AMCOR Botany New Paper Mill

DRAFT

TRAFFIC ASSESSMENT

- Final
- September 2006

AMCOR Botany New Paper Mill

DRAFT

TRAFFIC ASSESSMENT

- Final
- September 2006

Sinclair Knight Merz
ABN 37 001 024 095
100 Christie Street
PO Box 164
St Leonards NSW
Australia 1590
Tel: +61 2 9928 2100
Fax: +61 2 9928 2500
Web: www.skmconsulting.com

COPYRIGHT: The concepts and information contained in this document are the property of Sinclair Knight Merz Pty Ltd. Use or copying of this document in whole or in part without the written permission of Sinclair Knight Merz constitutes an infringement of copyright.

Contents

DRAFT

Document history and status

Revision	Date issued	Reviewed by	Approved by	Date approved	Revision type
Final	30 Oct 2006	T Bickerstaff	J Ball	30 Oct 2006	

DRAFT

Distribution of copies

Revision	Copy no	Quantity	Issued to

Printed:	12 December 2006
Last saved:	1 November 2006 01:01 PM
File name:	I:\ENVR\Projects\EN01893\Deliverables\Updated EA + Appendices for printing October 06\Appendicies\Appendix B EN01893 - Traffic - R02.doc
Author:	Tim Bickerstaff
Project manager:	Jonas Ball
Name of organisation:	AMCOR
Name of project:	AMCOR Botany Paper Mill EIS
Name of document:	Traffic Working Paper
Document version:	Final
Project number:	EN01893

1. Introduction

This assessment has been prepared to assess the traffic and transport implications of the proposed New Paper Mill at Botany. It is an update of the working paper prepared from the Project 100 EIS in 2000.

It is proposed that the existing paper mill machines be replaced by a new paper making facility known as Project B9. Production capacity would increase from 250,000 tonnes per year to 345,000 tonnes per year. In order to achieve this production level, waste paper inputs will increase from 271,000 to 370,000 tonnes per year.

DRAFT

The AMCOR facility at Botany currently receives and processes approximately 50% of the waste paper collected in NSW. Markets for the finished product include Sydney and regional NSW, interstate destinations, including Queensland, Victoria and South Australia and overseas locations in New Zealand and Asia.

In receiving waste paper and delivering final product, AMCOR utilises a variety of transport networks including road, rail and shipping.

As all materials enter and leave the site by road, traffic in the surrounding area has been identified as a key issue for the proposed Project B9 development.

The following sections of this assessment describe the proposed changes to traffic generation and transport network usage, traffic distribution, site access and local traffic management measures.

2. Transport Networks

2.1 Background

The AMCOR paper mill site is conveniently located to main road, rail and port transportation networks. The site's main access on Botany Road provides direct access to the regional main road network.

Waste paper deliveries to the mill for processing are brought to the site by road. A fleet of trucks ranging from 2 tonnes to 20 tonnes (average 3 tonnes) deliver waste paper directly from local Council areas within the eastern suburbs of Sydney. Larger trucks (20 tonnes) typically transport compacted paper from regional collection depots in Sydney and further afield.

DRAFT

The delivery of finished product to AMCOR's various local, interstate and international markets utilises the convenient access to the main road, rail and port transportation networks. Transport of finished product from the Project B9 proposal would continue to utilise each of these transport networks, although the initial movement from the mill would be by road.

2.2 Transport Network Utilisation

Of the current 250,000 tonnes of final product, the following amounts are sent to the respective regions:

- 96,000 tonnes - NSW (mostly Liverpool area)
- 116,000 tonnes - Interstate
- 38,000 tonnes - International (New Zealand and Asia)

For the purpose of this assessment, it has been assumed that the 345,000 tonnes of product expected under Project B9 would have similar distribution proportions.

Road transport is currently used for the delivery of final product to areas within NSW. This is not expected to change with the operation of Project B9. Some of the final product deliveries to interstate destinations are sent by rail, either from Cooks River, Port Botany or Chullora. There would also be some movement by ship. However, a road transport link is required between the mill and the rail or port terminal, and thus this assessment has conservatively assumed a 100% mode split to road. Increased use of rail and ships for the transportation of product will have benefits including reduced truck activity on the main road network, and the associated reduction in vehicle emissions etc.

2.3 Surrounding Road Network Conditions

As indicated in **Section 2.2**, all product will leave the site via heavy vehicle, either for the entire journey to the intended destination or the rail siding and ports for transfer to rail and ship.

The surrounding road network is characterised by a number of major heavy vehicle routes providing access from the regional road network to the industrial areas surrounding the site.

The main traffic access to the AMCOR site is via a signal controlled intersection on Botany Road at Bumborah Point Road. This provides the site with direct access to the regional road network.

Botany Road is a major arterial road serving the Port Botany area and industrial operations. It connects to Foreshore Road and thence to General Holmes Drive and Southern Cross Drive and the M5 Motorway as part of Sydney's main road network.

DRAFT

Bunnerong Road provides main road access to the site from the eastern suburbs. Other key roads in the vicinity of the site include McCauley Street, Perry Street and Beauchamp Road.

McCauley Street, which adjoins the western boundary of the site, is a local road, providing access to commercial and residential areas. McCauley Street carries a low amount of traffic, although a report by Masson and Wilson (1997) indicated that there was a through traffic movement from the north to the south with drivers wishing to access Botany Road. The intersection of McCauley Street and Botany Road is controlled by traffic signals.

Both Perry Street and Beauchamp Road are local collector roads and carry a significant proportion of heavy vehicle traffic. However, Randwick Council has indicated that they are attempting to discourage further heavy vehicle use of these streets.

A summary of available traffic volumes along the surrounding road network is provided in **Table 2.1**.

- **Table 2.1: Existing Daily Traffic Volumes**

Road	Location	AADT	Source (Year)
Botany Road	West of Beauchamp Rd	35,826	RTA (2002)
	East of Beauchamp Rd	20,331	RTA (2002)
	South of Mill Pond Rd	27,237	RTA (2002)
Bunnerong Road	North Beauchamp	19,582	RTA (2002)
Beauchamp Road	North of Botany Rd	17,164	RTA (2002)
	West of Bunnerong Rd	8,759	RTA (1999)
Foreshore Road	East of General Holmes Dr	29,851	RTA (2002)
Southern Cross Drive	West of Wentworth Ave	85,163	RTA (2002)
General Holmes Drive	At runway tunnel	133,393	RTA (2002)
Perry Street	West of Bunnerong Rd	7,890	Randwick Council (1993)
McCauley Street		1,700	Randwick Council (1997)

DRAFT

2.4 Site Access

The main site access is located off Botany Road. The site access road forms one leg of a four way cross intersection at Botany Road and Bumborah Point Road. The intersection is controlled by traffic signals. No right turns from Botany Road are permitted into the site at this intersection. There is a currently little-used access gate in McCauley Street, just north of Botany Road, and an access to the engineering centre off McCauley Street near Australia Avenue.

All waste paper deliveries to the site, final product distribution, chemical deliveries and waste removal are undertaken through the main site access at Botany Road. Under the Project B9 proposal, this will continue to be the main site access.

The majority of general, staff and visitor traffic also currently use the main site access from Botany Road. This arrangement would remain under Project B9.

The access to the engineering store from McCauley Street would be utilised for maintenance and delivery vehicle access. This would only be a minimal number of movements each day, as the main entrance would principally be used for these purposes also. The access on McCauley St just north of Botany Road would be closed once the New Paper Mill becomes operational.

3. Site Generated Traffic

3.1 Traffic Generation

This section describes the traffic generation for the three phases of development. These phases are the:

- Existing development
- Construction of Project B9
- Operation of Project B9

DRAFT

3.1.1 Existing Development

Existing traffic generation by the Botany plant includes the following elements:

- Receiving of waste paper (inbound);
- Delivery of final product (outbound);
- Chemical deliveries (inbound);
- Waste removal (outbound); and
- General traffic, including staff, visitors and maintenance.

Waste paper that is received at the Botany plant arrives in either self-tipping trucks (2-20 tonne trucks) or semi trailer loads. Self-tipping trucks currently have an average load of 3 tonnes.

Final product is removed from the site by semi trailer loads of approximately 24 tonnes. A small number of B-double vehicles are also used to distribute finished product to interstate locations. As such they utilise the site's direct access to the regional road network and national highways. Approved B-double routes include Botany Road, Foreshore Road and Bunnerong Road. Botany Road and Foreshore Road are currently the primary B-double routes used to access the site.

Semi trailers are used for chemical deliveries to the plant (including starch and dyes) and pit waste removal. General waste is removed with a large rigid front lift vehicle.

General traffic includes cars, utilities and small rigid vehicles. General traffic is associated with the following on site activities:

- Staff
- Engineering stores deliveries and dispatches;
- Other general deliveries and couriers;

- Technical component supplier representatives;
- Minor maintenance suppliers.

The AMCOR site currently employees approximately 200 staff.

A breakdown of the current average daily traffic generation is shown in **Table 3.1**.

- **Table 3.1: Existing Average Daily Traffic Generation**

Daily Movements	Weekday	Weekend
2-20 tonne Waste Paper Deliveries	107	17
Semi Trailer Waste Paper Deliveries	31	3
Starch / Chemical Deliveries	7	6
General Traffic	190	60
Semi Trailer Final Product Deliveries	33	33
Solid Waste Removal	3	3
General Waste Removal	1	1
Total	**372**	**123**

Notes: Vehicle Generation represents a two way trip. (i.e. one inbound and one out bound movement)
Weekend generation is an average of Saturday and Sunday.

Surveys of the main entrance at Botany Road in July 2005 indicate that during the network peak periods, the site generates up to 96 vehicle movements per hour, including almost 50% heavy vehicles.

3.1.2 Construction of Project B9

Construction of the new paper processing plant will be undertaken over a 24 month period. During the construction period the existing mill will continue to operate and produce approximately the existing levels of final product.

Therefore, for assessment purposes it has been assumed that all construction traffic will be additional to the existing traffic levels generated by the site.

Heavy vehicle movements associated with construction activities will be predominantly generated by earthworks and material deliveries. Peak heavy vehicle flows would occur during concrete pours.

Based on expected level of earth works and material delivery, the peak hourly construction traffic generation has been estimated for each stage of construction. These estimates vary depending upon the stage of construction. The estimated traffic hourly movements are:

- Months 1-4 & 14 12 movements (6 in and 6 out)
- Months 5 & 8 28 movements
- Month 6 24 movements
- Month 7 20 movements
- Months 9-13 16 movements
- Months 15-21 8 movements
- Months 22-30 Machine commissioning / transition
- Months 30-35 10 movements

DRAFT

The peak construction work force will be up to 400 workers.

3.1.3 Operation of Project B9

Once the plant is fully operational, waste paper deliveries will increase from 271,000 tonnes per annum to 370,000 tonnes per annum. It is expected that the future growth in waste paper deliveries will be sourced from regional waste transfer stations. No substantial growth is perceived to come from existing local markets.

The increase in waste paper deliveries will be associated with an increase in the number of semi trailer loads delivering waste paper to the plant. The source of the waste paper is expected to primarily be from the transfer stations at Chullora, Newcastle and Wollongong. As the local market is not expected to increase, 2-20 tonne vehicle waste paper deliveries are expected to remain at existing levels during Project B9.

The increase in final product from 250,000 tonnes to 345,000 tonnes per annum will also generate an increase in the number of semi trailer vehicles removing final product from the site.

Project B9 would operate 24 hours a day, seven days a week, with truck movements spread across the day and night.

The estimated future traffic generation for Project B9 is shown in **Table 3.2**.

- **Table 3.2: Operational Average Daily Traffic Generation**

Daily Movements	Weekday	Weekend
2-20 tonne Waste Paper Deliveries	150	24
Semi Trailer Waste Paper Deliveries	43	5
Starch / Chemical Deliveries	5	3
General Traffic	150	40
Semi Trailer Final Product	50	50
Solid Waste	4	4
General Waste	1	0
Total	**403**	**126**

Notes: Vehicle Generation represents a two way trip. (i.e. one inbound and one out bound movement)
Weekend generation is an average of Saturday and Sunday

DRAFT

The generation rates presented in **Table 3.2** assume that B-doubles are not used for the distribution of final product and are therefore estimated maximum levels. The use of B-doubles would significantly reduce the number vehicle trips generated by Project B9.

However, payloads of standard B-double vehicles are unsuitable to carry the 2800mm long reels produced at the Botany mill. As it is likely that Project B9 will produce a high proportion of 2800mm long reels, the use of conventional B-doubles will be limited.

Due to efficiencies in production, existing staff levels, and hence the volume of general traffic, will be reduced under the Project B9 proposal.

3.2 Traffic Distribution

The routes used by heavy vehicle traffic associated with the AMCOR site is dependent upon the various sources of waste material delivered to the site and the destinations of final product as described in Section 2.2 of this working paper.

A summary the primary road route used to access the various sources and destinations is provided in **Table 3.3**.

- **Table 3.3: Heavy Vehicle Traffic Distribution**

Source / Destination	Road Route	Type of Vehicle
Eastern Suburbs	Botany Rd, Bunnerong Rd/Beauchamp Rd	2-20 tonne truck
Airport Proximity	Foreshore Rd / Botany Road	2-20 tonne truck
Chullora / Western Sydney	Foreshore Rd, General Holmes Dr, M5 Motorway, King Georges Rd, Roberts Road, Great Western Highway	Semi – Trailer
Liverpool Region / Victoria / South Australia	Foreshore Rd, General Holmes Dr, M5 Motorway	Semi Trailer
Port Jackson	Foreshore Rd / Botany Rd, Southern Cross Dr	Semi Trailer
Wollongong	Foreshore Rd, General Holmes Dr, Princes Hwy	Semi Trailer
Newcastle / Queensland	Botany Rd, Southern Cross Dr	Semi Trailer

DRAFT

Chemicals will continue to be delivered from to the site. The current route used for these deliveries is described in **Table 3.4** and these routes will continue to be used for the Project B9 Proposal.

- **Table 3-4 Transport Routes of the Delivery of Chemicals**

Chemical Class	Supplier	Traffic Route	Approx No. of Deliveries Per Week
Classes 2.1 and 2.2	-	Vary dependent on deliveries to other customers	4
Class 3	USF Chemfeed - Homebush	Foreshore Road, General Holmes Drive, Botany Road / O'Riordan Street, Gardeners Road, Ricketty Street (Canal Rd), Princes Highway, Forrest Road, Stoney Creek Road, King Georges Road, Homebush Bay Drive.	2
	Veolia - Seven Hills[1]	-	
Class 6.1 and 8	Orica – Botany	Denison Road, Beauchamp Road and Botany Road.	4
	Spectrum - North Ryde	Hermitage Road West Ryde, Victoria Road,, Western Distributor Freeway, Elizabeth Street, Park Street, William Street, Bourke Street, Eastern Distributor, Dowling Street,, Wentworth Ave, Denison Street, Beauchamp Road, Botany Road.	

Chemical Class	Supplier	Traffic Route	Approx No. of Deliveries Per Week
Class 8 - Sulphuric Acid	Port Kembla	Southern Freeway, Mt Ousley Road, Princes Hwy, President Avenue Kogarah, West Botany Street, Botany Road, Foreshore Drive.	2
Class 5.1	Manildra - Auburn	South Parade, Auburn, Coronation Drive to Lidcombe, Centenary Drive (Homebush Bay Drive), Roberts Road, King Georges Road, Stoney Creek Road to Bexley, Forrest Road to Rockdale, Bay Street, General Holmes Drive, Botany Road.	2

1 – Supplier did not provide transport route due to security concerns

DRAFT

4. Impact Assessment

4.1 Cumulative Impact Assessment

The Port Botany area has been experiencing recent growth with a number of large proposed developments recently undertaken or planned for the near future. The most significant future development will be the expansion of Port Botany. The Port Botany expansion would see throughput at the port increase from 1 million to 3 million TEUs per year. Although the mode share to rail would increase, there will be an increase in road activity also. Traffic volumes forecast by the Port Botany Expansion EIS have been used as a basis for future intersection assessments for this study.

DRAFT

4.2 Construction Traffic Impacts

As the existing mill will continue to be used during the construction of the new facility, traffic associated with the construction of the Project B9 proposal will be additional to that generated by the existing operation.

Peak construction traffic generation will be associated with the major concrete pours. Under the proposed construction timetable, during these periods up to 28 heavy vehicle movements (14 in / 14 out) per hour are expected to access the site. The duration of this peak traffic generation is expected to be 2 months out of a 24 month timetable. For the majority of the construction timetable the peak traffic generation is expected to be between 8 and 16 heavy vehicle movements per hour.

Expected construction traffic generation represents a significant increase in the number of heavy vehicles accessing the site during the peak periods. However, the intersection at the Botany Road main gate is operating with spare capacity, and it is assumed that the additional construction traffic could be adequately accommodated within the existing capacity of the intersection.

4.3 Traffic Generation

The net change to daily traffic generation under the Project B9 proposal is summarised in **Tables 4.1** and **4.2**.

- **Table 4.1: Changes to Heavy Vehicle Traffic Generation – Weekdays**

Weekday	Existing	Proposed	*Change*
2-20 tonne Waste Paper Deliveries	107	150	*+43*
Semi Trailer Waste Paper Deliveries	31	43	*+12*
Starch / Chemical Deliveries	7	5	*-2*
General Traffic	190	150	*-40*
Semi Trailer Final Product	33	50	*+17*
Solid Waste	3	4	*+1*
General Waste	1	1	*0*
Total	**372**	**403**	***+31***

Notes: Vehicle Generation represents a two way trip. (i.e. one inbound and one out bound movement)

DRAFT

- **Table 4.2: Changes to Heavy Vehicle Traffic Generation – Weekends**

Weekend	Existing	Proposed	*Change*
2-20 tonne Waste Paper Deliveries	17	24	*+7*
Semi Trailer Waste Paper Deliveries	3	5	*+2*
Starch / Chemical Deliveries	6	3	*-3*
General Traffic	60	40	*-20*
Semi Trailer Final Product	33	50	*+17*
Solid Waste	3	4	*+1*
General Waste	1	0	*-1*
Total	**123**	**126**	***+3***

Notes: Vehicle Generation represents a two way trip. (i.e. one inbound and one out bound movement)
Weekend day represents the average of Saturday and Sunday.

The traffic generation rates shown in **Tables 4.1** and **4.2** indicate that there would be a net increase in daily traffic flows as a result of the Project B9 proposal.

There would be an increase in volumes of trucks delivering waste paper to the facility, as well as an increase in delivery of final product. This increase would be partly offset by a reduction in general traffic, particularly staff traffic. The number of staff would be reduced from 200 to 140, reflecting the efficiencies which Project B9 would allow. However, there would be an additional 31 vehicles per weekday and an additional 3 vehicles per day on weekends.

The traffic generation rates shown in **Table 4.1** and **4.2** do not include the potential diversion of final product to rail or the increased use of B-double vehicles. While all product would need to leave the site by road, the use of rail and to a lesser extent B-doubles would reduce AMCOR

generated traffic on the regional road network. These alternative transport arrangements are discussed further in **Section 4.6.**

4.4 Access Arrangements

The main access to the site will continue to be via Botany Road. The Botany Road access will be used by all waste paper deliveries (which need to be weighed at the weighbridge), final product transport and employee and general traffic.

The Botany Road access intersection generally operates well with no significant constraints to capacity. Analysis by SKM using aaSIDRA intersection analysis software indicates that the intersection is operating with some spare capacity. Based on survey results from July 2005, the intersection is operating at Level of Service B, which is indicative of low average delays to vehicles, and spare capacity. In 2016, using traffic volumes specified in the Port Botany Expansion EIS, a Level of Service D could be expected. An estimation of peak hour flows to and from the AMCOR facility suggests that intersection operation will not be adversely effected by Project B9.

DRAFT

Another access to the site is currently provided from the northern end of McCauley Street, near Australia Avenue. This access is used by engineering and maintenance services which access a store at the north western corner of the site. This access would be maintained under the Project B9 proposal.

Queuing on Botany Road

Although there has been a substantial reduction in the number and frequency of trucks queuing outside the Paper Mill site along Botany Road, further measures would be undertaken to eliminate any queuing outside the site. A new automated weighbridge would be constructed adjacent to the entry to the Waste Paper Storage Area, approximately 100m west of the existing weighbridge. This weighbridge would be used for all incoming loads which require weighing and would allow traffic that does not require weighing to pass into the site without stopping at weighbridge. The changes should virtually eliminate the need for truck queuing on Botany Road.

Internal Traffic Movements

As part of the New Paper Mill the internal road system will be upgraded to improve vehicle circulation around the site. Traffic flow would be simplified by using one way traffic flow and separation of waste paper from final product traffic flows and this would further reduce congestion and incident potential within the site.

4.5 Parking

The Project B9 proposal would significantly reduce existing staff numbers. The site currently provides approximately 100 on site parking spaces for staff and visitors. Observations indicate that this parking adequately services the existing staff and visitor levels.

The existing parking area will remain unchanged under the Project B9 proposal.

Therefore, as future demand is expected to decrease under the Project B9 proposal with the reduction in staff numbers, the proposed parking arrangements are considered adequate and would not generate adverse off-site impacts.

DRAFT

4.6 Alternative Transport Arrangements

As discussed in **Sections 2.2** and **4.3,** there is potential to increase the percentage of final product transported by rail to interstate destinations. Once rolling stock design constraints and freight contracts are addressed, it is expected that the amount of interstate rail transport can be increased, resulting in a significant reduction in future traffic generation for product transport.

The use of B-double vehicles for the transport of final product also has vehicle design constraints. If design constraints can be resolved, it is anticipated that some interstate product deliveries would use B-double vehicles, further reducing the number of trucks on the road network. While approved B-double routes provide direct access to the AMCOR site via Botany Road and Foreshore Road, the use of B-doubles would be restricted by the availability of approved routes at the intended destinations.

The impact of B-double use is not considered to be significant given the direct access to approved B-double routes from the site. The use of B-doubles would not be inconsistent with the existing traffic flows around the Port Botany industrial area.

4.7 Dangerous Goods Transportation

The delivery of dangerous goods, such as the chemicals used in the paper manufacturing process, is controlled by the Road and Rail Transport (Dangerous Goods) Act and Regulation 1998.

Included in this legislation is the restriction of dangerous goods transport through road tunnels. This would not allow chemical deliveries to the site to be made through the General Holmes Drive tunnel under the Airport runway and the use of the M5 East tunnel.

The use of chlorine at the AMCOR facility has been discontinued for some time, and would not be required under Project B9.

5. Conclusions

The potential traffic and transport implications of the Project B9 proposal have been assessed and documented in this working paper. The assessment has found that there would be no significant adverse impacts of the proposal with regard to traffic and transport.

This conclusion considers that the AMCOR site at Botany currently generates a significant amount of traffic through waste paper deliveries to the site, final product transport and other general traffic. The current operation does not currently generate significant operational or capacity constraints within the surrounding road networks.

DRAFT

The key points of the traffic and transport assessment include:

- The Project B9 proposal would result in a net decrease in daily traffic volumes generated by the site. Further reductions could be achieved through the use of larger trucks such as B-doubles.
- The local market (eastern suburbs) is not expected to experience future growth and it is therefore unlikely that additional heavy vehicle traffic flows would be generated along roads such as Bunnerong Road and Beauchamp Road.
- The site has front door access to the regional road network and approved B-double route via Foreshore Road and Botany Road.
- Current design constraints restrict the use of rail and B-double vehicles for the transport of final product. However, these constraints are being investigated. It is a realistic possibility that rail transport to interstate destinations and B-double usage can be increased. The use of such vehicles would significantly reduce the total amount of traffic generated by the Project B9 proposal.