environmental Assessment, a strip of Lighthorse Park is to be acquired as part of the SSFL proposal in order to accommodate the construction of both the SSFL and the proposed Rail Clearways Program works at Liverpool Railway Station/stabling yard. The proposed SSFL alignment would pass under Newbridge Road where the existing pedestrian pathway, ramp and stairs are located. The pathway, ramp and stairs would be relocated further to the east beyond the strip of Lighthorse Park that is proposed to be acquired.

Various design alternatives were considered for the relocation of the pathway, ramp and stairs including construction of batters at various gradients and a tiered embankment. A wide earth batter is preferred as it enables the construction of a gently sloping pathway (gradient 1:24) without handrails or landings and was therefore more accessible than other steeper options. The absence of a handrail also provides optimal access to, and visual integration with, the park. A wide, gently sloping, batter is more suitable for a park setting and also enables landscaping with large trees and low shrubs and groundcovers so as to provide both shade and natural surveillance. This is an optimal landscaping outcome in terms of Crime Prevention Through Environmental Design Principles.

The design of the relocated pathway is considered compatible with Liverpool City Council's (2002) Plan of Management for the future upgrade of Lighthorse Park because it would provide improved physical integration with the park. ARTC will consult Liverpool City Council during detailed design to determine the most desirable outcome for pedestrian access from Liverpool Station directly to Light Horse Park.

As discussed in Section 4.3.5 of Volume 1 of the Environmental Assessment, the existing vehicle level crossing at the southern end of Casula Railway Station provides access to the Casula Regional Arts Centre. The SSFL would create an additional track that must be crossed by vehicles using the crossing. The NSW Ministry of Transport is in discussions with Liverpool City Council regarding the proposed Casula Powerhouse Regional Arts Centre development and the provision of alternative road access (on the east side of the rail corridor) from Liverpool to the arts centre. RailCorp has agreed that in the event of its

closure, the crossing will revert to a locked gate emergency crossing for use by emergency services during times of bushfire and floods.

Access to business, residential and other areas

Respondents to the Environmental Assessment raised the following issues in submissions 6, 17, 58, 78, 81:

- Fairfield Council's preliminary findings indicate that there is potential for significant impact upon access for some residential areas in Bankstown.
- Residents on the south side of the railway line will be inconvenienced by road closures in Chester Hill, Regents Park and Villawood as they will effectively be cut off from local amenities and services such as shops, banks and the post office.
- Construction activities are likely to disrupt business and resident access to the station, buses and to venues close to the station, including social and cultural facilities, schools, businesses, retail outlets and at Cabramatta, to the CabraVale Leisure Centre.
- Access to Carramar station must be maintained at all times and residents in the area must be notified well in advance of any closures.
- Regarding the impacts of the proposal on Farrow Road and the adjacent privately owned properties, further discussions are required between (Campbelltown) Council, ARTC, RailCorp and the affected property owners to arrive at an overall agreement on access arrangements for the properties and to preserve Council's future options for connecting Farrow Road to Blaxland Road and/or Narellan Road.

Response:

Temporary access impacts would occur during construction. Due to the potential for cumulative effects from construction works occurring concurrently at multiple sites along the SSFL route, it is also proposed that higher order comprehensive Traffic Management Reports be completed for each of the three affected local government areas (namely Bankstown, Liverpool and Fairfield). These Traffic Management Reports would consider the following additional items:

- the timing and relationship between construction work sites along the proposed SSFL alignment
- the combined impact of all concurrent works within the Report's study area (e.g. Bankstown, Liverpool or Fairfield local government area) including traffic and transport diversions and spoil truck movements
- measures to ameliorate any combined impacts resulting from concurrent works.

As discussed in Section 10.4 of Volume 1 of the Environmental Assessment the proposed Traffic Management Plans would include relevant matters that are outlined in the Roads and Traffic Authority's *Procedures for use in the Preparation of a Traffic Management Plan* (2001) and the *Australian Standard 1742.3 – 2002 Manual of Uniform Traffic Control Devices, Part 3: Traffic Control Devices for Works on Roads*: The site specific Traffic Management Plans would be developed for complex construction traffic and transport arrangements during the construction of a number of road and rail bridges along the corridor.

In addition to the proposed Traffic Management Reports and Traffic Management Plans, it is also proposed that Traffic Control Plans be prepared for all works that would take place in the road or that would affect trafficable areas. This would occur at the six affected station precincts. Traffic Control Plans would be completed in accordance with the Roads and Traffic Authority's *Traffic Control at Work Sites* (2003) and the *Australian Standard 1742.3 – 2002 Manual of Uniform Traffic Control Devices, Part 3: Traffic Control Devices for Works on Roads.*

In addition, as discussed in Section 10.4.5, 10.4.5 a Communications Plan will be prepared to provide advanced warning of construction activities, to allow public transport operators, public transport users, road users, and businesses and residents in the locality to prepare for the alterations to journeys required during construction.

With regards to impacts of the proposal on properties at Farrow Road, Campbelltown, as discussed in Section 14.2.2 of the Environmental Assessment, there have been discussions with the land owners and Campbelltown City Council concerning a staged relocation of Farrow Road which will continue during the detailed design stage. Further investigations would focus on the continued efficient site operations of both properties.

Cyclist accessibility

Respondents to the Environmental Assessment raised the following issues in submissions 10, 60, 62, 78:

- Council believes that, in exchange for the loss of amenity that will result from the SSFL, ARTC should provide cyclist access across Sefton station.
- Works at Cabramatta station should cater for an increase in use and also provide for cyclist commuters to ride to the station and leave their bicycles in lockers.
- Liverpool City Council is planning a cycleway through the former Casula golf course as an important part of the strategy to allow the community to reconnect with Georges River. If the level crossing at Casula station is closed, there would be no way to connect the planned cycleway with the existing cycleway through Leacock Park, unless another crossing suitable for bicycles was created. A solution would be to create a pedestrian/cycle crossing under the Glenfield Creek railway bridge just south of the Powerhouse land. This solution may require the transfer of a small parcel of Department of Defence land.

Response:

The provision of upgraded facilities for cyclists at railway stations is outside the scope of this proposal, as it is the responsibility of RailCorp as the NSW commuter rail services provider.

Possible future cycleway connections across the Main South Line corridor through the former Casula Golf Course and Leacock Park will need to be negotiated between RailCorp and land owners.

The proposed cycleway using the Glenfield Creek Bridge is a potential solution when the Casula level crossing is ultimately closed although it is understood that the proposed cycleway is not a recognised cycle route.

Access to Liverpool Hospital

Respondents to the Environmental Assessment raised the following issues in submissions 34, 60, 61, 74:

- With regard to the Liverpool Hospital site, the provision of overhead pedestrian and vehicle crossing of the rail corridor will be necessary. The Sydney South West Area Health Service seeks a commitment to the funding of these crossings by ARTC and RailCorp.
- The level crossing within the grounds of Liverpool Hospital will need to be available for emergency access purposes after it has been closed to general pedestrian and vehicle traffic.
- Liverpool Council seeks assurance from the ARTC that provision of an alternative means of access across the rail formation at Liverpool Hospital will be included within the scope of this project. Council also seeks confirmation that the closure of the level crossing will be in place prior to commencement of rail freight train operations in 2008.
- Section 4.3.5 of the Environmental Assessment refers to the existing level crossing at Elizabeth Street. RailCorp believes it is important that the impacts of the increased dwell times are fully understood. With the SSFL in place, the level crossing will be closed for periods of between 30 and 50 minutes in the morning and afternoon peaks. When this is combined with the operation of the Liverpool Clearways Project (to be completed 2011) the level crossing is likely to be closed for the entire peak period.

Response:

As discussed in Section 4.3.5 of the Environmental Assessment, the Elizabeth Street level crossing that currently serves Liverpool Hospital is regularly used by pedestrians and vehicles accessing the hospital, including patients moving about within the hospital grounds. The Liverpool Hospital level crossing boom gates will operate at increased intervals and dwell times with the introduction of the freight train operations on the SSFL track.

All parties have agreed that the level crossing should close as soon as p[practicable as its operation already significantly constrains access between the two sides of the hospital. Crossing access will be further constrained by the SSFL and RailCorp clearways works at Liverpool which both lead to increased operation of the level crossing. However, the timing of the crossing closure is dependent on Liverpool Hospital finalising its future parking and internal access requirements (i.e. vehicular and pedestrian) as part of its Stage 2 upgrade plans and RailCorp, as corridor owner, agreeing to a particular grade separation design.

The planning and construction of alternative grade separation would need to occur within the time frame of the SSFL delivery or there would be a period following completion of the SSFL when the level crossing will need to operate as a three track crossing. A three track crossing can be designed safely but should only be a temporary measure as the crossing will provide increasing constrained access.

Property values

Respondents to the Environmental Assessment raised the following issues in submissions 14, 26, 36, 45, 78, 81, 87:

- Proposed noise barriers would have a negative impact on property values.
- Property values will drop when prospective buyers realise there will be a constant stream of freight trains day and night.
- Any drop in property values arising from the SSFL must be compensated by the ARTC.
- The impact of the proposal on property values is greater than the compensation allowed for by the compensation policy.
- Impacts on property value would occur due to loss of land, degradation of site appearance and loss of rental income.

Response:

The provision of noise barriers adjacent to properties adjoining the rail corridor is intended to mitigate the likely noise impacts of the proposal. The barriers would improve the acoustic amenity of residences within proximity to the Main South Line and are therefore unlikely to impact on property values.

Requests for compensation

Respondents to the Environmental Assessment raised the following issues in submissions 23, 45, 60, 61, 64, 66, 67, 68, 74, 78:

- If Liverpool Council were to undertake long-term maintenance responsibilities for landscape interfaces, then it would need to be remunerated for such undertakings.
- Council anticipates that landscape treatments would be provided at some sites with ultimate responsibility for maintenance ending with Council. This could cost Council $75,000 per annum (2006 prices).
- Council need to be provided with the appropriate funds or materials to support the community understanding of the project effects and ultimate results.
- The noise barriers required by the 'at grade' option will require an additional 151 street lights. This additional lighting will cost Council approximately $10,000 per annum (based on current costs) in electricity and maintenance costs.
- It is assumed that all retaining walls and noise barriers will become the property of State Rail. It is estimated that maintenance of these within the Fairfield LGA alone will cost in the order of $0.5M to $1.0M. Council is concerned that State Rail will not have the necessary funds to carry out essential maintenance works and that these assets will become dilapidated to the detriment of local amenity.
- Graffiti on noise barriers will contribute to the already high expenditure by Councils for the removal of graffiti.
- The recently finished Town Centre improvements at Chester Hill will have to be dug up. Compensation has not been mentioned. What will ARTC do to compensate for this?
- The Cabramatta Chamber of Commerce and Industry will support any businesses in Cabramatta in any application for compensation.

- Cabramatta's specialty shops will be affected by loss of local and tourist custom, especially during construction. ARTC needs to consider providing monetary compensation to business owners in Broomfield Street, noting that the zone will have little amenity for shoppers during construction.
- All assets and buildings adjacent to construction works should be subject to a dilapidation report (including footpaths, trees, walls, buildings, fences, bridges, culverts, headwalls, wingwalls, medians, lights etc) in order that all damage arising during construction activities is identified and that all damaged items are restored post-construction.

Response:

The responsibility for landscape maintenance would be determined during liaison with the relevant local council regarding the design of landscape treatments, as some landscaping would be located on either rail corridor land or on Council owned parkland.

As detailed in Schedule 4 of Appendix C of Volume 1 of the Environmental Assessment, ARTC will undertake ongoing community consultation throughout the design and construction phases of the project, as such there would be no requirement for Fairfield City Council to be remunerated for (or to produce) community information material relating to the project.

Opportunities to minimise the potential for graffiti and other forms of vandalism on structures associated with development of the SSFL will be explored in greater detail during the detailed design phase in consultation with RailCorp and local councils. Refer to Cl46(c)(iii) in the Statement of Commitments in Appendix D.

ARTC notes the concerns of the Cabramatta Chamber of Commerce and Industry and local business in the Cabramatta Station precinct. Section 6.6 of the Environmental Assessment describes the proposed works at the Cabramatta Station precinct. Any necessary works within the precinct will be temporary in nature, and are unlikely to incur long term impacts on local and tourism custom. As discussed in section 8.1 of the Environmental Assessment, ARTC commits to minimising potential impacts from the proposal during construction and operation.

Economic impacts

Respondents to the Environmental Assessment raised the following issues in submissions 52, 66, 67, 68, 78:

- The SSFL would cause a reconsideration of the current proposal to redevelop an investment property close to the rail line to a multi-storey apartment (due to the potential diminished return in investment resulting from the SSFL), such an outcome would deprive the local community of future prospects for growth and redevelopment.
- The proposed SSFL will only have a negative impact (on residential and commercial properties) and result in diminished returns of capital gain and income and thus deprive us of economic assets.
- SSFL's proximity and reduced access to shops in Cabramatta would be detrimental to business and may result in closure of some businesses.

Response:

Future development within proximity to the SSFL is unlikely to be affected in the long term as the Environmental Assessment identifies that the proposal would not significantly increase impacts from the Main South Line corridor.

Beyond temporary activities during construction, the SSFL proposal does not affect accessibility to property in Cabramatta.

Land acquisition

Respondents to the Environmental Assessment raised the following issues in submissions 36, 44, 57, 59, 60, 73:

- The proposal will result in the loss of potential real estate gains and potential increased rental income and profits that were expected to come about following the extension of Farrow Road into Blaxland Road.
- The proposal will likely result in relocation of commercial premises from the site in Farrow Road. This is unacceptable due to the costs involved, potential commercial losses, potential job losses for local staff and the impact upon the business's customer base.
- The proposed project will affect an access road and part of the frontage of a leased commercial property, which will result in loss of parking spaces for visitors and staff. This will cause loss of business, inconvenience and disruption to services. This may impact the long term lease of the property.
- Acquisition of a portion of property is not necessary as unused railways land in the area could be used instead. Compulsory acquisition of a portion of a property is unfair and unnecessary.
- No mention of the proposal was made at the time of property purchase (June 2002).
- The amount of parkland (Lighthorse Park) to be acquired, including the recently constructed pathway under the Newbridge Road crossing, needs to be minimised.
- Liverpool Council notes that the physical curvature of the rail alignment to enable the freight line to cross the main south line requires acquisition of approximately 1.3 hectares of Council owned open space reserve, including a small parcel of the adjoining Leacock Regional Park. Council seeks assurances that where loss of open space is unavoidable that valuation of acquired land will be determined under the terms and conditions of the Land Acquisition (Just Terms Compensation) Act 1991.
- It is disappointing to see a proposal requiring loss of community land within Lighthorse Park without any compensation to the community. The approval of the SSFL should be subject to:
  - The acquisition of other riverfront land adjacent to Lighthorse Park for the purpose of providing a recreational parkland. This land should be acquired compulsorily from Prysmian Cables and Systems. ARTC should pay for the acquisition and restoration of the riparian vegetation in this area and for construction of a footpath/cycleway to link Lighthorse Park with Haigh Reserve.
  - Lighthorse Park being made accessible by an at grade crossing of the railway to the Liverpool CBD and Liverpool station areas.
- This principle should be applied to all public land acquisitions in the proposal.

Response

The provision of a dedicated freight line between Macarthur and Sefton in Sydney's south has been on the strategic planning agendas of RailCorp and the NSW Government for a number of years. As discussed in Section 3.1 of the Environmental Assessment, early schematic designs for the freight priority project were prepared by the former Rail Infrastructure Corporation in 2000–2001. This work included exploration of several design options to meet and manage the corridor route's independent operational objectives and engineering/environmental challenges. It is unclear whether these early schemes were made public.

As discussed in Section 4.5.2 and 4.7 of Volume 1 of the Environmental Assessment, a small strip of land (less than 25 metres at its widest point) is to be acquired for the purposes of the SSFL. The amount of land to be acquired has in this, and all, locations been minimised as much as practicable. The impact of this acquisition is discussed in Section 4.5.2 of Volume 1 of the Environmental Assessment and above.

With regard to the acquisition of land, the preferred ARTC approach is detailed in Section 4.7 of Volume 1 of the Environmental Assessment. As an initial step, ARTC would attempt to negotiate directly with the existing landowner. Failing successful purchase negotiations, compulsory acquisition of the land would be undertaken by RailCorp on behalf of ARTC. The compulsory acquisition process would be in accordance with the *Land Acquisition (Just Terms Compensation) Act 1991*. The statutory steps in the compulsory acquisition are outlined in Section 4.7 of Volume 1 of the Environmental Assessment.

Station amenity and accessibility

Respondents to the Environmental Assessment raised the following issues in submissions 15, 16, 17, 23, 45, 60, 61, 62, 65, 68, 69, 70, 74, 78, 82, 83:

- Commonwealth legislation calls for stations to be made accessible for the disabled. It is essential that easy access standards are not only maintained, but also improved. Further assessment of station design and access issues should be undertaken and a commitment made that all affected stations will be upgraded prior to approval of any works associated with the SSFL.
- During the reconstruction of the Chester Hill rail bridge due consideration must be given to enable safe and unrestricted wheelchair access across the bridge at all times.
- A lift at Chester Hill Station would make train travel more accessible.
- Consideration should be given to the upgrade of Glenfield Station through the installation of passenger lifts and parking facilities.
- With regard to improved amenity of the Casula station precinct, Liverpool Council request that the proposed canopy over the footbridge and stairs be delivered as part of this project and that the State Government provide Council with an understanding of the conditions that need to be met under which the lifts will be installed.
- What is the timeline for provision of disabled access to the three proposed platforms at Casula railway station?
- A lift at Cabramatta station is only a partial solution because lifts are prone to breakdown and can be dangerous when alone. Therefore two lifts on the east side (to cover break downs) and a ramp are required for Cabramatta station.

- Installation of a large lift instead of a ramp on the eastern side of Cabramatta station may create a risk of entrapment, resulting in reluctance on the part of less mobile people to use the lift, especially outside of peak periods. This will increase the social isolation of these people.
- ARTC should pay for a lift on the eastern side of Cabramatta passenger platform so people can access buses and their cars.
- Ground level access to Cabramatta station is vital. Less mobile passengers may be unable to use the staircase to access the ticket office or platform.
- There is concern over removal of ramps to the pedestrian overpass at Cabramatta Station. Council is concerned that the pedestrian footbridge at Cabramatta be designed to cater to all pedestrians including children, the elderly and the mobility impaired.
- Liverpool Council supports the proposed upgrade of Warwick Farm Station. Council request that the "potential footbridge" extension including the proposed lift be constructed as part of this project.
- The Liverpool Transport Taskforce recommends that RailCorp install an additional lift and undertake work so that Warwick Farm Railway Station is fully accessible.
- Modifications to Sefton Station should include provision of access for all user groups. This should include lifts to Wellington Road and the station platform.
- ARTC should seek funding from the Government to include installation of elevators at Sefton Station during the construction phase of the project.
- Council requests that ARTC provide disabled access to Wellington Street and station platform and cyclist access across Sefton Station. This information can be included in a Master Plan as a condition of consent.
- There are significant concerns that the proposed station works do not comply with the Disability Standards for Accessible Public Transport 2002 made under the Disability Discrimination Act 1992. There is a clear legal requirement to incorporate facilities for disabled people. The key issue is for the planning approval for the additional works not listed in the Environmental Assessment to be incorporated in the planning approval. The affected stations are:
  - Sefton and Casula – lifts should be installed as part of the SSFL project. The project approval needs to ensure that lifts can be installed as part of the current project.
  - Carramar – the gradient for the new underpass extension needs to be low enough to ensure accessibility for people with disabilities.
  - Minto – a lift should be installed on the eastern side of the station.
- The Building Code of Australia requires the provision of designated disabled parking where parking is provided. The Environmental Assessment is unclear on the provision of disabled parking. It is important that the project approval ensures that the Code requirements are met (proportion of disabled parking spaces, provision of an accessible path including kerb ramp access from parking spaces to all transport modes). In addition it is important that disabled parking is provided in proximity to the station entrance.
- Any relocation of commuter parking increasing the distance to the station entry beyond 400 metres is an issue. Compliance with the Disability Standards for Accessible Public Transport is to be maintained at all times.

- The Liverpool Transport Taskforce recommends that ARTC liaise with the NSW Physical Disability Council regarding all accessibility issues.

Response

During detailed design of the SSFL proposal, ARTC will have regard to the Disability Standards for Accessible Public Transport 2002 made under the *Disability Discrimination Act 1992*. Refer to Cl76(a) in the Statement of Commitments in Appendix D.

ARTC will comply with the requirements of the Building Code of Australia for the provision of designated disabled parking where parking is provided (including the proportion of disabled parking spaces, and provision of an accessible path including kerb ramp access from parking spaces to all transport modes). Refer to Cl76(d) in the Statement of Commitments in Appendix D.

All pedestrian/cycle paths and pedestrian crossings along the corridor would remain open at all times during construction. Although during construction temporary partial or full closures would be required, in such cases temporary diversion would be provided. Access for all pedestrians would be considered in the site specific Traffic Management Plans to be prepared prior to the commencement of construction.

Where passenger access to a railway station is required to be modified to allow for the construction of the proposed SSFL, 'easy (non-discriminatory) access would be provided to the affected platform if such access is not already in place.

As detailed in Section 17.3.2 of Volume 1 of the Environmental Assessment, the proposed SSFL works at Minto Railway Station will include the retention of the existing footbridge, the removal of the western side stairs and ramp, extension of the existing footbridge (with a relocated ticket office on the concourse) and construction of new western stairs and two lifts. These works would be completed prior to closure of the existing access stairs and ramps ensuring that easy access to the railway station is maintained throughout construction and during operation of the SSFL.

No works are required at Glenfield Railway Station as the proposed SSFL will connect to the top and bottom of the existing freight passing loop that was constructed in 1995, as such, the need for 'easy access' at Glenfield Railway Station would need to be addressed by to RailCorp.

There are no existing lifts for easy access at Casula Station, however the SSFL design enables provision of lifts and a canopy over the footbridge and stairs, to comply with the easy access standard if RailCorp requests.

A new pedestrian overbridge and two lifts will be constructed at Warwick Farm Railway Station as part of the construction of the proposed SSFL. Construction of these facilities would be completed prior to the closure of the existing at-grade platform access on the eastern side.

As detailed in Section 20.3.2 of Volume 1 of the Environmental Assessment, the proposed changes to access at Cabramatta Railway Station as part of the proposed SSFL include the extension of the existing pedestrian bridge over the SSFL with new stairs and a lift to be constructed on the east side of the station. The existing bridge and at-grade access to the east platform would be maintained during construction of the bridge extension, new lift and stairs. Once completed, pedestrian access would be via the newly constructed lift and stairs only. It is important to note the existing pedestrian ramps (that are not being removed) are steeper than required to meet easy access standards (with a gradient of 1 in 8).

As detailed in Section 6.8 of the Environmental Assessment, the SSFL would require the pedestrian underpass at Carramar Station to be regraded and maintain the existing accessibility standard.

There are no existing lifts for easy access at Sefton Station, however the SSFL design enables possible future provision of lifts and a canopy over the footbridge and stairs, to comply with the easy access standard if RailCorp requests.

Chester Hill Railway Station will not be affected by the proposed SSFL alignment. As it is not ARTCs property easy access proposal at Chester Hill should be pursued with RailCorp.

Impacts on future urban development

Respondents to the Environmental Assessment raised the following issues in submissions 66, 68 & 78:

- High rates of night use will have serious urban design impacts on dwellings in the vicinity of the track. For example, this will encourage developers to construct dwellings without cross ventilation and to create streetscapes with little visual surveillance of the street facing the track. Such urban design responses would be consistent with the presence of the SSFL, but directly contrary to the requirements of SEPP65 (regarding sustainability and amenity, use of appropriate room dimensions and shapes, access to sunlight, natural ventilation, visual and acoustic privacy) and the principles of Crime Prevention Through Environmental Design (calling for territorial reinforcement, access control, natural surveillance, strategies to support and reinforce neighbourhood image and careful planning in environmental land use).
- Fairfield Council is in the process of creating a new LEP for Cabramatta. The LEP will allow for the redevelopment of the eastern side of Cabramatta. There are concerns that the SSFL will affect the development potential.
- Broomfield/Longfield and Fisher Streets have been identified in the State Government's Metropolitan Strategy as areas for redevelopment. The SSFL and the noise barrier will be a deterrent to owners to invest in this program.

Response:

The proposed SSFL is not considered to be a serious detriment to any future urban renewal of Cabramatta. Current urban renewal plans would have had to consider and mitigate the noise impact of the existing rail corridor. The proposed upgrade works in the Cabramatta Railway Station precinct could encourage private land owner urban renewal plans.

The general principles of urban design prescribed in SEPP 65 may still be implemented in future proposals for development within proximity to the SSFL corridor. The relevant considerations would need to respond to the constraints and opportunities from the adjacent rail corridor. The development of the SSFL need not be a prohibition on good urban design, as there are various examples of good urban design near proximity to linear transport corridors across Sydney and elsewhere. Any future development controls for the area would need to incorporate provisions requiring the consideration of noise in the planning process.

The exact type and/or combination of noise barrier and treatments would be determined at the detailed design stage in consultation with the directly affected residents in these communities. Detailed design and assessment of the proposed barrier and treatments in each locality would be undertaken. The ARTC would liaise further with Fairfield City Council and other relevant state agencies (e.g. RailCorp) prior to construction occurring to identify what other works could be coordinated with other agencies during the construction of the SSFL.

General accessibility

Respondents to the Environmental Assessment raised the following issues in submissions 55, 74, 76 & 78: 13, 17, 34, 56, 75:

- Combining Cabramatta and Canley Vale stations would result in significant savings for City Rail by only having one station to staff and maintain.
- The proposed four metre high sound barriers will affect the public profile of the property. Currently we get quite a number of people contacting us (Christian City Church) because they have seen us from the train. Noise barriers would affect the public profile of the church as well as the value of the property as it would no longer be in a prime location.
- It is essential that safe access be provided to existing RailCorp infrastructure and facilities. Of particular concern is:
  - Liverpool – the SSFL needs to include an underbridge to provide vehicular access to the stabling yard from the eastern side of the corridor. The proposed vehicular access (as discussed with ARTC) would need to occur from Riverpark Drive and would pass under the SSFL and the future new track being provided as part of the Liverpool Clearways project.
  - Campbelltown – The Environmental Assessment does not address the need for access to the stabling facility. It is essential that a bridge is provided over the SSFL to provide safe access for RailCorp personnel and contract staff. The planning approval must include this access.
- Sydney Ports supports the examination of a crossover at a location closer to the terminal to connect the Macarthur Intermodal Shipping Terminal to the SSFL.
- A construction access road off Glenfield Road into the parkland immediately behind properties on Slessor Road would have a significant impact on adjoining residences and park users. Any site access in this area should be moved to the east, within or immediately adjacent to the rail corridor.
- It would be unacceptable for construction access to be provided through the park adjacent to Leacocks Lane Casula because the construction traffic would have a detrimental impact on the amenity and safety of the residential area adjoining and the school fronting Leacocks Lane.
- The use of Elizabeth Street, Liverpool for the SSFL construction traffic is not acceptable to the Area Health Service or Liverpool Hospital. Access via the eastern campus may be able to be negotiated.
- How are train travellers going to get to the station platforms while the Sefton and Villawood rail foot bridges are being extended?
- Fencing of the proposed rail corridor is required to ensure that animals (stock) do not enter construction areas or collide with trains.

Response:

Options for improving RailCorp commuter services, including the closure or amalgamation of RailCorp railway stations, is outside of the scope of the SSFL proposal.

ARTC considers it unlikely that the construction of noise barriers would have an adverse affect on adjacent property values. Conversely, the substantial benefit of noise impact reductions are likely to improve property values. Alternative marketing or advertising measures could be sought by business/service owners/operators to mitigate any potential impact of noise barriers on exposure to potential customers on passing trains.

During the detailed design of the entire SSFL corridor, including stabling facilities, ARTC will incorporate appropriate operational and maintenance safety requirements, in consultation with RailCorp and other relevant stakeholders. This will include access requirements to RailCorp stabling yards.

ARTC's discussions with the Macarthur Intermodal Shipping Terminal have indicated that its expansion plans do not at this stage include direct access to the SSFL.

Construction access to the railway corridor will be subject to further detailed assessment as part of the Traffic Management Reports and Traffic Management Plans (see CI70 and CI71 in the Statement of Commitments in Appendix D of this report). Access to the corridor is governed by the location of the existing corridor access gates, however, in some locations along the route additional access gates could be created and existing gates relocated.

Construction access and construction planning near Liverpool Hospital will be developed in consultation with Sydney South West Area Health Service. It is noted that construction access could be provided from the eastern side of the corridor; however this direct route would be assessed as part of the Construction Access Management Plan and the Traffic Management Reports and Traffic Management Plans.

Public access would be managed as part of the plans referred to above to ensure construction works do not impede commuter access to stations (see CI76(a) in the Statement of Commitments in Appendix D of this report). It is noted that the proposal does not required an extension to Villawood Station footbridge.

Fencing of the corridor will be maintained and where existing fencing needs to be relocated, ARTC will undertake this work along the entire route of the SSFL.

4.3.10 Consultation process

General

Respondents to the Environmental Assessment raised the following issues in submissions 45, 55, 57, 59, 60, 61, 68, 76, 78, 79, 82:

- Consultation with Liverpool residents must take place during preparation of landscape Masterplans.
- Further community consultation should be provided to explain in layman's terms the likely acoustic impacts during all phases of the proposal.
- Careful consideration needs to be given to the language and cultural sensitivities evident in the demographic make up of Fairfield particularly Cabramatta, Carramar and Villawood in the composition and communication of the incident management plan.
- Individual landowners require to be consulted about the impact on their property and operations before this proposal goes ahead. If it does proceed, the issues affecting the respondent should be suitably addressed and remedied.

- A wider discussion with all interested parties, including City Rail and ARTC on a holistic solution to the Cabramatta Rail interface is required.
- ARTC will need to regularly liaise with the Transport Infrastructure Development Corporation to ensure that the SSFL will not adversely affect the South West Rail Link and the Rail Clearways Project.
- ARTC must consult with the Ministry of Transport on commuter car parking and the shared zone in Broomfield Street, operational requirements on any changes to bus stops and taxi stands.
- The Cabramatta Chamber of Commerce and Industry requires consultation as to the location of the car parking, kiss and ride, taxi ranks and bus bays.
- With regard to the proposed upgrade of bridges, Fairfield Council requires that the communication strategy for the construction phase is prepared in advance and in consultation with Council.
- The confirmation of the concept precinct plans and detailed designs is to include specific requirements to liaise with Campbelltown City Council, to confirm the final parking layouts and other changes to the precincts.
- The Ministry of Transport needs to be notified on Activity Construction, so that impacts on bus timetables can be assessed.

Response:

ARTC has made commitments to consult with each Council and other relevant stakeholders (e.g. RailCorp, Ministry of Transport) regarding the detailed design for the station precinct plans. Regarding the Cabramatta Precinct Plan, consultation would also include the Cabramatta Chamber of Commerce and Industry and other local community and business groups.

Consultation would also occur with the directly affected residences, Councils and other stakeholders regarding the proposed detailed design for noise barrier and landscape treatments along the whole route. The works would then be implemented according to a program derived from that consultation. Where required, foreign language materials and interpreters would be used.

ARTC will establish an internet site (that may be part of an existing ARTC internet site) before construction commences and maintain the site until construction ends. The site will contain:

- Periodic updates of work progress, consultation activities and planned work schedules. The site will indicate the date of the last update and the frequency of the internet site updates
- A description of relevant approval authorities and their areas of responsibility
- A list of reports and plans that are Publicly Available s and details of how these can be accessed
- Contact names and phone numbers of relevant communications staff
- The 24 hour toll-free complaints contact telephone number.

ARTC will provide updates of work progress, construction activities and planned work schedules where significant changes in noise or traffic impacts are expected.

The construction staging across the route and any traffic, transport or access related issues (e.g. temporary lane closures, local diversions or changes to car parking, bus stops, taxi ranks or emergency services access) would be considered in the preparation of the Traffic Management Reports and Traffic Management Plans for the management of construction traffic. Notifications would also be provided to stakeholders (e.g. Councils, Ministry of Transport, Transport Infrastructure Development Corporation, Roads and Traffic Authority, RailCorp) in advance of construction works occurring.

Consultation during construction phase

Respondents to the Environmental Assessment raised the following issues in submissions 57, 61, 78:

- Large coloured information boards should be provided at rail hubs illustrating the work and construction implications.
- An effective complaints management/dispute resolution system should put in place prior to and throughout construction.

Response:

During construction, information boards at affected stations would be used as one means of communicating to the public and commuters the staging of the proposed works, any possessions of the railway corridor affecting passenger services and requiring replacement bus services, and any changes to station access, bus stops and parking.

ARTC will prepare and implement a Construction Environmental Management Plan, which will contain a Site Management Plan. The Site Management Plan will include a community consultation and notification strategy (including local community and businesses and council(s)) that includes a Construction program describing:

- details of any traffic disruptions and controls
- construction of temporary detours
- details of any rail passenger disruptions and alternative transport arrangements
- work approved to be undertaken outside standard Construction hours, in particular noisy works, before such works are undertaken
- a complaints management system.

The Construction Environmental Management Plan will be publicly available and able to be downloaded from the ARTC project website.

Consultation process during preparation of Environmental Assessment

Respondents to the Environmental Assessment raised the following issues in submissions 17, 21, 38, 52, 70, 66, 52, 72:

- The SSFL project is being handled poorly. The public is not being given due consideration.
- Discussions to date (20th May) have been difficult and frustrating due to the unavailability of information and lack of discussion groups.
- There has been a lack of consultation with property owners on the east side of Cabramatta railway.

- Residents of Wattle Avenue, Carramar did not receive notification of the proposal. They found out about the proposal when work was being undertaken alongside the existing railway line in June 2006.
- Fairfield City Council should have initiated a letter drop to inform the public. Residents only received a pamphlet from ARTC in English however many residents of Cabramatta do not understand English.
- At the meeting on May 20th 2006, we were advised that the project was going ahead regardless of public opinion.

Response:

ARTC considers that extensive and sufficient consultation has occurred with the community and stakeholders regarding the proposal. The Environmental Assessment was prepared in accordance with the Environmental Assessment Requirements issued by the Department of Planning, and the Environmental Assessment was reviewed and determined by the Department to adequately address these requirements and was adequate for public exhibition.

ARTC has conducted consultation activities to ensure communities were informed of the project and had the opportunity to engage in discussion groups. Consultation activities included:

- A planning focus meeting with government authorities
- Separate meetings with government authorities
- Separate briefings with local councils, community groups, and Commonwealth, NSW and locally elected representatives
- Community information meetings (eight) with directly affected residents adjacent to the rail corridor
- Individual land owner discussions
- Stakeholder meetings (six) in relation to station precinct upgrades
- Local business discussion days
- Distribution of approximately 20,000 invitation flyers between Macarthur and Sefton inviting residents and businesses to community group meetings in September 2005
- Distribution of approximately 28,000 project newsletters in May 2005 and May 2006 to directly affected residents and businesses between Macarthur and Sefton
- Community notices in metropolitan and community newspapers
- Establishment of a 1800 project information telephone line
- Establishment of a project website
- Public displays of the Environmental Assessment
- Provision of posters at Leumeah, Minto, Casula, Warwick Farm, Cabramatta and Sefton Railway Stations.

A detailed outline of consultation tools and activities is provided in Appendix D of the Environmental Assessment.

Consulting with property owners on the east side of Cabramatta railway was a key component of the consultation strategy. Local business discussion days were primarily held in the Cabramatta town centre in July 2005 and May 2006 to inform property and business owners of the SSFL project and the Environmental Assessment process, and the opportunities available to respond to the Environmental Assessment. Carramar and Sefton town centres were also visited.

Staffed information days during the Environmental Assessment exhibition were specifically held in the Cabramatta town centre in an effort to make it easier for members of the local community to attend. The information days were advertised in local newspapers and the project newsletter.

Wattle Avenue, Carramar was included in the area for distribution of both project newsletters and the invitation flyer. The distribution area of community newspapers advertising the SSFL also included Wattle Avenue.

ARTC ensured that non-English speaking individuals and groups also had the opportunity to be directly involved in the process. Consultation activities included:

- During the local businesses discussion days a Vietnamese language translator accompanied a project team member to assist in discussions in July 2005 and a Vietnamese and Cambodian language translator accompanied a project staff member in May 2006.
- Community update newsletters 1 and 2 were translated into Vietnamese and Arabic (approximately 10,000 copies per newsletter), and copies sent to key community organisations, schools and multicultural groups for distribution and collection.
- Community notices placed in non-English speaking newspapers during preparation and exhibition of the Environmental Assessment.
- A translating and interpreting service available via the 1800 project information telephone line during preparation and exhibition of the Environmental Assessment.

ARTC has considered public opinion of the SSFL. The information day held on May 20 provided members of the community with another opportunity to engage with members of the SSFL project team about the Environmental Assessment issues and process and specifically seek advice in completing a submission so that members of the community can respond to the Environmental Assessment.

ARTC does not decide if the SSFL is approved or not. This is the responsibility of the Department of Planning who will review the Environmental Assessment prior to making a decision. The Director-General can ask for further assessment if he feels it is required so that he can adequately review the Environmental Assessment.

Other

A respondent to the Environmental Assessment raised the following issues in submission 78:

- Council's investment in developing a strong sense of ownership of neighbourhoods and town centres at a resident and business owner level will be jeopardised by the SSFL.

Response:

ARTC held four meetings with Campbelltown, Liverpool, Bankstown and Fairfield City Councils. The purpose of these meetings was to present and discuss information on the project, and to identify and examine issues related to the project.

Involving Councils in the development of the Environmental Assessment provided them with information to keep members of their communities informed about the SSFL project. This created the opportunity for Council to involve members of the community who are interested in the SSFL to work with Council in managing anticipated changes that may result from the SSFL. This opportunity therefore allows Council, residents and business owners to work together in continuing to develop the sense of ownership of neighbourhoods and town centres.

4.3.11 Proposal operation

General

Respondents to the Environmental Assessment raised the following issues in submissions 3, 78:

- Will a breakdown on the freight line affect the passenger line timetable?
- After the freight line is built will the commuter trains still be unreliable?

Response

A train failure on the freight line will not affect RailCorp's passenger lines. One of the benefits of this project for RailCorp is that most of the freight trains currently running on the Main South Line (RailCorp's current passenger network) would run on the Southern Sydney Freight Line, largely eliminating freight trains as a source of delays to passenger trains on this line. This should assist RailCorp's on time running performance for passenger services, although by how much is not possible to predict as this will depend on many other operational factors.

Proposed operations

Respondents to the Environmental Assessment raised the following issues in submissions 3, 38, 45, 61:

- The Environmental Assessment does not explain why freight trains would have to travel at such high speeds, only maximum speed is addressed based on track capability and OH&S.
- Can freight schedules be optimised to facilitate not only delivery requirements, but also to mitigate acoustic issues?
- The Environmental Assessment does not report on how the ARTC would timetable freight along the track.
- Increase in the length of freight trains should be regulated.
- Between what hours will freight trains operate?
- The issues of seasonal variations in freight traffic and different types of freight, assumed speeds, lengths of trains, deceleration and acceleration should be fully examined and resolved prior to the commencement of the SSFL.

Response

The speeds referred to in the environmental assessment are a maximum and actual speeds will depend on many factors including locomotive power, trailing loads and signalling. Maximum speeds were used as conservative assumptions for the noise and vibration, hazard and risk and air quality assessments in the Environmental Assessment.

Scheduling of a freight services to create a specific timetable is dependent on many factors not controlled by any one party, including available train paths, length of the train, its origin and destination, crew scheduling and locomotive refuelling, and customer's loading and unloading cycle times etc. If possible, trains are scheduled to depart and arrive during business hours but ARTC's ability to control train running at noise sensitive times is constrained by the strong demand for train paths, managing passenger priority on ARTC's network and scheduling around RailCorp's restrictions on freight movement during the commuter peaks. The SSFL would improve this situation somewhat by avoiding RailCorp peak hour restrictions for freight services between Melbourne and Sydney (and Port Botany) and between Melbourne and Brisbane but will not overcome the inherent inflexibilities in scheduling trains.

The noise and vibration, hazard and risk and air quality assessments were based on expectations of different types of freight trains, including likely speeds, train length and the noise characteristics of the locomotives. It is noted that there would be very little seasonal variation in freight volumes as the Main South Line rail corridor is not used for grain transport (being the only seasonal freight shipped in significant quantities by rail).

Freight trains currently operate 24 hours a day on all ARTC and RailCorp tracks including the Main South Line corridor and this will not change as a result of the proposal.

Frequency of freight trains

Respondents to the Environmental Assessment raised the following issues in submissions 32, 45:

- Please confirm the accuracy of an article that appeared in the Canterbury Bankstown Express (30 May 06) that suggested that 13 to 26 freight trains would run through Sefton each night, measuring up to 1.8 kilometre long, taking 45 seconds to pass and generating noise similar to that of a jackhammer and that noise barriers would mitigate the generated noise to equal to that generated by a vacuum cleaner.
- It was quoted on good authority on ABC radio that 27 freight trains a day each about 1.5 kilometres long would traverse the new line.

Response

By 2018 there is projected to be about nine trains of 1,500 to 1,800 metres length running between 22:00 and 07:00. Currently there are five similar services running during these hours. The longer trains would typically take about one minute to pass and noise levels will be the same as the current freight trains of this length except where noise barriers are installed, where a noticeable reduction in noise can be expected in most locations.

As stated in Section 7.1.8 of Volume 1 of the Environmental Assessment the projected freight train operations in 2018 indicates that about 13 services in each direction would travel along the SSFL between 22:00 and 07:00. This means about 26 services in total.

Electric powered locomotives

Respondents to the Environmental Assessment raised the following issues in submissions 73, 81, 87:

- Environmental impacts would be reduced if electric hauled locomotives were coupled to trains between Broadmeadow and Macarthur.

Response

The complicated logistics involved in attaching and detaching electric powered locomotives for various operator's freight trains (all with different locomotive power requirements) entering and exiting the RailCorp network, combined with stabling and marshalling yards that would be required, would almost certainly make this suggestion impractical.

Other

Respondents to the Environmental Assessment raised the following issues in submissions 60, 61:

- The proposal will result in intensification of use of parts of the existing rail network beyond the study area. The assessment should consider and address the network wide impacts of the SSFL.

Response

The inherent capacity elsewhere on the existing interstate rail network is not being altered by this proposal and any further capacity enhancements within the network would be subject to separate environmental assessment.

4.3.12 Planning

Project planning/justification

Respondents to the Environmental Assessment raised the following issues in submissions 1, 8, 17, 29, 32, 33, 34, 37, 39, 44, 60, 61, 74, 77, 78:

- ARTC should adopt two sets of tracks instead of one for the SSFL in order to allow for future expansion of freight services.
- Why are freight terminals located in the centre of already swollen cities so that freight has to pass through old, established urban areas which are already highly polluted?
- The infrastructure for the SSFL should have been in place years ago.
- Why wasn't planning thought of when the railway was extended from Glenfield to the airport/city through East Hills?
- The SSFL has been planned poorly.
- The proposal could be better located, as it would pass through some of South West Sydney's highest density residential areas.
- Given the growth of metropolitan Sydney, further assessment of future freight requirements should be undertaken. Consideration should be given to the impacts of any future extensions and upgrades that may be required such as duplication, double-stacking or electrification. This should be undertaken prior to the commencement of the proposal.

- The policy conflict between the objectives of the Metropolitan Strategy to concentrate more people in centres close to public transport and the divisive impacts of the SSFL on some of the centres identified in the strategy need to be resolved prior to development of the SSFL.
- The present planners should look to the future and not just the next election.
- The justification for the need for the SSFL should be updated to include an assessment of recent changes to existing freight requirements and road infrastructure, plus those resulting from the extent and location of growth in Sydney as identified in the Metropolitan Strategy.
- A tunnel solution was not considered in proximity to Georges River between Leacock Regional Park and Liverpool Hospital. The current line is already extremely close to the river and once any new line closer to the river is constructed, this part of the river will be permanently compromised.
- The Department of Planning should consider the SSFL proposal as the initiating step in a future plan to lower all rail tracks between Liverpool Station and Liverpool Hospital to enhance the city-river relationship (in line with their City of Cities plan) and to unify the hospital site by eliminating the level crossing.
- Planning is well in advance for the Stage 2 Redevelopment of Liverpool Hospital. Under this plan Liverpool Hospital will become the largest hospital facility in NSW and will increase in activity by 50 per cent over the next ten years. As such, there is an important need that full consideration be taken by ARTC of any potential adverse impacts from the SSFL on the hospital.
- Details of the corridor width and proposed land acquisition requirements need to be confirmed immediately for the master-planning and design of the Liverpool Hospital redevelopment.
- Tenant doesn't believe that all possible alternatives have been properly explored to dampen the impacts of the proposal on this property and business in Farrow Road Campbelltown.
- There is no evidence in the Environmental Assessment, other than abstract references to the newly constructed M7, which indicates that the presence of the freight line will lead to a marked improvement in heavy vehicle movement along major arterial roads running through Fairfield LGA. Will the SSFL actually result in the removal of numbers of large trucks off highways and roads?

Response:

Planning

As part of the City of Cities component of the NSW Metropolitan Strategy, the NSW Government released its strategic planning policy for managing change and growth in freight movements in NSW. The ARTC SSFL proposal is identified in the strategy as a key action for the enhancement of capacity on the shared metropolitan rail network. Sections 2.4 and 2.5 address ARTC's consideration of the objectives and key actions of the Metropolitan Strategy in the design of the SSFL proposal.

The SSFL configuration provides for the growth expectations in ARTC's North-South Corridor Strategy which was developed to meet interstate demand requirements through to at least 2015. It also provides for foreseeable metropolitan freight rail growth along the Main South Line. Additional capacity can be provided in the longer term in various ways, for instance by adding or extending crossing loops and/or undertaking resignalling for shorter headways between trains to allow for more train paths on the SSFL. The planning for any future SSFL capacity enhancements in relation to metropolitan growth would be dependent on decision making concerning the establishment of regional intermodal facilities.

The operational specification for the SSFL is the source of forecast train movements in the Environmental Assessment. The specification was reviewed to take account of the forecasts contained in the NSW Government's Freight Infrastructure Advisory Board Report. The only resulting change in train movement forecasts relates to the growth associated with the possible development of an intermodal facility at Moorebank. This development could result in an additional 10 train trips per day based on the projected Twenty-foot Equivalent Units container throughput, the impact of these movements would be subject to separate environmental assessment.

Sydney's rail freight terminals were built more than 60 years ago and their location reflects the distribution of industry across Sydney at that time. These terminals continue to provide important freight transport functions but new larger capacity intermodal terminals are required to meet the needs of the growing industrial capacity in South West Sydney.

As explained in Section 3.1 of Volume 1 of the Environmental Assessment, the provision of a dedicated freight line between Macarthur and Sefton in Sydney's south has been on the strategic planning agendas of RailCorp and the NSW Government for a number of years. Early schematic designs for the freight priority project were prepared by the former Rail Infrastructure Corporation in 2000–2001. The current SSFL proposal forms part of the ARTC's North-South Corridor Strategy for the Melbourne-Sydney-Brisbane interstate rail network. The $872 million investment program is aimed at reducing the transit times between these three capital cities, improving the availability of services to meet growing freight demand, and improving the competitiveness of rail over road freight.

Proposal

The SSFL proposal comprises a new bi-directional, non-electrified and dedicated freight line from Macarthur to Sefton in southern Sydney. As discussed in Section 3.2 of Volume 1 of the Environmental Assessment, in preparing the SSFL proposal, the ARTC principles of the proposal design were focused on:

- Achieving operational independence from the RailCorp network
- Complying with RailCorp design requirements and standards at interfaces, including the need to not prejudice future foreseeable works by RailCorp.
- Maintain station functionality and accessibility at directly affected stations.
- Providing the infrastructure required for the SSFL to function safely and meet current design and operational standards, including Australian Standard AS5100.
- Replacing all infrastructure directly affected by the SSFL with new infrastructure to meet current standards.
- Allowing for safe and efficient maintenance of the SSFL and RailCorp tracks.

- Minimising the SSFL construction cost.
- Avoiding, minimising or mitigating, where feasible, the environmental and social impacts of the SSFL.

Having regard to the principles above, in developing the proposed concept design, a single track meets capacity requirements and can be amplified in the future (as discussed above) whilst minimising environmental impacts. Further, a four track electrified Main South Line is in excess of freight capacity requirements. However, ARTC has agreed to integrating its freight track into an electrified four track corridor if RailCorp proposed to upgrade to four tracks on the Main South Line in the future.

Freight terminal location

Although consideration of the location of freight distribution points and intermodal terminals is beyond the scope of this proposal, the location of freight terminals and distribution centres tend to be located within highly urbanised areas, such as the Sydney metropolitan area, to allow for proximity to the marketplace and industrial areas. Locating close to urban areas minimises the distance, duration and consequent costs of freight movements.

Georges River, Casula, Liverpool

Where the rail corridor is close to the Georges River, the proposed freight line alignment would remain inside the corridor with the exception of a 100 metre section of batter slope just north of the Glenfield Waste Facility and a similar length of batter slope just north of the M5 Motorway Bridge over the Georges River. In addition, there would also be a 200 metre section of piled slab just north of Liverpool Station that is within the rail corridor but along the top of the Georges River embankment. As discussed in Section 5.1 of the Environmental Assessment, to ensure the structural integrity of track construction in this area north of Liverpool Station adjacent to the Georges River, the track design would generally include the construction of 750 diameter piles bored to rock (approximately 22 metres in length) and the use of permanent re-stressable prestressed anchors, with anchorage within the existing RailCorp corridor. The combined impact of these three sites will not compromise the environmental values of Georges River and can not justify the cost and impact of a five kilometre rail tunnel as an alternative.

East Hills Line route Option

The location of the SSFL proposal within and adjacent to the existing RailCorp Main South Line has been designed to minimise overall social and environmental impacts on communities within south western Sydney. An alternative corridor outside of an existing rail alignment would increase the number of residents and businesses affected by the proposal, and would be likely to significantly increase the overall environmental impact. The East Hills Line route option is not the preferred alignment for the SSFL for operational and environmental reasons (refer to Section 2.6.2 of Volume 1 the Environmental Assessment for further details).

*Farrow Road, Campbelltow*n

During consideration of the corridor design, strategies to minimise impacts on properties at Farrow Road, Campbelltown were considered. As discussed in Section 14.2 of Volume 1 of the Environmental Assessment, the combined land requirements for RailCorp's planned remodelling of Campbelltown Yard and the proposed SSFL require the acquisition of a 20 metre wide strip of land along the frontages of 8 and 10 Farrow Road. There have been

discussions with the land owners and Campbelltown City Council to stage relocation of Farrow Road which will continue during the detailed design stage. Further investigations would also be undertaken as part of the detail design stage to ensure the continued efficient site operations of both properties.

Liverpool Hospital

As discussed in Section 4.3 of Volume 1 of the Environmental Assessment, RailCorp will coordinate with the Liverpool Hospital Stage 2 Upgrade planning authorities for the provision of an alternative means of access between east and west sides of the hospital grounds prior to the ultimate closure of the level crossing. The extent of visual screening and landscaping required will be further investigated during the detailed design phase of the proposal. ARTC is working with the Sydney South West Area Health Service and Premier's Department to coordinate planning for the hospital redevelopment with the SSFL.

Liverpool Town Centre

RailCorp, Liverpool City Council or the Department of Planning have no long term plan for Liverpool Town Centre that includes lowering of the tracks in the rail corridor for access to the river. Consequently, it is beyond the scope of the freight line project to address this issue.

Road freight traffic

It would be difficult to ascertain and quantify the direct impact of the SSFL on road freight traffic in any one LGA. Any reduction of road freight would have high temporal and geographical variability.

Approval process

Respondents to the Environmental Assessment raised the following issues in submissions 59, 60, 61, 62, 74, 78, 79, 81, 82:

- Further environmental assessment is needed to determine the environmental impacts for the 'construction phase' and 'operational phase' of the enhanced rail corridor.
- Final approval and acceptance of the designs should rest with (Campbelltown) Council. Specifications for the works will be to Council's requirements.
- Where acquisition of sections of Liverpool Council's open space areas is unavoidable, Council seeks assurances that RailCorp will prepare detailed landscape masterplans in consultation with and approved by Council's representatives.
- Bankstown Council believes that the lack of a unified approach to the management of the rail corridor is not effective and will complicate environmental management. Council recommends that relevant authorities develop a management structure which will provide a unified approach to the management of the entire corridor.
- ARTC should prepare a Landscape Master Plan, for approval by Bankstown Council, for Sefton station. This Master Plan should include:
    - new station access
    - relocated parking spaces
    - traffic control devices
    - bus and taxi bay
    - bike ramp

- new mature fig tree
- disabled access provision
- cyclist access across station.

- DEC is concerned that the structure of the draft Statement of Commitments does not facilitate easy comprehension (it hasdifficulty in discerning the underlying principles that may have been used to classify matters for inclusion in Schedule 2 rather than Schedule 3). The structure of the draft Statement of Commitments should be revised to:
  - Schedule 1 Administrative commitments
  - Schedule 2 Construction phase commitments
  - Schedule 3 Operational phase commitments.
- The environmental management commitments of the project (Schedule 2) should include a commitment relating to station management and impacts on commuters during construction. A Station Management Plan for the construction period should be prepared for endorsement by RailCorp. This plan would address changes to station operations required during construction, advice to commuters, consultation with other transport providers and local Councils to ensure impacts on passengers and the community are minimised. The commitments should also address facilities for disabled passengers such as the provision of lifts or ramps.
- Section 4.3.5 of the Environmental Assessment discusses Sefton Park Junction level crossing. The addition of the SSFL track through the level crossing will require additional crossing operation controls and the construction of a vehicle queuing lane off Wellington Road. This would be subject to Council approval. The concept design indicates that the SSFL track will be 500 millimetres lower than the RailCorp tracks at the level crossing, which may result in the crossing being moved further to the south as a means of reducing the track grade differential. In this event, RailCorp would seek to relocate the crossing to Carlingford Road. The planning approval needs to ensure that this can occur as part of the SSFL approval.
- The Environmental Assessment raises the need for the existing 33 kilovolt line to be relocated where necessary as part of the project. Discussions (between ARTC and RailCorp) have identified the need for an additional 11 kilovolt line as part of the project. ARTC have been informed that a high proportion of existing aerial transmission lines identified for relocation to accommodate the SSFL will need to be replaced with buried power feeder cables. The project planning approval needs to incorporate these requirements without the need for additional approvals.
- All new footpaths must be constructed to Council specifications.
- Schedule 4 Community information and communication commitments – conditions should not be imposed which require the proponent to seek DEC comment in detail or endorsement of any environmental management plan.
- The use of part of Leacock Regional Park for the Glenfield flyover is not consistent with the purposes of a regional park. As such, the Director General of the Department of Planning is not empowered to authorise the use of this land for the purposes of the project. So, part of Leacock Regional Park will need to be acquired for the purposes of the project in accordance with the provisions of the Revocation of Land Policy (NPWS, 2002).

- The proponent will need to obtain all necessary approvals before commencing any work on:
  - That part of the RailCorp estate the subject of environment protection licence 12208
  - Any part of the Glenfield landfill
  - Any part of Leacock Regional Park (boundary re-gazettal and appropriate compensation in accordance with Government policy on revocation of land reserved under the *National Parks and Wildlife Act 1974* would be required before any acquisition may proceed).
- All of the environmental assessment and other requirements that RailCorp are required to follow under its licensing requirements should be applied to the ARTC for the SSFL. ARTC would need to obtain DEC approval of an environment protection licence before commencing operations on the SSFL.
- An LEP which changes zoning of the corridor along the rail line within Wellington and Waldron Roads to 2B (medium density housing), is awaiting gazettal. This matter should be adequately addressed prior to consent.
- Section 5.1.10 of Volume 1 of the Environmental Assessment discusses possessions which, over the timeframe, are not insignificant. Detailed construction plans including full public notification are to be approved by RailCorp, full public notification process is required.

Response:

The Environmental Assessment adequately addresses both the operational and construction impacts of the proposal. In addition, the Statement of Commitments (which has been amended and finalised and included in Appendix D of this report) provides for additional detailed assessment of construction impacts to be undertaken prior to commencing the relevant scopes of work.

As described in Section 1.2 of Volume 1 of the Environmental Assessment, the SSFL proposal is considered a major project under the statutory environmental assessment framework of Part 3A of the Environmental Planning and Assessment Act 1979. Accordingly, under NSW legislation, the NSW Minister for Planning is the approval authority. Consequently, Campbelltown Council (or any other authority) is not the approval authority for any aspect of the SSFL proposal. Despite this, ARTC has consulted with Campbelltown Council and other stakeholders affected by the proposal to ensure that their requirements are considered and addressed during project development and design, and ARTC commits to further consultation with all local authorities during the detailed design and construction stages.

The Statement of Commitments commits ARTC to include a community consultation and notification strategy (including local community and businesses and council(s)) that is prepared in accordance with Schedule 4 and which includes a Construction program that describes:

- details of any traffic disruptions and controls
- construction of temporary detours
- details of any rail passenger disruptions and alternative transport arrangements

- work approved to be undertaken outside standard Construction hours, in particular noisy works, before such works are undertaken
- a complaints management system (see Schedule 3).

ARTC will provide RailCorp with construction management plans, including details of its track possession requirements for coordination and approval.

In preparing the Environmental Assessment, ARTC considered the need to acquire part of the Leacock Regional Park as part of the project. As discussed in Section 14.2 of Volume 1 of the Environmental Assessment, approximately 1.3 hectares of land would be required along the south eastern boundary of Leacock Regional Park, approximately 50 metres in width at the widest point. The process of acquisition will be consistent the Revocation of Land Policy (NPWS, 2002) and other relevant NSW Government policies.

In preparing this Submissions Report, ARTC have considered the likely impact the SSFL proposal would have on properties within Wellington and Waldron Roads, Sefton that could potentially be rezoned to Residential 2(b) under an amendment to Bankstown Local Environmental Plan 2001 which is awaiting gazettal. Having regard to the location of the proposed rezoning, the impact assessment undertaken in preparation of the Environmental Assessment, and the mitigation measures proposed, it is considered unlikely that the construction and operational impacts of the SSFL proposal would significantly differ if the zoning of the respective Wellington and Waldron Street sites were to change to Residential 2(b).

The relocation of the Sefton Park Junction depot level crossing to the low trafficked North Fork (off Carlingford Road) is being assessed by RailCorp and ARTC. If the depot level crossing is retained in its current location, ARTC will undertake detail design of road access and level crossing operation to ensure safe operation but there is no fundamental impediment to safe operation of a level crossing in either location.

ARTC has prepared a station precinct plan for Sefton Railway Station (see Section 6.7 of Volume 1 of the Environmental Assessment) and will continue to develop this plan to detail all the matters raised by Bankstown City Council. Any detailed design of stations and open space areas directly affected by the proposal will be addressed in the detailed design phase, post-approval. Preparation of detailed landscape master plans are outside the scope of the Environmental Assessment and this Submissions Report.

ARTC will work with the Department of Environment and Conservation to ensure all necessary approvals and licences have been obtained prior to construction and operation. ARTC will incorporate RailCorp's 11 kilovolt power system requirements into the 33 kilovolt relocation works where required.

ARTC will enter into a licence with RailCorp for the operation of the freight line that amongst other matters will deal specifically with requirements for jointly managing the corridor environment.

Strategic planning

Respondents to the Environmental Assessment raised the following issues in submissions 31, 60, 61, 74, 78, 81:

- The Environmental Assessment should clearly identify all land uses along the path of the proposed SSFL, including the potential for development of new residential areas and assess the impact on these areas.

- The Environmental Assessment should consider future plans for the relevant areas affected. This includes Sefton and Chester Hill town centres where Bankstown council has prepared an urban village plan which is awaiting gazettal. This is especially important as it is likely that the population of these areas will significantly increase and thus the number of people who are affected by the SSFL.
- It is essential that any proposed construction works do not constrain or stifle future growth and enhancement opportunities for Liverpool.
- The area between Shepherd Street and Casula Road is subject to the Georges River Plan of Management and is integral to Council's vision to open the Georges River parklands to Liverpool residents. It is critical that the rail/parkland interface is treated sympathetically to enable the delivery of Council's vision. Council does not consider the extensive use of reinforced retaining structures as a suitably aesthetic solution for this significant open space area.
- Is ARTC aware of Fairfield City Council's Masterplan for the Villawood Area? Has ARTC consulted appropriately Fairfield City Council, as the SSFL will have implications on the 1000 extra residents who will move into the area in the next few years under the Masterplan? There are aspects of the current proposal that will seriously impede Council's ability to deliver its strategic land use and planning objectives for the city.
- Fairfield Council now faces the prospect that increasing densities at transport nodes in line with the Metropolitan Strategy will not be feasible, particularly at Cabramatta (which has been identified in the Strategy as a potential major centre along with Bondi, Auburn and Top Ryde). The only way to maintain the amenity of the Cabramatta town centre and ensure its future role as a Major Centre is to ensure that it is protected from the noise and air pollution generated by freight trains. An unmitigated noise source such as a freight line is incompatible with the existing and future uses of the Cabramatta town centre.
- There are conflicts between the SSFL (and existing freight line) and the South West Rail Link, changes required to the SSFL to accommodate the SWRL are:
  - Sections of the existing freight loop at Glenfield will need to be relocated in order to accommodate flyover structures associated with the SWRL.
  - The noise attenuation measures proposed in the vicinity of the Cambridge Road overpass will require rebuilding when the grade separation occurs unless the measures are built to allow for the future freight track on the western side of the corridor.
- The future delivery of the East Hills Y-link and the South Western Rail Link to Leppington are critical to the growth and sustainability of the South West region, the SSFL must not prohibit their construction or operation nor the construction or operation of any other future new lines. A co-ordinated approach to the integration of RailCorp's future rail requirements with the SSFL project should be developed prior to consent being granted.

Response:

The proposed corridor alignment design and station treatment of the SSFL have been prepared to minimise impacts on the business centres and communities through which the proposal will pass, and to ensure their future development is not deleteriously impeded (refer to Section 9.1 of Volume 1 of the Environmental Assessment for a discussion of land uses within the SSFL corridor).

In the preparation of the SSFL proposal, the objectives and the directions of the Metropolitan Strategy, including the City of Cities policy were considered, particularly in light of the future development of centres within the SSFL corridor. Having regard to proposed concept design of the SSFL, and the environmental management measures described in the Environmental Assessment and the Statement of Commitments included in Appendix D of the Submissions Report, it is considered that the SSFL is unlikely to significantly restrict the future development of centres within the SSFL corridor, including Cabramatta, Sefton and Chester Hill. Specific measures proposed to ameliorate noise; air quality and visual impacts are described in greater detail in Parts C and D of the Environmental Assessment.

In developing the SSFL proposal, ARTC has had regard to potential impacts on the precinct identified by Fairfield City Council and the NSW Department of housing as the Villawood Town Centre. The precinct is currently zoned 2(b) – Residential B and 3(c) – Local Business Centre under Fairfield Local Environmental Plan 1994. ARTC has considered provisions of the draft Fairfield Development Control Plan No 25 – Villawood Town Centre (1998) and the draft Department of Housing/Fairfield City Council Kamira Court Masterplan. It is understood that the draft Kamira Court Masterplan has yet to have been finalised, and neither the DCP or the master plan have been adopted by resolution of Council.

Having had regard to the objectives and provisions of these plans, and the environmental management measures proposed under the Environmental Assessment and the Statement of Commitments included in Appendix D of the Submissions Report, it is considered that the SSFL proposal will not significantly increase impacts of the rail corridor on the future amenity of the Villawood Town Centre.

The provisions and objectives of the Liverpool Council Georges River Plan of Management were considered in the preparation of the SSFL proposal. It is considered that the SSFL proposal will not impede Council's objective of improving the accessibility and desirability of Georges River parklands to the residents of Liverpool, with proposed rail corridor earthworks designed to minimise aesthetic impacts on the open space area between Shepherd Street and Casula Road. A more detailed discussion of the alternatives considered is included in Section 3.5 of Volume 1 of the Environmental Assessment.

As discussed in Section 3.2 of Volume 1 of the Environmental Assessment, ARTC's design of the SSFL proposal was undertaken in compliance with RailCorp design requirements and standards at interfaces, including the need to not prejudice future foreseeable works by RailCorp. However, it is noted that the East Hills Y-Link was not a RailCorp design requirements for this project. The South West Rail Link to Leppington will not be compromised by the proposed SSFL design, including the design and placement of the Glenfield flyover. It is noted that there are no noise walls proposed adjacent to Cambridge Avenue road overbridge at Glenfield which could impact with the future freight track.

4.3.13 Environmental Assessment process

General

Respondents to the Environmental Assessment raised the following issues in submissions 5, 6, 7, 11, 12, 21, 22, 36, 42, 48, 49, 57, 62, 80:

- The June 2nd deadline for submissions was insufficient.
- An independent panel of experts under section 75G of the EP&A Act 2005 is called to review the Environmental Assessment and submissions.
- An independent evaluation of the Environmental Assessment should be undertaken prior to the commencement of any construction work on the line.
- Given the size of the files involved, the website and CD are impractical ways of trying to deal with the Environmental Assessment.
- The Environmental Assessment should have been made available at Liverpool Library.

Response:

The deadline for receipt of submissions was extended by the Department of Planning until 3 July 2006.

Under Section 75G(1) of Part 3A of the *Environmental Assessment and Planning Act (1979)*, it is in the responsibility of the Minister for Planning to call an independent hearing and assessment panel, not ARTC. Notwithstanding this statutory requirement, the ARTC considers that sufficient consultation has occurred with the community and stakeholders regarding the proposal. The Environmental Assessment was prepared in accordance with the Environmental Assessment Requirements issued by the Department of Planning, and the Environmental Assessment was reviewed and determined by the Department to adequately address these requirements and was deemed adequate for public exhibition. Therefore, the ARTC believe an independent hearing and assessment panel is not required.

The Department of Planning will be reviewing the Environmental Assessment prior to making a decision. The Director-General can ask for further assessment if he feels it is required so that he can adequately review the Environmental Assessment.

ARTC provided a variety of opportunities for members of the public to view the Environmental Assessment report. ARTC made the Environmental Assessment report available on a CD (for free by phone order) and on the project website. This allowed members of the public to view the report at no expense. If members of the public had difficulty accessing the report by CD or on the project website they were able to purchase the report in hard copy during the exhibition period, view the report at the staffed information days held at Campbelltown, Liverpool, Fairfield and Bankstown in May 2006, or view the report at the following locations during the exhibition period.

- Australian Rail Track Corporation, Sydney office
- NSW Department of Planning (Information Centre)
- Nature Conservation Council
- Bankstown City Council (Customer Service Centre)
- Chester Hill Library (Bankstown)
- Campbelltown City Council (Administration Centre)

- Ingleburn Branch Library (Campbelltown)
- Glenquarry Library (Campbelltown)
- Eaglevale Library (Campbelltown)
- Fairfield City Council (Administration Centre)
- Whitlam Library (Fairfield)
- Council Service Centre (Fairfield)
- Liverpool City Council (Administration Building).

The website and all venues to view the Environmental Assessment report were advertised during the exhibition period.

The Environmental Assessment was displayed at a number of venues during the public exhibition, including Liverpool Library. See *Section 3.2.5* for a full list of venues.

Content

Respondents to the Environmental Assessment raised the following issues in submissions 13, 22, 45, 52, 38, 61, 78, 81:

- The Environmental Assessment is misleading and often lacks detail in its focus on environmental impacts at particular locations along the length of the corridor. It does not give adequate and sufficient regard to serious social, economic and environmental detriments that the line would impose on local communities. This makes it difficult to form a complete understanding of the impact on certain areas.
- Alternative alignments do not appear to have been seriously explored in the Environmental Assessment. The overwhelming amenity, social, public domain and state planning benefits of an underground solution are not given due consideration.
- Mitigation of impacts on the local community should be classed as a primary objective of the Environmental Assessment. By consigning the social considerations impacts to 'design issues' the proposal fails to 'avoid' or 'mitigate' the impacts (as set out in the Director-Generals requirements of the assessment process). It should be stressed that community severance is not simply a design issue. All design alternatives should be evaluated on the basis of 'minimising the environmental and social effects of the design alternatives and maximising the environmental and social benefits' (page 3.6 Assessment Approach).
- One technical expert suggests that the environmental assessment has only been half done.
- The Environmental Assessment does not adequately show how impacts on Leacock Regional Park could be addressed in a satisfactory manner.
- The Environmental Assessment doesn't state why there will be a high number of freight train movements during the night.
- The issue of acid sulfate soils has been inadequately addressed in the Environmental Assessment.
- The noise assessment report (Section 11.2) and associated references is very technical and difficult to read. It is probably very difficult for a lay person to understand.

Response:

It is unclear from the submission which parts of the Environmental Assessment this respondent found misleading. The Environmental Assessment addressed all of the Environmental Assessment Requirements of the Director-General of the Department of Planning. The Environmental Assessment Requirements were issued on 29 March 2005 and modified and reissued on 19 April 2006 following the introduction of the Part 3A approval process for major projects. A checklist of the key issues to be addressed in the Environmental Assessment was provided in Appendix B of Volume 1. In the pre-exhibition review the Department of Planning deemed that the Environmental Assessment met the requirements under Section 75H(1) Part 3A of the *Environmental Planning and Assessment Act 197*9 and was adequate for exhibition.

The statement of valididity at the beginning of the Environmental Assessment confirms that the Environmental Assessment addresses all matters listed under Part 3A of the *Environmental Planning and Assessment Act 1979* and that it:

- contains all available information that is relevant to the environmental assessment of the development to which the Environmental Assessment relates
- is true in all material particulars and does not, by its presentation or omission of information, materially mislead.

As stated in Section 2.8 of Volume 1 of the Environmental Assessment, a set of primary and secondary objectives to satisfy the strategic need were developed for the proposal. The primary objectives can be viewed as explaining “what needs to be done” while the secondary objectives explain “the best way to achieve the primary objectives”. Differentiating between primary and secondary does not diminish the importance of the secondary objectives. One of the secondary objectives was in relation to environmental sustainability, to:

- 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.

All concept design issues were evaluated on the basis of ‘minimising the environmental and social effects of the design alternatives and maximising the environmental and social benefits’ being one of six criteria used in the multi-criteria analysis. The criteria used were based on the primary and secondary objectives. In addition, social issues were not simply a matter of design criteria; they were assessed as key issues in the Environmental Assessment. See Section 13 of Volume 1 of the Environmental Assessment and also Technical Papers 2-5 of Volume 2.

As stated in *Section 3* Volume 1 of the Environmental Assessment, the provision of a dedicated freight line between Macarthur and Sefton in Sydney’s south has been on the strategic planning agendas of RailCorp and the NSW Government for a number of years. Early schematic designs for the freight priority project were prepared by the former Rail Infrastructure Corporation in 2000–2001 (now called RailCorp). This work included

exploration of several design options to meet and manage the corridor route's independent operational objectives and engineering/environmental challenges. Numerous studies have also been undertaken on freight alignments in the Sefton to Glenfield area.

In 2000 Maunsell undertook a study of alternative routes for freight only access through Sydney. The report examined four route options through southern Sydney from Macarthur or Waterfall to Chullora/Enfield and one route was identified through northern Sydney. Four alternative corridors were outlined in *Section 2.6.2* of Volume 1 of the Environmental Assessment and were also assessed using a multi-criteria analysis.

Option one (the proposal) was found to be the lowest cost, have the least environmental impacts and best operational benefits. It was also found to have:

- good compatibility with all existing and future freight terminal locations
- the lowest capital and maintenance cost of any of the options considered
- uses the existing freight corridor for the majority of the route distance, giving rise to relatively fewer environmental impacts
- a relatively low impact on future network infrastructure plans.

Grade separation would be provided between the SSFL and the RailCorp passenger network at Glenfield and Sefton Park Junction to avoid movement conflicts between trains.

As discussed in Part B of Volume 1 of the Environmental Assessment, the proposal involves the construction of a new dedicated freight line using wherever possible the available land within the current rail corridor. The vertical alignment of the proposed SSFL is restricted due to the location of the proposal in an existing rail corridor, the existing corridor formation (whether in a cutting or an embankment), existing stations and other rail infrastructure (e.g. connections to the existing RailCorp network) and existing clearances to public crossings of the corridor (e.g. road bridges under or over corridor).

As stated in Section 7.1.8 of Volume 1 of the Environmental Assessment, the existing freight operation figures were based on a typical day in 2005. The figures are approximate, and no allowance was made for freight trains that only run on certain days of the week. Freight trains that have traditionally run via Granville and Fairfield (of which there are two freight services per day) have been included and for the purposes of the noise, air quality and hazard and risk assessments were assumed to run on the entire route of the SSFL. RailCorp's Working Timetable was also assumed to remain constant for the 2008 year of opening and 2018 10 year forecasts. All interstate freight services are included in the notional freight timetable as running through to/from a point east of Sefton Park Junction. It was also assumed that freight operators would construct new intermodal terminals for interstate traffic in the Ingleburn–Minto and Menangle Park areas. Therefore, considering these assumptions and existing freight train movements between Melbourne to Sydney and Melbourne to Brisbane, the notional timetable allocated the projected freight train growth into available train paths along the north – south corridor. Due to travel times across the interstate network and the desire for freight operators to leave a terminal before or after the afternoon peak hour commuter period in Brisbane or Melbourne, some trains pass along the SSFL during the night.

As stated in *Section 12.2.1* of Volume 1 of the Environmental Assessment the acid sulfate soil investigation identified that the proposed SSFL route comes into close vicinity with alluvial and estuarine plains and saturated low-lying areas along the Georges River, Cabramatta Creek and Prospect Creek. Therefore, there is a risk that acid sulfate soils would be encountered within the soil profile at these locations. As further stated Section *12.3.1* of Volume 1 of the Environmental Assessment, acid sulfate soil mitigation will be addressed by the preparation of an Acid Sulfate Soil Management Plan for the construction phase of the project and would be prepared according to NSW Acid Sulfate Soil Management and Advisory Committee guidelines. The Plan would be based on the outcomes of further investigation along the SSFL alignment to assess the extent and severity of acid sulfate soils in proposed construction areas.

Additional investigations at Leacock Regional Park are proposed for the detailed design stage. The Aboriginal heritage assessment, summarised in *Chapter 13* Volume 1 of the Environmental Assessment, concluded that no recorded or identified sites would be affected by the proposed alignment. However, additional survey is proposed at the detailed design stage (including the footprint of the flyover in Leacock Regional Park), once primary and secondary impacts have been identified and confirmed.

The concerns relating to visual and landscape impacts to Leacock Regional Park and of the Glenfield flyover encroaching into a water body have been noted. Refinement of the Glenfield flyover concept design and further visual and landscape assessment have been undertaken and is provided in Chapter 5 of this report.

It is noted that the noise assessment was technical and may have been difficult for the layperson to read. However it is the nature of these studies to be technical, with the major outcomes of the assessment summarised in Section 11 using plain English and with support of graphics as required. Any specific issues on the noise assessment have been addressed in *Section 4.2* of this report.

4.3.14 Options

General

A respondent to the Environmental Assessment raised the following issue in submission 78:

- An option to reduce noise at Cabramatta would be to completely enclose the rail interface, the passenger station and freight line, in an over arching structure treated with suitable sound proofing material, conceptually similar to Sydney Olympic Park Station. This option should be more cost effective and is a better solution to reduce noise. To the south of Cabramatta Road a similar structure but limited to the SSFL may be adequate.

Response

Enclosure of the passenger station and freight line in a partly sunk structure similar to Sydney Olympic Park Station would conflict with RailCorp's long term planning requirements for Cabramatta Junction and the Station. If the freight line is situated below ground it would need to be under Broomfield Street in an enclosed tunnel (as per the Environmental Assessment option assessed in Section 3.5.5 of Volume 1) so that it does not interfere with RailCorp's plans for an underground platform connected to a future down main dive under Cabramatta Junction from Canley Vale.

Welded rail lengths

A respondent to the Environmental Assessment raised the following issue in submission 78:

- Resident hopes that the continuous welded rail lengths would be used in all built up areas to reduce noise and vibration.

Response

ARTC proposes to use continuously welded rail over the entire length of the proposed SSFL route.

Earth mound noise barriers

A respondent to the Environmental Assessment raised the following issue in submission 78:

- The Polish Association suggests ARTC build natural earth noise barriers which are landscaped with native trees. They feel that this would be a cheaper option to concrete and would make them feel more at home rather than in the New York Bronx.

Response

A natural earth noise mound 3 metres high would have a 9-10 metres wide footprint. There is not sufficient available width within the rail corridor to accommodate an earth mound, particularly given the need to provide for maintenance access along the railway corridor.

Station rationalisation

Respondents to the Environmental Assessment raised the following issues in submissions 20, 78:

- There is an area a short distance to the north of Cabramatta station where the rail line divides to go to Canley Vale on one side and Carramar on the other. At this location there is an old brick signal box that could be removed to allow enough land in the vicinity to provide a new location for Cabramatta station, perhaps actually doing away with Canley Vale station all together. This would provide Cabramatta with a much better long term solution.

Response

The relocation of Cabramatta Railway Station north to the junction and doing away with Canley Vale Station is a NSW State Government and RailCorp matter and is not a proposal with direct relevance to ARTC or the environmental assessment of the proposed SSFL.

Main South Line track configuration

A respondent to the Environmental Assessment raised the following issue in submission 39:

- The present railway system is mismatched and would be improved by the construction of a four track (Up Up Down Down) railway configuration out of Sydney with flying junctions at North Strathfield, Sefton Park and Tempe to enable freight trains to join passenger lines without conflict and would remove the need for trains attempting to travel in opposing directions having to cross paths.

Response

The current proposal to provide a dedicated fright line through southern Sydney will benefit the interstate freight network and the Sydney passenger rail network. Further plans to add track capacity and grade separate junctions would also benefit the rail system but consideration of these proposals is beyond the scope of this project and environmental assessment.

The proposed single track SSFL will be able to cater to foreseeable freight demand and extra capacity can be added in the longer term with additional passing loops or resignalling (which are not part of this proposal would also be subject to their own environmental assessment). Access to the rail freight network for the Greater Western Sydney Economic Development Zone is not part of the scope of this project but is being investigated by the Department of Planning including its Western Sydney Freight Line Options Study.

Underground alignment

Respondents to the Environmental Assessment raised the following issues in submissions 23, 54, 55, 66, 67, 69, 70, 77, 78, 68, 67, 78:

- Due to its position as a tourist centre (as proclaimed by Nick Greiner in 1991) The Cabramatta Chamber of Commerce consider that ARTC must treat Cabramatta as a specialist area and put the SSFL underground.
- The residents and business owners in Cabramatta want the SSFL to go underground. Serious consideration should be given to the freight line being placed under ground.
- A tunnel alignment that necessitates the closure of Broomfield Street at Longfield Street would inconvenience residents to the south of Longfield Street.
- The area outside Cabramatta Station should not be taken over (for the proposal); instead ARTC should tunnel under the existing station.
- The tunnel option would address the adverse impacts arising from the preferred option at Cabramatta station and a portion of the track either side. However, the tunnel option is no different from the at grade option for all other portions of the track in the Fairfield LGA. The level of impacts on these other communities (Villawood, Carramar and Canley Vale) is unacceptable.
- The tunnel option would, due to the extended closure of Broomfield Street, impact some businesses in East Cabramatta leading to further economic decline. However, business operators have indicated that limited term closure due to tunnel works is preferable to the permanent impacts of the ‘at grade’ option.
- The underground freight option would have little impact in Cabramatta. There would be no change in traffic or parking arrangements. There would be no need for noise barriers and no impact on visibility across the rail corridor. An emissions stack for the tunnel would be an acceptable visual intrusion and is far preferable to the noise and visual intrusion of an above ground option.
- Putting most of the line underground would be more expensive but would mean there is less need for curfews and the whole line could be made dual carriageway from the start. There may also be some cost offset as easements may be less expensive than compulsory land acquisition.
- The current proposed above ground alignment is not suited to 21st Century Australia.
- The SSFL should be placed underground.

Response

As outlined in Section 3.5.5 of Volume 1 of the Environmental Assessment, the surface freight line alignment through Cabramatta is considered to be the best performing option across a range of assessment criteria. Notwithstanding the two options presented in this Section of the Environmental Assessment, there were other tunnel configuration options that were also prepared, but didn't pass preliminary assessment due to the difficulties in merging the tunnel structures with competing vertical alignments of the different tracks.

It is agreed that a tunnel alignment under Broomfield Street would cause considerable inconvenience during construction.

The tunnel options through Cabramatta would require permanent loss of on street parking south of the station as far as Junction Street due to the tunnel ramp structure. The tunnel options would not improve visibility across the rail corridor at Cabramatta as the station buildings and amenities block would continue to obstruct views, including the additional visual intrusion of an emissions stack. Whereas the surface alignment would open up some view lines across the rail corridor by relocating these facilities to the extended footbridge and concourse and to underneath the stairs.

The surface alignment option is preferred over the tunnel option for the following reasons:

- construction would be easier, completed in a shorter timeframe and of a lower cost
- lesser construction impacts (e.g. noise, traffic and transport)
- no net loss of commuter car parking
- improved visual connection of east and west Cabramatta
- improved public transport interchange facilities
- enhanced streetscape and station precinct contributing to civic amenity.
- Undergrounding most of the line would be prohibitively expensive and difficult to ventilate.

Shunting off "Back-up-line"

Respondents to the Environmental Assessment raised the following issues in submission 1:

- Any shunting off the "Back-up-line" should be located on the northern area of the golf course at Glenfield.

Response

There proposed passing loop located between Glenfield and Casula will not be used for shunting of trains, except if required due to an incident or emergency occurring on the SSFL.

Farrow Road, Campbelltown

A respondent to the Environmental Assessment raised the following issue in submission 44:

- Additional space is currently available on the existing rail line indicating that acquisition of land along Farrow Road, Campbelltown may not be required.

Response

What appears to be unused land within Campbelltown Yard is actually required for RailCorp's proposed yard remodelling works. This requires the proposed SSFL to be built on a more westerly alignment outside the current yard boundary, along part of Farrow Road.

Alternative route

A respondent to the Environmental Assessment raised the following issue in submission 28:

- Option 3 would be the simplest and straightest route from Port Botany to the Main South Line and beyond, allowing more room for the interchange of cargo.

Response

Option 3 – East Hills Line alignment (see Section 2.6.2 of Volume 1 of the Environmental Assessment) has no direct access to Port Botany or the Main North route to Brisbane, and would therefore result in inefficient freight operations.

Design of waterway crossings

A respondent to the Environmental Assessment raised the following issues in submission 33:

- Bridges should be the standard basic structure for all water crossings rather than just for creeks as proposed. Only where a watercourse is not regarded as having corridor linkage potential should a culvert continue to be used. This needs to be assessed separately for each location.
- The use of gabion baskets in the realignment of Bow Bowing Creek is not supported by the Department of Natural Resources.
- The Department of Natural Resources supports the use of longer spans over watercourses and minimisation of the number of piers wherever possible.

Response

The proposed concept design has proposed bridge crossings to align with current bridges and proposed culverts to align with current culverts. The proposed bridge crossings generally align with creeks and larger waterways, and where culverts have been proposed, it is appropriate to extend these under the widened embankment formation of the SSFL. As noted in Sections 4.2.3 and 4.3.4 of Volume 1 of the Environmental Assessment, the detailed design stage of the project will assess the suitability of culvert and bridge crossing of creeks and watercourses. Hydraulic capacity of these drainage structures will be an important consideration.

As already noted in Section 4.3.2 in addressing other issues relating to Bow Bowing Creek, the treatment for the realigned section of Bow Bowing Creek will be developed in conjunction with the Department of Natural Resources (see Cl54(b)(ii) in the Statement of Commitments in Appendix D of this report).

Department of Natural Resources (DNR) preference for longer bridge spans over watercourses is noted and the final design will be undertaken in consultation with DNR (see Cl54 a in the Statement of Commitments in Appendix D of this report).

Alignment options

Respondents to the Environmental Assessment raised the following issues in submissions 61, 68, 72:

- ARTC is working with RailCorp to allow the commuter line to go underground; therefore the argument against undergrounding the SSFL at Cabramatta is spurious.
- The justification for the route alignment presented in the Environmental Assessment is inadequate. Section 2.6.2 Alternative Corridors provides poor justification for the assessment of options and fails to address social impact criteria at all. This is unacceptable.
- The freight line will run too close to residences in Wattle Avenue Carramar. The freight line should be constructed on the other side of the existing line where there is no fence line and where the dangers and consequences may have a little less impact on our future lives

Response

ATRC is liaising with RailCorp regarding their future planning for Cabramatta. As no commitments have been made from RailCorp regarding future capital works budgets, and ARTC intends to commence construction in early 2007, potential opportunities to coordinate works are limited.

All route options assessed in the multi-criteria analysis in Section 2.6.2 of Volume 1 of the Environmental Assessment are within existing rail corridors through mixed urban land use and with one exception (Option 3, East Hill Line) these corridors currently have regular freight traffic. In this context, the social impacts of these options would be broadly similar with the exception of Option 3 which was scored lower on environmental criteria (partly as a result of the social impacts of introducing regular freight services). It is considered that social impact is not a significant differentiating criteria in terms of route selection and was consequently included within the environmental criteria.

As outlined in Section 3.4.1 of Volume 1 of the Environmental Assessment, between Glenfield and Sefton Park Junction the SSFL would be located on the eastern and southern side of the rail corridor, as this side has fewer residential and sensitive land uses adjoining or in proximity to the corridor (particularly between Glenfield and Warwick Farm Railway Station), avoids the need for a grade separation at Cabramatta Junction and allows for a possible future connection to an intermodal terminal at Moorebank. In addition, the southerly alignment within the corridor past Carramar allows for the direct connection with the existing Leightonfield Yard and facilitates a direct connection via a deep cutting underneath the Bankstown Line to the Metropolitan Goods Line. If the SSFL was constructed on the northern side of the corridor at Carramar, two additional grade separated crossings would be required for the SSFL that would potentially cause additional and perhaps greater environmental impacts.

Railway operations

Respondents to the Environmental Assessment raised the following issues in submissions 39, 74:

- Regarding connections from the SSFL to the existing rail system (Table 7.1 on pages 7.4 and 7.5 of the Environmental Assessment), RailCorp does not support the intermediate connections. The only connections should be at Macarthur and Sefton and one in the vicinity of Minto. It is important that the project's approval remains valid without the intermediate connections described in the Environmental Assessment.
- RailCorp believes that there would be substantial benefits in relocating the SSFL loop (at Leightonfield) on the opposite side of the SSFL. This would provide direct access to the Leightonfield Yard from the SSFL.
- In addition, this loop should be extended from 900 metres long to 1500-1800 metres long, allowing accommodation of Pacific National's 1200 metres steel trains that use the Leightonfield Yard. The longer loop could also be used to hold Sydney bound trains if they are delayed exiting the SSFL at the Chullora end.
- RailCorp does not propose to operate any scheduled passenger services on the SSFL, so connections to the main line near Leightonfield are not required for passenger services. However, the track geometry should ensure that crossovers are not precluded in case they are required in the future.
- The concept of an isolated non-electrified single track does not make sense and is not going to solve the problems of the entire rail network. The proposal should be for a fully electrified 4 track railway with twin island platforms enabling suburban, interurban, intercity and freight trains to run together without delaying each other.

Response

ARTC has reached agreement with RailCorp to delete all intermediate connections between the two networks except at Leightonfield Yard. ARTC has also revised the layout of Leightonfield Yard and extended the length of the proposed loop at Leightonfield partly in response to RailCorp's suggestions. The proposed changes to the proposal and their assessment are outlined in Chapter 6 of this report.

A four track electrified Main South Line is in excess of freight capacity requirements. However, ARTC has committed to integrating its freight track into an electrified four track corridor if RailCorp proposed to upgrade to four tracks on the Main South Line in the future.

The suggestion of an additional platform with station access facilities at Campbelltown is not warranted at this time (although RailCorp has sought separately with ARTC to preserve space for these facilities in the future, which would be subject to a separate Environmental Assessment).

Against the proposal

Respondents to the Environmental Assessment raised the following issues in submissions 67, 70, 74, 78:

- Residents don't want the SSFL to run through their suburbs at all, some live directly opposite the proposed alignment.

Response

The social impacts of the proposed SSFL have been assessed in Chapter 13 of Volume 1 of the Environmental Assessment. Project impacts would be managed so that very little residual impact will result and in some cases improvements would result (e.g. corridor noise). Some residents are expected to have residual operational noise impacts and be affected by local air quality impacts as a consequence of the SSFL. The preferred route of using the existing railway corridor (which has been established for many years as one of Sydney's primary rail links serving south and south-western Sydney, regional New South Wales and Melbourne) would have less social, environmental and economic impacts than creating a new corridor.

Alternative alignment through Cabramatta

A respondent to the Environmental Assessment raised the following issues in submission 78:

- Fairfield Council proposes an alternative alignment for the Cabramatta section of the SSFL (Alternative C in their submission).
- Alternative C proposes to underground the freight line in the alignment of the proposed future RailCorp tunnel (vol 1, fig 3) and to allow this line to be on grade where the SSFL 'on grade' option is proposed in Alternative A. Alternative C has the following advantages:
  - substantial cost savings as all underground work could be done at once rather than completing works now and in the future
  - no need for passenger access to underground infrastructure or for air supply and treatment
  - the new downside platform would be an extension of the existing down platform, simplifying passenger movements
  - noise barriers would not be required, thereby reducing cost and visual impacts
  - the overall tunnel footprint would be smaller (similar footprint to alternative A) and the overall visual impact would be reduced.

Response

Fairfield Council's Alternative C for the Cabramatta section of the proposed SSFL route is based on an erroneous design assumption. RailCorp's future Down Main dive structure under Cabramatta Junction cannot climb back to a surface level until it is past the Cabramatta Railway Station due to the constraint of a maximum allowable track gradient. Therefore, a surface alignment and platform is unsuitable for RailCorp's proposed passenger track.

Other

Respondents to the Environmental Assessment raised the following issues in submissions 1, 23, 58, 61, 62:

- A ticket office on the footbridge (at Cabramatta) will cause congestion and slow pedestrian traffic considerably especially in peak periods. The existing footbridge is not wide enough to cope with the level of pedestrian traffic under present conditions. How much wider is the new bridge and pedestrian crossing going to be?

- Due to the fault line, near the railway bridge at the southern end of Glenfield railway station, consideration should be given to the installation of 30 feet deep reinforcements at 75 metre intervals.
- ARTC should use sharp ballast rather than round ballast and that this is a condition of approval.
- Consideration should be given to rubber composite “Brick Shape” to be sunk on the road base, then the blue metal aggregate – tracks.
- The seating and public toilets at the pedestrian lights (at Cabramatta station) are regularly used by the public. If these facilities are to be relocated the same number must be provided in the new location.

Response

The new concourse at Cabramatta Railway Station would be about 9 metres wide (6 metres wider than the pedestrian bridge) with adequate queuing space for commuters to purchase tickets and to allow safe access to the platform ramps (which will be retained).

Any issues associated with a geological fault line at Glenfield will be considered at detail design stage. However, no construction work is proposed south of Glenfield Railway Station as the SSFL and the passing loop north of Glenfield connect into the existing freight track at this location.

The ballast specification for the construction of the SSFL track would be based on the standard and rounded ballast is unsuitable.

As discussed in Section 3.4.4 of Volume 1 of the Environmental Assessment, station functionality and accessibility to the six directly affected railway stations would be maintained, including Cabramatta Railway Station, during and after construction. The precise location and extent of seating and public toilet provision will be identified in greater detail during the detailed design phase of the proposal which would involve consultation with the relevant stakeholders (including RailCorp and all four Councils).

RailCorp related issues

Respondents to the Environmental Assessment raised the following issues in submissions 23, 25, 45, 61, 78, 83:

- An underground station at Cabramatta raises security concerns, especially at night. It would deter people from using the rail services, hence impact their social lives.
- Will Casula Station be serviced daily, by State Rail personnel, for ticketing and security?
- The Environmental Assessment does not address the issue of a lift at Sefton Station. A lift is necessary as many passengers cannot climb the two flights of stairs to reach to other side of the railway line.
- Cabramatta and Canley Vale stations should be merged. This makes economic sense as modifications can be significantly more costly than building from scratch. Building a modern purpose designed passenger station with the concept of providing through access by tunnels under the rail would mitigate the effect of its increased width.
- Tunnels under the rail corridor aligned with McBurney Road/Longfield Street and Hughes Street/Fisher Street could provide the desired connectivity, most importantly, at street level.

- Cabramatta station should be permanently upgraded as part of this project with a resulting better alignment of the pedestrian concourse exit points and signalised crossing points.

Response

The above issues should be answered or addressed by RailCorp, not ARTC.

4.3.15 Other

Respondents to the Environmental Assessment raised the following issues in submissions 2, 8, 10, 14, 28, 57, 66, 68, 78, 79:

- The project would expose property owners to noise, dust and vibration etc and result in permanent environmental damage.
- DEC state that: “Cumulative impacts from the construction work sites are not limited to traffic management impacts; they are relevant to noise. It is possible for noise sensitive receivers to be affected in series or simultaneously by works from multiple construction sites along the length of the project”.
- It is a possibility that the SSFL will be like the M7 and take 30 years to complete.
- Once the SSFL as currently proposed is completed will there be greater pressure to ‘complete’ the intermodal terminal at Moorebank and down relief freight track (on the eastern side of the rail line Section 7.2 of the Environmental Assessment) as well? This would radically alter the nature of the whole area and would mean that there would be disturbances on both sides of the river, adding large trucks.
- Cabramatta Chamber of Commerce and Industry and the Lubo Medich Group reserves the right to review the proposals after the objections and alternative submissions have been lodged and considered and make further submissions at a later date.
- Port Jackson is the proper, deep port where freight should be offloaded onto rail.
- Fairfield City Council’s submission clearly demonstrates that the impacts of the SSFL are not acceptable to the local community. Fairfield Council look forward to the Department of Planning’s (or ARTC) considered response to their submission and to further documentation indicating the Department’s intention to ensure that if the SSFL is delivered it will be without the serious detriments inherent in the current proposal.
- It is absolutely imperative that the residents of Riverpark Drive, Liverpool receive written guarantees from the authorities that ARTC are minimising the impact of this development.
- The two uses of rail track (passenger/high density volume transport and freight) are incompatible in dense urban areas.

Response

Environmental management measures for the construction phase of the proposal will be incorporated into a Construction Environmental Management Plan and will be prepared in accordance with the Statement of Commitments for the Environmental Assessment and all relevant acts and regulations. These mitigation measures will ameliorate much of the expected construction impacts. For the revised Statement of Commitments *Appendix D* of this report.

As detailed in *Table 22.1* of Volume 1 of the Environmental Assessment, ARTC are aware that cumulative impacts are not limited to traffic management impacts. A noise and vibration monitoring program will be undertaken during construction, this will ensure that the construction contractor (see CI7 and CI39 in the Statement of Commitments in Appendix D of this report of the cumulative noise levels. ARTC will ensure that construction stages and sites are managed so that the timing and relationship between construction work sites along the proposed SSFL route are taken into consideration in the detailed construction work scheduling.

The entire construction program is expected to take up to two and a half years with significant overlap between the construction phases. Once the SSFL is constructed there will be capability for a rail connection to the possible future intermodal terminal at Moorebank and for the down relief freight track (western side of the rail corridor) to be constructed. These however, form separate proposals and are not part of the SSFL proposal. The obligation that ARTC has is to ensure that possible future rail and intermodal connections could be accommodated in the design of the SSFL (such as the clearance, span and alignment of the SSFL on the Glenfield flyover structure).

The proposed SSFL comprises a single dedicated freight track enabling the priority use of the RailCorp line for passenger services. The section of the interstate rail freight network between Macarthur and Sefton is a bottleneck because freight trains have to give way and share the RailCorp passenger lines. Within the Sydney metropolitan area RailCorp's passenger services have priority over freight trains, and during the morning and afternoon commuter periods freight trains are denied access to the RailCorp network. As a result, freight trains cannot arrive or depart Sydney at the optimum time. This is an early morning arrival and a late afternoon departure for services to and from Melbourne. This bottleneck affects the availability of rail freight services and causes the transit times between Melbourne–Sydney–Brisbane to extend. Therefore, it has a direct effect on the competitiveness of rail freight compared to road freight. In addition, the reliability of passenger services are also affected by the dual use of the RailCorp network, whereby if a freight train breaks down or runs late, it can cause passenger service disruptions and delays.

The separation of passenger and freight trains provides operational efficiencies due to the different operational requirements between these two types of trains. Building a new freight corridor would be costly in terms of environmental, social and economic impacts. The demand for freight and passenger services tends to occur within and between dense urban areas (such as Sydney, Melbourne and Brisbane on the north – south corridor) and history has shown that populations and settlements are orientated around such infrastructure, as this is where employment opportunities are concentrated.

This proposal not only improves interstate freight services, it also supports the metropolitan freight network serving Port Botany, there is no operating freight network to Port Jackson. As described in Section 2.5.4 of Volume 1 of the Environmental Assessment and as clarified in a submission (see Section 4.3.16 documentation clarification), the recent approval for the expansion of Port Botany involved approximately 51 hectares of land to develop four new berths and additional container terminal areas.

Under *Sydney Regional Environmental Plan (Sydney Harbour Catchment) 2005*. Sydney Harbour will remain a working harbour 'The Harbour REP aims to establish a balance between promoting a prosperous working harbour, maintaining a healthy and sustainable waterway environment and promoting recreational access to the foreshore and waterways.' (Department of Planning. 2006a)' The working harbour is preserved by retaining a prosperous working waterfront and an effective transport corridor, including port and maintenance facilities, naval and aviation uses, commercial and marinas and boatsheds'. (Department of Planning. 2006b)

The draft Statement of Commitments prepared as part of the Environmental Assessment and finalised as part of this report, is a legally enforceable document that ARTC are bound to in minimising the impact of this proposal. It indicates ARTC's commitment that the SSFL is delivered without serious detriment to the environment or to directly affected residents.

The final date for the receipt of submissions was July 3 2006. In accordance with Section 75I of the Environmental Planning and Assessment Act 1979, if the Director-General to the Department of Planning considers that significant changes are proposed to the nature of the project, the Director-General may require the proponent to make the preferred project report available to the public. Responses to Fairfield Council's submission are made throughout this Chapter.

Construction

Respondents to the Environmental Assessment raised the following issues in submissions 56, 58, 74, 78, 79:

- How long will the new work take?
- The construction works need to be co-ordinated with other large works, namely the Canley Vale Leisure Centre.
- If the surface alignment proceeds, it would be desirable for the SSFL tunnel and the proposed future RailCorp platform and Down Line tunnel and space for associated infrastructure to be built together as one project in order to minimise further disruption to the community in the future.
- Table 3.1 of the Environmental Assessment states the design criteria of 'allowing safe and efficient maintenance of the SSFL and tracks' has been followed. RailCorp is concerned that this has not been carried through into the design in the Environmental Assessment. Issues include:
  - The width of the road access adjacent to the rail track
  - The need for safe places for rail personnel between the SSFL and RailCorp tracks
  - In areas where the existing transmission line requires relocation, adequate maintenance access is required to avoid the need for track possessions and subsequent interruptions to train services
  - It is important that the planning approval ensures that these requirements can be met.
- DEC does not support the draft traffic, transport and access commitment to undertake over road bridge works 'out of hours'. A hierarchy that prefers construction during normal hours over out of hours should be adopted.

Response

The proposed construction of the SSFL will take between two and two and half years to complete, as stated in Section 5.1.1 of Volume 1 of the Environmental Assessment.

ARTC will attempt to coordinate the construction of the SSFL with other major works along the route, i.e. through the Community Liaison Group (for Council works) and the Project Coordination Group (for RailCorp works) to maximise efficiency and minimise disruption for all parties (see Cl70(c) in the Statement of Commitments in Appendix D of this report).

Coordination with RailCorp's future works at Cabramatta Railway Station is dependent on funding and priorities of the NSW State Government. However, ARTC will continue liaising with RailCorp regarding the potential to coordinate works while the SSFL is under construction.

Section 4.2 of Volume 1 of the Environmental Assessment discusses the RailCorp minimum requirements for maintenance access. During the detailed design stage, ARTC commits to having regard to relevant legislative requirements and associated guidelines to ensure the ongoing safe and efficient maintenance of the SSFL and tracks, particularly ensuring that the SSFL meets minimum requirements for:

- The width of the road access adjacent to the rail track
- The need for safe places for rail personnel between the SSFL and RailCorp tracks
- In areas where the existing transmission line requires relocation, adequate maintenance access is required to avoid the need for track possessions and subsequent interruptions to train services (Refer to Cl102(b) in the Statement of Commitments in Appendix D). The typical formation of the SSFL corridor in the different topographic environments along the route (embankments and cuttings), including maintenance access tracks, is shown in the series of typical cross-sections in Figure 4.3 of the Environmental Assessment.

As stated in the Statement of Commitments Cl 38 within Appendix D, construction works will only be undertaken between the hours of 7 am to 6 pm (Monday to Friday), 8 am to 1 pm (Saturday) and at no time on Sundays and public holidays subject to DEC approval, except:

- for the delivery of materials required outside these hours by the Police or other authorities for safety reasons
- where it is required in an emergency to avoid the loss of lives, property and/or to prevent environmental harm
- where works are required due to traffic management and safety reasons, subject to relevant traffic management approvals, as verified by the Environmental Management Representative
- where the works are required to be undertaken during a Track Possession, subject to approval from the Environmental Management Representative (and the DEC where relevant to the issue of an Environment Protection Licence provided under the Protection of the Environment Operations Act 1997). Construction that occurs during a Track Possession would abide by any conditions that the Environmental Management Representative imposes in granting approval for these works.

Local residents and the Department will be informed of the timing and duration of approved out of hours Construction work at least 48 hours before that work commences.

4.3.16 Documentation clarification

Respondents to the Environmental Assessment raised the following issues in submissions 62, 74, 75, 76, 79 and 82:

- Table 21.1 of the Environmental Assessment requires amendment. Services are proposed to run half hourly at other times, with no Sunday services.
- Section 21.1 Volume 1 of the Environmental Assessment states that route 908 connects Sefton with Chester Hill; under the new Integrated Network Plan it will travel from Bankstown to Regents Parks, Auburn, Merrylands not between Sefton and Chester Hill.
- Section 4.3.5 [of the Environmental Assessment] discusses the Casula level crossing. The Environmental Assessment is incorrect in stating that this crossing provides pedestrian access. It is currently limited to a single lane of traffic with no pedestrian provisions.
- Figure 10.1 shows part of the proposed cycleway alignment passing within the live rail corridor along the alignment of the proposed Main South Line between the SSFL and Liverpool station. It is expected that this is an error. Accordingly it should be corrected.
- Table 16.1 Volume 1 of the Environmental Assessment does not mention bus route 881 which currently services O'Sullivan Road immediately to the east side of the line at Leumeah railway station.
- Table 20.1 Volume 1 of the Environmental Assessment should be replaced as a new bus route 904 is proposed to operate on Longfield Street, Vale Street and Lansdowne Road, Canley Vale. Bus services on the east side of Cabramatta station are currently under review. The existing service will remain. Bus services and frequencies will change under the future new network plan affecting the west side of Cabramatta station.
- The Environmental Assessment incorrectly states that there are no relevant bicycle routes in the vicinity of Sefton station. The Duck River recreation trail which will ultimately link the Bay to the Mountains and Cooks River regional trails has not been considered.
- Commitment 16 on pages 15 and 16 [in Appendix C, Volume 1 of the Environmental Assessment] should be transferred to Schedule 1: Administrative.
- The following should be added to Commitment 16: "state how construction would be undertaken to comply with statutory obligations including any relevant environmental protection licence".
- The commentary on the need for the proposal (Chapter 2.5.4, page 2.15 of the Environmental Assessment) indicates that "the recently approved Port Botany expansion includes the reclamation of approximately 60 hectares of land to develop five new berths and additional container terminal areas". This sentence should be clarified to indicate that the approval was given for approximately 51 hectares of land to develop four new berths and additional container terminal areas. The location of the fifth berth is currently being considered by an independent panel.

Response:

These clarifications to the Environmental Assessment have been noted. The Traffic Management Reports and Traffic Management Plans to be prepared during the construction stage will take the pedestrian/cycle access and bus routes clarifications into account. The suggested changes to the statement of commitments will be incorporated into the updated statement of commitments (see Cl71(b)(xi) Appendix *D*).

4.3.17 Support for the proposal

Respondents to the Environmental Assessment raised the following issues in submissions 7, 15, 17, 22, 28, 29, 37, 43, 50, 51, 60, 61, 65, 74, 75, 76, 78, 81, 84, 85, 87:

- The Environmental Assessment clearly demonstrates the need for the proposal and the environmental benefits to the community at large of getting more freight off the roads and onto rail.
- The SSFL will not result in the separation of east from west in Cabramatta.
- There is a need for this freight line.
- In general terms the concept of a freight rail line is a good thing, as an extra dedicated line not only will help efficiency and economic development but, even more desirably, will reduce the amount of freight otherwise travelling by road. However, this should not be done at the expense of residents who live along the rail corridor.
- Overall, the proposal has merit and the proposed improvements to the natural environment (such as plantings) are excellent.
- The proposal is a positive step in the provision of infrastructure for the long term increase in goods and services movement. The proposal offers a more efficient alternative to long distance road transport, provides employment, benefits local suppliers and manufacturers, has minimal impact to local communities and represents considerate use of RailCorp land alleviating the need for large additional land purchases.
- The way Botany Bay has been adapted is deplorable, however it is agreed that a larger percentage of container traffic should be moved by rail to be closer to the point that it is unpacked.
- The provision of both 24-hour rail freight access to Sydney and operational separation from City Rail services is strongly supported.
- The EIS openly presents the alternative options at most locations and the reasons for the preferred option are clear and well supported. This indicates a commendable thoroughness by ARTC in evaluating the whole project.
- A dedicated freight line will have a positive influence on managing the growth of road transported freight.
- It is noted that the precinct proposals contained in Sections 6.4 and 6.5 do not diminish existing car parking and commuter bus facilities. Maintaining car parking spaces and bus facilities is strongly supported by Council.
- In general, RailCorp is supportive of the SSFL since it will ensure an independent freight link into the Sydney metropolitan area from the south that will not be constrained by passenger services.
- DPI Mineral Resources has no objection to the proposed freight line.
- The SSFL is likely to result in a number of positive impacts on the operation of the City Rail network, notably a direct benefit in alleviating rail traffic on the Main South Line, which complements the objectives of the Rail Clearways Program.
- The SSFL project is an important contribution to the economy of NSW and to an improved passenger rail service.

- Sydney Ports supports the proposal for the following reasons:
  - It will enhance the level of freight services and offer unimpeded freight access to and from south-west Sydney during commuter peak periods
  - It is of benefit in meeting the needs of government policies and initiatives as well as supporting the operations of industry in supporting the movement of freight
  - Provides additional rail capacity in the Sydney metropolitan area in response to increases in container trade and movements
  - Is complementary to a number of current initiatives being undertaken by Sydney Ports including the recently approved Port Botany Expansion and proposed Intermodal Logistics Centre at Enfield
  - Provides for direct and indirect connections to existing and proposed freight terminals in south-west Sydney
  - Will be of benefit to rural and regional operations through improving the attractiveness of rail for agricultural and manufacturing operations in the central-west, south and south-west of NSW.
- The Liverpool Transport Taskforce welcomes the Freight line and is strongly supportive of initiatives to get freight rail off our roads and onto railways. We acknowledge the increased road safety benefits and the reduction in energy used to transport goods.
- A modern transport system must be sustainable from an economic, social and environmental perspective. Increasing the amount of freight moved by rail in Australia assists these outcomes. The Southern Sydney Freight Line will achieve strong long-term economic benefits with better.
- The impacts of noise from the SSFL will dwarf in comparison to the existing noise from cars and trucks in Bankstown.
- It is progressive to move semi-trailers from our roads.
- The SSFL will provide employment during construction for many unemployed in NSW.

Response

ARTC notes these issues providing support to the proposed SSFL.

4.3.18 Hazards and risk

General

Respondents to the Environmental Assessment raised the following issues in submissions 79, 84:

- The definition below could be included in the statement of commitments and any planning approval to improve consistency between the approval and subsequent environment protection licences: for the purposes of the Part 3A approval – 'waste' – has the same meaning as defined in the dictionary to the POEO Act.
- The subject area is affected by a number of exploration titles for coal, petroleum and geothermal substances. The proposed route also passes very close to Glenfield Quarry which now operates as a waste facility.
- The Department of Primary Industries would have serious concerns about any further extension of the line or associated infrastructure south of Glen Alpine which could lead to sterilisation of coal and coal seam gas resources.
- The southern end of the proposed line lies just outside Petroleum Production Lease No 4, held and operated by Sydney Gas Operations Pty Ltd and AGL.
- The southern end of the proposed line from Glen Alpine to Macarthur overlies important resources of coal and is within, or in proximity to, the South Campbelltown Mine Subsidence District. Accordingly the Mine Subsidence Board should be consulted regarding subsidence design parameters for this section of line.

Response:

To achieve consistency between the approval and subsequent environment protection licences, for the purposes of the Part 3A approval, 'waste' has the same meaning as defined in the dictionary to the *Protection of the Environment Operations Act 1997* (within the Statement of Commitments included in Appendix D of this report).

As discussed in Section 14.2.2 of Volume 1 of the Environmental Assessment, land would be acquired from the Glenfield Waste Facility on the eastern side of the corridor for the SSFL flyover ramp. The 'acquisition zone' effects an area where materials extraction has already occurred to a depth of about 20 metres, however it would result in the loss of approximately 105,700 cubic metres of land fill for non-putrescible waste. Discussions have been held with the operators of the Glenfield Waste Facility over the past 12 months (including sharing of survey data) and this will continue during detailed design and acquisition. The operators have raised no fundamental objections and are already working with ARTC to minimise impacts by planning its operations around the identified 'acquisition zone'.

ARTC notes the Department of Primary Industries' concerns; however, the proposal follows an existing rail corridor and does not involve works south of Glen Alpine. Accordingly, there is no potential to sterilise these resources or impact upon Petroleum Production Lease No 4. Planning for an extension of rail

services in this area is not included in this proposal, and is a strategic rail planning consideration for the NSW Government.

Construction hazards and risks

Respondents to the Environmental Assessment raised the following issues in submissions 61, 79:

- Evidence should be provided that plans are in place to provide protection should diesel fuel hoses break or spills otherwise occur resulting in ground contamination. Further assessment of environmental protection plans is required prior to commencement of any works.
- Construction material options for passenger safety should be further investigated. The proposal to provide expanded galvanised mesh panels with steel framing as an option for the separation barriers between passenger platforms and the SSFL is questioned since they may not provide wind protection from fast travelling freight trains.
- DEC understands that there may be significant deposits of steam train boiler ash along the rail corridor. If these deposits are retained, they must be monitored and managed in order to prevent selenium contamination of waters, including groundwater.
- ARTC should undertake its Phase 1 Contamination Assessment of the project corridor and associated sites prior to the commencement of construction. This assessment should include specific measures to assess contamination from coal tar in asphalt and copper chromium arsenate, creosote and other preservatives in timber, ballast and soils. In addition ARTC should commit to:
  - Notifying DEC if any PCB waste or material is identified at any premises as soon as practicable after such identification.
  - Keeping, conveying and processing any PCB waste or material in accordance with the 'Chemical Control Order in relation to materials and waste containing PCB 1997'.
  - Not recycling or re-using any asphalt containing coal tar.
  - No re-use of excavated material from the project in earthworks or landscaping unless it has been assessed for contamination and certified by accredited auditors for re-use for the specific purpose and location proposed.
- ARTC should commit to the preparation of a spoil management plan that is integrated with its waste; hazardous materials; and acid sulfate soil management plans.

Response:

As part of the Statement of Commitments within Appendix D of this report, contingency plans are to be implemented for events such as fuel spills as part of the Erosion and Sedimentation Control Plan. As part of the operations of the SSFL, ARTC's Environmental Management System and supporting plans would apply.

Where a two 'side' platform arrangement is in place at a station, the SSFL would pass to the back of the nearest platform (at Minto, Leumeah, Casula, Warwick

Farm and Cabramatta Railway Stations). Where the clearance between the SSFL and the back of the platform is at, or close to, the minimum, a separation barrier would be constructed along part or all of the back of the platform depending on platform passenger loadings. The barrier would protect the public from wind effects associated with fast travelling freight trains. The separation barriers could be constructed in a number of styles that would not fragment in the event of impact with a train and these would be confirmed during detailed design. An expanded steel mesh was suggested as it would allow greater visibility to/from the platform and provide for airflow to make the platform more comfortable for passengers (particularly in summer).

As discussed in Section 12.1.2 of Volume 1 of the Environmental Assessment, potential sources of contamination/hazardous materials in the rail corridor were identified, including steam train boiler ash. As discussed in Section 12.3.2, it is proposed that Phase 1 Contamination Assessment be undertaken along the proposed SSFL route, prior to construction, to determine the potential for contaminated soil to be present, in accordance with the NSW EPA *Guidelines for Consultants Reporting on Contaminated Sites* (1997). The Phase 1 Contamination Assessment would determine if detailed field investigation is required.

To minimise any impacts on the surrounding environment during the proposed works and management of potentially contaminated soil and ballast, environmental controls would be included in the Construction Environmental Management Plan for the project. This assessment would include specific measures to assess contamination from coal tar in asphalt and copper chromium arsenate, creosote and other preservatives in timber, ballast and soils. In addition ARTC commits to (see Cl99 in the Statement of Commitments within Appendix D of this report):

- Notifying DEC if any PCB waste or material is identified at any premises as soon as practicable after such identification.
- Keeping, conveying and processing any PCB waste or material in accordance with the Chemical Control Order in relation to materials and waste containing PCB 1997.
- Not recycling or re-using any asphalt containing coal tar.
- No re-use of excavated material from the project in earthworks or landscaping unless it has been assessed for contamination and certified by accredited auditors for re-use for the specific purpose and location proposed.

ARTC commits to the implementation of spoil management measures as part of the proposed Erosion and Sedimentation Control Plan in the Statement of Commitments within Appendix D of this report.

General operational hazards and risks

A respondent in submission 74 to the Environmental Assessment raised commented that there is a need to address emergency egress in the design of the reconfigured stations. While it is understood that risk assessments are being undertaken, there is a potential that proposed station designs as contained in the Environmental Assessment may need to be altered.

For example it may be necessary to widen the platforms at Cabramatta, Minto and Leumeah stations, which could lead to changes in track layout. It is important to ensure that any approval can accommodate any required changes to ensure passenger safety in the event of an emergency.

Response

As discussed in Part D Precinct Assessment of Volume 1 of the Environmental Assessment the design of the extended footbridges and stairs at the six affected stations caters for projected 2021 passenger demands. ARTC commits to the implementation of emergency response procedures as part of the Operational Environmental Management Plan, within the Statement of Commitments in Appendix D of this report. Any site specific matters relating to emergency response will be considered as part of detailed design of the stations directly affected by the proposal, including Cabramatta, Minto and Leumeah Railway Stations, and in consultation with RailCorp.

Crime prevention at Cabramatta Station

Respondents to the Environmental Assessment raised the following issues in submissions 78, 82:

- Safety matters such as suitable lighting levels, provision of footpaths and video surveillance are a concern.
- Issues relating to Council's CCTV system at Cabramatta were not included in the EA. Council requires that there be no loss of CCTV capacity during or post construction.
- The 'at grade' option will require one CCTV camera to be relocated and an additional 3 to be installed to take account for the loss of surveillance capacity associated with noise barriers.
- Post construction, Council will require the laying of a new run of fibre optic cable to make good its 'Town Safe' system. A detailed analysis of requirements will be needed before work commences.
- Fairfield Council believes that the proposed SSFL will have a significant negative impact on the crime prevention and community safety initiatives it has committed to in recent years.

Response

The precinct plans included in Chapter 6 of Volume 1 of the Environmental Assessment considered a range of public safety issues during the concept design and consultation process with stakeholders. These issues included, open fences for surveillance and visibility along the corridor, designing stairs and new station facilities to avoid concealed areas, replacement lighting to footpaths / pathways and providing street trees (as opposed to shrubs). These and other public safety matters will be further refined during detailed design in consultation RailCorp and relevant Councils.

As discussed in Section 20.2.2 of Volume 1 of the Environmental Assessment, ARTC acknowledges the community's concerns relating to pubic safety and the provision of pedestrian lighting to assist in reducing opportunities for crime at Cabramatta Railway Station. Accordingly, ARTC commits (within the Statement of Commitments within Appendix D of this report) to ensure safety matters such

as lighting levels, footpaths and video surveillance, and other 'safer by design' principles are considered during detailed design. Where existing lighting or video surveillance affected, these would be replaced in the proposed precinct works. ARTC also commits to liaise with Fairfield Council and local police to ensure that there is no adverse effect on the Town Safe Project, such that there is no loss of CCTV capacity at Cabramatta Railway Station during construction and operation. See Cl89 in the Statement of Commitments in Appendix D of this report.

All services and utilities located within or adjacent to the corridor that may be affected by the proposed alignment or station precinct works would be identified by detailed survey at the detailed design stage and consultation would occur with the service and utility providers regarding potential relocation or providing protection.

Liverpool Hospital at-grade crossing

A respondent in submission 22 to the Environmental Assessment commented that the level crossing at Liverpool Hospital is a greater problem than that at Casula Powerhouse. The projected increase in rail usage makes the hospital level crossing unsafe. The Environmental Assessment addresses this issue inadequately. The Environmental Assessment assumes that at some stage in the future the level crossing will have to be closed, but in the meantime safety at the crossing will have to be improved.

Response

As discussed in Section 4.3 of Volume 1 of the Environmental Assessment, RailCorp will coordinate with the Liverpool Hospital Stage 2 Upgrade planning authorities for the provision of an alternative means of access between east and west sides of the hospital grounds prior to the ultimate closure of the level crossing. All parties have agreed that the level crossing should close as soon as practicable as its operation already significantly constrains access between the two sides of the hospital. ARTC is working with the Sydney South West Area Health Service and Premier's Department to coordinate planning for the hospital redevelopment with the SSFL.

However, the timing of the crossing closure is dependent on Liverpool Hospital finalising its future parking and internal access requirements (i.e. vehicular and pedestrian) as part of its Stage 2 upgrade plans and RailCorp, as corridor owner, agreeing to a particular grade separation design.

The planning and construction of alternative grade separation would need to occur within the time frame of the SSFL delivery or there would be a period following completion of the SSFL when the level crossing will need to operate as a three track crossing. A three track crossing can be designed safely but should only be a temporary measure as the crossing will provide increasing constrained access.

Societal risk

A respondent in submission 62 to the Environmental Assessment raised the following issues:

- Bankstown Council would like ARTC to review the societal risk and clarification of Figure 5.5 and the individual fatality risk assessment undertaken, with specific reference to the SSFL route in the Bankstown Council area, with regard to both existing and future populations. This review should include a clear discussion of the risks and their implications, paying particular attention to the risks which were found to be 'intolerable'.
- Bankstown Council requests clear justification of the acceptability of the risk level, having regard to relevant standards and criteria, including the Department of Planning's risk criteria.
- Bankstown Council requests a peer review of the hazard assessment (including individual and societal risk) addressing the risk level, fatality risk, the assumptions and methodology used for the assessment and the need for further assessment.
- The respondent expressed concern that a freight train may derail and end up in adjacent residences. Can ARTC guarantee that there would be no possibility of an accident on the freight line?
- Bankstown Council requests a justification of the societal risk, particularly to any part of the societal risk curve that is considered 'intolerable'.

Response

Volume 2, Technical Paper 1, Section 4 of the Environmental Assessment includes a detailed study of potential hazard and risk impacts associated with the SSFL proposal in operational phase of the proposed SSFL.

In interpreting this assessment, 'risk' is defined in terms of both the consequences and probabilities (likelihood) of unwanted outcomes (hazardous events). Individual risk of fatality is defined as the chance (likelihood or probability) per year that any one member of the general public will be killed as a result of exposure to an activity. Societal risk is defined as the relationship between the number of people killed in a single accident and the chance or likelihood that this number will be exceeded.

The assessment has estimated frequencies for accidents that might result in fatalities using the International Atomic Energy Agency's (IAEA) *Manual for the classification and prioritisation of risks due to major accidents in process and related industries* (1996) due to limitations with available data (the IAEA method is recommended as a screening process by Planning NSW in their guideline – *SEPP 33 Multi Level Risk Assessment guideline*). The IAEA method is intended to provide a preliminary quantitative overview of the different risks in a large area, based on the concept of societal risk and to enable the prioritisation of the different sources of risk for further detailed analysis.

Using the IAEA method, at current and future train frequencies, most societal risks (including derailment) are likely to be classed as 'as low as reasonably practicable'. Furthermore, a comparison of the 'do nothing' option and the SSFL would show that for any given movement of freight and dangerous goods, the

societal risk without the SSFL is almost certain to be significantly greater than with it, because of the significant increases in safety expected from separating freight and passenger rail traffic with a new dedicated freight line.

Risk from vapours and odours

A respondent in submission 78 to the Environmental Assessment commented that the Environmental Assessment does not address the human effect of contamination from vapours and odours during operation of the SSFL on residents (Volume 2, Section 12.16). A detailed health assessment involving a comprehensive analysis to evaluate and predict the dispersion of hazardous substances in the ambient air, and to assess and quantify both the individual and population-wide health risks associated with those levels of exposure should be undertaken.

Response:

Operational risks were assessed in accordance with *Australian Standard AS.NZS 4360:2004 Risk Management*, focussing on potential hazards and risks associated with the transport of dangerous goods. This assessment concluded that the transport of dangerous goods under current operations on the existing Main South Line has a risk profile of 'negligible to moderate' when considering both individual risk and environmental risk. Current measures to avoid residual risk through rigorous risk identification and management protocols have reduced current operational risk levels on the Main South Line to 'as low as reasonably practicable'.

The predicted increase in train movements from 2008 to 2018 would also be adequately managed by a combination of existing safety protocols, the proposed improved interface protocols that are to be developed as part of the Risk Management Plan for the SSFL, and additional area-specific Incident Management Plans to be developed to reduce risks to as 'low as reasonably practical' for areas along the route with elevated sensitivities.

Dangerous goods transportation

Respondents in submissions 61, 66 and 80 to the Environmental Assessment commented that further assessment of the hazard risk of the transportation of dangerous goods should be undertaken prior to the commencement of works.

Response:

Volume 2, Technical Paper 1, Section 4 of the Environmental Assessment includes a detailed study of potential hazard and risk impacts associated with dangerous goods use, storage and transport in both the construction and operational phases of the proposed SSFL. The assessment considered potential societal risk for the most sensitive land use adjacent to the SSFL, which was considered to be Liverpool Hospital.