

Orora Paper Mill Production Capacity Expansion (SSD 05_0120 MOD 9) 1891 Botany Road, Matraville

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1 Introduction

1.1 Background

Ason Group has been engaged by Orora Limited to prepare a Traffic Impact Assessment (TIA) in relation to modifications to the existing Orora Paper Mill (formerly AMCOR) at 1891 Botany Road, Matraville (the Site). The modification seeks to increase the paper recycling facilities' production capacity from 425,000 tonnes per annum (tpa) to 500,000tpa (the Proposal). No changes to the Site access or internal design are included in this modification. A reduced copy of the existing Site plan is provided in **Appendix A**.

The Site is located within the Randwick City Council (Council) Local Government Area (LGA) and is legally known as Lot 14 in DP 1205936. It is currently zoned as MD (Major Development) by the Council's Local Environment Plan, and is therefore subject to controls under State Environment Planning Policy (Major Development) 2005.

This TIA provides an assessment of the relevant access, traffic and parking characteristics of the Proposal. In preparing this TIA, Ason Group has referenced key planning documents, including:

- Randwick Comprehensive Development Control Plan 2013 (DCP 2013)
- Randwick Local Environmental Plan 2012 (LEP 2012)
- State Environmental Planning Policy (Major Development) 2005 (SEPP 2005)
- ConsultInfra, Environmental Assessment Report (Modification No.7), August 2016
- Sinclair Knight Merz (SKM), New Paper Mill Project B9 Modification No.2 Traffic and Access Assessment, April 2010

This TIA also references general access, traffic and parking guidelines, including:

Roads and Maritime Services, Guide to Traffic Generating Developments (RMS Guide)

1.2 Site History

The Site facilitates the receival and storage of waste paper through to final processing, producing quality products used and exported locally and overseas.

The approval of the subject development (Application No. 05_0120) was initially granted by the Minister for Planning on 20 July 2007. It covered several key details of the Site upgrade, including the replacement of two existing paper machines and the construction of a new facility. At the time of the approval in 2007, it was forecast that production capacity would increase from 250,000tpa to 345,000tpa.

Following the initial project approval, 8 modification submissions have been submitted relating to general operations and efficiency and capacity increases. Three of the modifications have specifically affected the traffic generation and internal circulation of the Site, including:

- MOD 2 (July 2010): McCauley Street upgrades were implemented as a response to the request to
 enable finished product vehicles to utilise McCauley Street to depart to Botany Road.
- MOD 4 (February 2013): B-Double truck movements in McCauley Street were approved between the internal circulation road and the finished products warehouse access driveways, and Botany Road.
- MOD 7 (November 2016): Approval granted for a production capacity increase from 383,763tpa to 425,000tpa. This increase resulted in minor increases in the trip generation of the Site.

1.3 Statutory Requirements

The modification application (MOD 9) which this TIA will accompany has not been submitted at this time, nor have formal Assessment Requirements been received from key stakeholders. As such, Ason Group has referenced past assessment requirements – and specifically those provided in regard to MOD 2 and MOD 7 - to provide context to this assessment. In addition, we have consulted with the RMS in regard to the scope of the assessment, and specifically the key intersections requiring detailed analysis.

A summary of these assessment requirements is provided in **Table 1**.

Table 1: Compliance Table (MOD 2 & MOD 7)

Associated Authorities	Requirement	Response	
	A detailed description of transport issues, including:		
	A description of the existing environment, using sufficient baseline data.	Section 2 includes a description of the existing Site conditions, public transport, pedestrian and cycling links.	
	An assessment of the potential impacts of the modification, including any cumulative impacts, taking into consideration any relevant guidelines, policies, plans and statutory provisions.	Sections 5 and 6 include a detailed assessment of the potential traffic and parking impacts of the Proposal in line with the assessment scope agreed with the RMS.	
Director General (MOD 2)	A description of the measures that would be implemented to avoid, minimise, mitigate and/or offset the impacts of the modification.	With reference to Sections 5 and 6, the Proposal is not expected to have any significant traffic and parking impacts.	
	Details of new and revised site access to service the existing project and new subdivision, internal roads and parking.	No changes to Site access or internal design are proposed. Section 3 includes a summary of the current Site access arrangements.	
	Details of traffic types and volumes to be generated.	Section 4.2 details the forecast daily and peak hour traffic generation of the Site further to the Proposal.	
	Predicted impacts on road safety and capacity of the road network.	With reference to Section 5.1, the Proposal is not expected to have any material impacts on road safety of the capacity of the road network.	
	The amount of traffic to be generated by the development;	With reference to Section 4.2.1, the Proposal is expected to generate an additional 82 vehicle trips per day, with 5 additional vehicle trips and 6 additional vehicles trips in the AM and PM peak hours respectively.	
RMS / Randwick Council (MOD 2)	Details of parking and access (for both AMCOR and the subdivided lots), and compliance with relevant codes and standards;	No changes to the Site access or internal design are proposed.	
	Details of service vehicle movements;	Section 4.2.1 details the forecast average daily vehicle generation of the Site for each specific activity associated with the Proposal.	
	Intersection analysis;	With reference to Section 5.1, SIDRA intersection modelling has been undertaken to analysis the performance of the Botany Road / Bumborah Point Road intersection (as agreed with the RMS).	

Associated Authorities	Requirement	Response
	Identification of any road network infrastructure requirements required to maintain existing levels of service; and	With reference to Section 5.1. the Proposal would have negligible impact on the existing performance of Botany Road / Bumborah Point Road intersection. The intersection is expected to continue operating at a good Level of Service (LoS B) during both AM and PM peak periods.
	Swept path analysis of the longest vehicle exiting and entering AMCOR and the subdivided lots.	No changes to the Site access or internal design are proposed.
Randwick Council (MOD 7)	Traffic movements associated with increased deliveries of waste paper, dispatch of finished products, deliveries of process chemicals and removal of paper making waste.	Section 4.2.1 details the forecast average daily vehicle generation of the Site for each specific activity associated with the Proposal.

1.4 Consultation with authorities

As discussed in Section 1.3, a meeting between Elton (on behalf of Orora Limited) and the Department of Planning and Environment (DP&E) was held to discuss several potential issues that might arise regarding the proposed modification. Further to this meeting, an additional meeting was scheduled with the inclusion of Ason Group and representatives from RMS to establish a series of key points regarding the potential traffic and transport impacts of the Proposal; these are summarised:

- RMS has no objection to the increased production capacity on the basis that the intersection modelling (as detailed in this assessment) indicates that no additional works be required at the key intersections to accommodate any additional Site traffic generation.
- RMS has accepted that, given the increased production capacity of the Site, the corresponding increase in vehicle movements would be relatively minor. Therefore, the TIA need only provide a localised assessment, limiting traffic modelling to the Botany Road / Bumborah Point Road intersection.

1.5 Report Structure

This TIA is structured as follows:

- Section 2 describes the existing Site conditions, public transport, pedestrian and cycling links.
- Section 3 provides a summary of the Site access arrangements.
- Section 4 discusses the traffic generation and distribution associated with the Site.
- Section 5 assesses the traffic impacts of the Proposal.
- Section 6 assesses the parking impacts of the Proposal.
- Section 7 provides a summary of the TIA conclusions.

2 Existing Conditions

2.1 Site & Location

The Site is located at 1891 Botany Road in Matraville, approximately 11km from the Sydney CBD, neighbouring Sydney Airport and the Botany Bay precinct. The Site has vehicle access to Botany Road and McCauley Street, and is shown in its local context in **Figure 1**.

The Site maintains a close connection to several key distribution sites, namely Sydney Airport and Port Botany – Australia's second largest operational shipping port.

2.2 Road Hierarchy

The key roads providing in the vicinity of the Site are shown in **Figure 1** and are summarised below:

- Botany Road: A state road providing connections to Southern Cross Drive to the west and Bunnerong Road to the east. The six-lane divided carriageway primarily services the Port Botany region and is an approved B-Double routes. In the vicinity of the Site, Botany Road has a posted speed limit of 70km/hr.
- McCauley Street: A local road connecting Botany Road and Perry Street, McCauley Street was upgraded to provide for B-Double movements exiting the Site to Botany Road. McCauley Street has a default speed limit of 50km/hr.
- Bumborah Point Road: A state road providing access for cargo transport and logistics businesses
 to access Botany Road. Bumborah Road provides the southern approach to the Botany Road and
 Site access driveway intersection, and has a posted speed limit of 60km/hr.

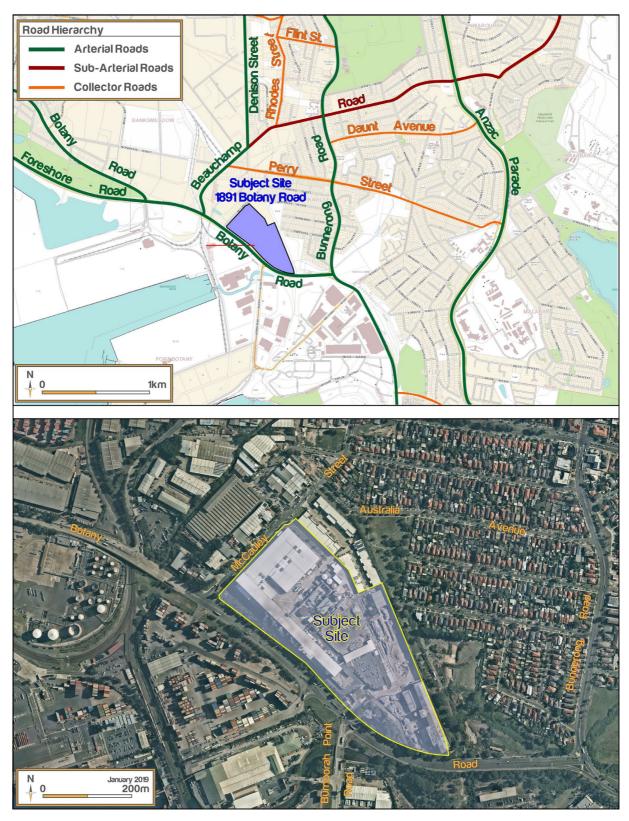


Figure 1: Site and Road Hierarchy

2.3 Public and Active Transport

2.3.1 Bus Services

The Integrated Public Transport Service Planning Guidelines state that bus services influence the travel mode choices of sites within 400 metres (approximately 5 minute walk) of a bus stop. With reference to **Figure 2**, a number of bus stops are located within walking distance of the Site, providing access to

the following routes:

• Route 309X: This route provides a connection to Central Railway Square, and operates exclusively

in the AM and PM weekday peak periods (approximately once every 10 minutes).

• Route 307: This route provides a connection between Port Botany Depot and Mascot, and runs

approximately every 20 minutes through the broader AM and PM peaks.

It should be noted that the bus stops on Bunnerong Rd are included within the 400 metres radius in

Figure 2; however, the walking distance between these stops and the Site are approximately 700 metres

in practice due to the need to use signalised crossing points.

2.3.2 Existing Pedestrian Accessibility

Footpaths are provided along both side of McCauley Street and a short part of Botany Road fronting the Sites, providing access to the bus stop in Botany Road. However, there are no footpaths provided on

either side of Botany Road from the bus stop to the main Site access.

Additionally, no pedestrian crossing is provided at the Botany Road / Bumborah Point Road intersection.

2.3.3 Existing Cycle Routes

There are currently limited cycling facilities and routes provided within the vicinity of the development.

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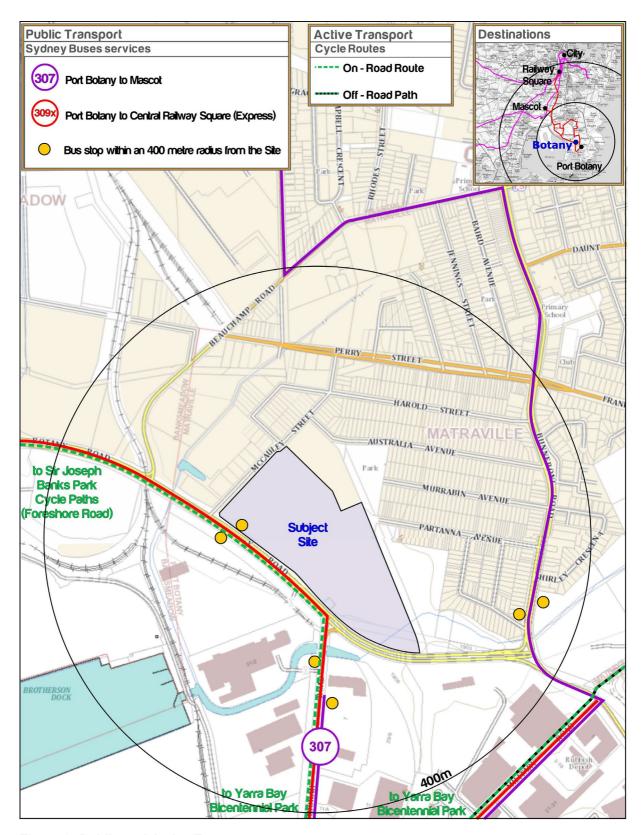


Figure 2: Public and Active Transport

3 Site Access Arrangements

The Proposal does not provided for any changes to the existing Site access points or internal design. Notwithstanding, sections below detail the existing Site access provisions.

3.1 Vehicle Access

The Site currently provides 3 vehicle access points, including:

- As the northern approach to the Botany Road and Bumborah Point Road intersection.
- In McCauley Street (near the Raymond Avenue intersection).
- In McCauley Street (at the finished product exit road).

3.2 Access Point Characteristics

The Site's vehicle distribution to each of the access points detailed above is summarised in **Table 2** below.

Table 2: Site Access Arrangements

Location / Activity	Vehicle Type	Entry	Exit
Employees and Visitors	Light Vehicle	Botany Rd / Bumborah Point Rd	Botany Rd / Bumborah Point Rd
Waste Paper Deliveries	B-doubles (Maximum)	Botany Rd / Bumborah Point Rd	McCauley St (Raymond Ave intersection)
Finished Products	B-doubles (Maximum)	Botany Rd / Bumborah Point Rd	McCauley St (Raymond Ave intersection) McCauley St (Finished product exit road)
Starch/Chemicals Deliveries	Semi-Trailers	Botany Rd / Bumborah Point Rd	McCauley St (Raymond Ave intersection)
Solid Waste Removal	Semi-Trailer	Botany Rd / Bumborah Point Rd	McCauley St (Raymond Ave intersection)
General Waste	Rigids	Botany Rd / Bumborah Point Rd	McCauley St (Raymond Ave intersection)

It is noted that there are very occasional heavy vehicles and commercial vehicles departures to the Botany Road / Bumborah Point Rd intersection.

For primary access into the Site, the majority of all vehicle classes, including trucks and employee and visitor parking, accessing the Site from the Botany Road / Bumborah Point Road intersection. This access point connects to the internal circulation roads, providing access to all internal facilities.

The access points situated along McCauley Street are primarily reserved for Site egress, particularly for heavy vehicles utilising the weighbridge in the northern part of the Site. Although vehicle access (ingress) is available via the McCauley Street (opposite Raymond Avenue) driveway, this is seldom used.

The majority of vehicles exiting the Site to McCauley Street travel south to the signalized intersection with Botany Road; it is again noted that McCauley Street south of Raymond Avenue has been upgraded to provide additional turning space for B-Doubles exiting the facility, in accordance with MOD 5 conditions.

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4 Traffic Generation and Distribution

4.1 Existing Site Generation and Distribution

4.1.1 Daily Traffic Movements

Based on the operational details provided by Orora, the Site currently operates at its maximum production capacity of 425,000tpa (per the MOD 7 Approval). **Table 3** provides a summary of the average daily vehicles accessing the Site for each specific Site activity.

Table 3: Average Daily Traffic Volumes (425,000tpa)

Type of Vehicle	AAWDT ¹	Peak Hours
Waste Paper Deliveries		
B-Doubles	11	Between 2.30pm and 5pm
Semi-Trailers	35	Between 2.30pm and 5pm
Rigids (< 15 tonne loads)	65	Between 6am and 12pm
Starch/Chemicals Deliveries		
Semi-Trailers	3	Between 7am and 12pm
Finished Product Despatch		
B-Doubles & HPV's	12	Between 2.30pm and 5pm
Semi-Trailers	34	Between 7am and 12pm
Solid Waste Removal		
Semi-Trailer – Coarse Rejects	6	Between 7am and 12pm
Semi-Trailer – Fine Rejects	3	Between 7am and 12pm
Semi-Trailer – Aerobic Biomass	1	Between 7am and 12pm
General Waste		
Rigids (Front load, hook bins etc.)	1	Between 2.30pm and 5pm
Subtotal	171	
Other General Traffic (Staff, Contractors, Vis	sitors, Couriers, Deliveries)	
Light Vehicles (Cars, Utilities etc.)	150	Between 5.30am and 7.30am / Between 3.30pm and 5.30pm
Total	321	

Note: 1) AAWDT: Annual Average Week Day Traffic – the number of vehicles that access the Site during an average weekday. Each vehicle generates 2 trips (1 in movement, 1 out movement).

4.1.2 Peak Hour Traffic Movements

Peak period traffic surveys at all Site access points were undertaken on 11 December 2018 (Tuesday) to identify the peak hour trip generation of the Site. As shown in **Table 4**, the AM peak period at all Site access points is generally between from 7.00am and 8.30am. At the Botany Road / Bumborah Point Road / Site intersection, the PM peak hour (3:30pm – 4:30pm) occurs earlier that the other access points. It should be noted that the peak hours of traffic generation associated with the Site do not all correspond with the external road network peak hours.

Table 4: External Peak Hour at Site Access Points

#	Site Access Point	AM Peak Hour	PM Peak Hour
1	Botany Rd / Bumborah Point Rd	7.15am - 8.15am	3.30pm - 4.30pm
2	McCauley St (Finished product exit road)	7.30am - 8.30am	4.45pm - 5.45pm
3	McCauley St (Raymond Ave intersection)	7.00am - 8.00am	4.45pm - 5.45pm

The AM peak hour trip generation of the Site is 46 vehicle trips per hour (vph), consisting of 18 heavy vehicle trips and 28 light vehicle trips. During the PM peak hour, the Site generates 44vph, including 16 heavy vehicle trips and 28 light vehicle trips. The Site flows, and broader flows at the local intersections, are shown in **Figure 3** (all vehicles) and **Figure 4** (heavy vehicles only).

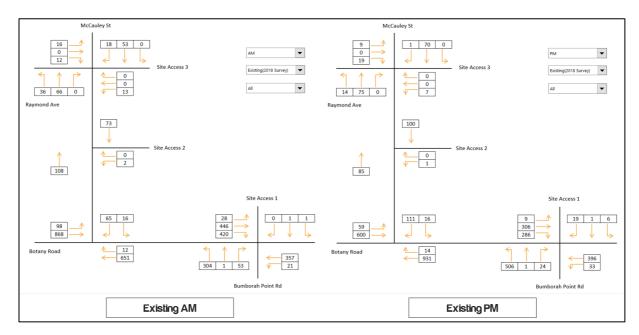


Figure 3: Existing Peak Hour Traffic Flows (All Vehicles)

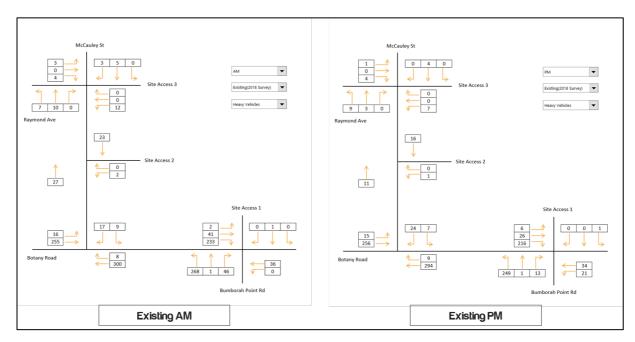


Figure 4: Existing Peak Hour Trip Generation (Heavy Vehicles)

It is also noted that the surveys indicate that some 285 vehicle trips were generated by the Site during the extended AM (7:00am – 10:00am) and PM (3:00pm – 6:00pm) peak periods; this equates to 44.4% of the total daily Site trip generation (642 trips). This percentage is consistent with 24-hour traffic movements surveys of large-scale warehouse and distribution centres undertaken by Ason Group at Eastern Creek (43.5%), and are generally representative of typical industrial developments.

4.2 Forecast Site Generation and Distribution

4.2.1 Daily Traffic Movements

The Proposal will provide for a production capacity increase to 500,000tpa. In determining the resultant additional trip generation, it is expected that heavy vehicle generation would increase proportionally (to that of the existing Site with a production capacity of 425,000tpa). Information provided by Orora indicates that there is no expectation of additional staff further to the Proposal, and as such light vehicle generation is expected to remain unchanged.

Further to the above, the forecast average daily numbers of vehicles accessing the Site for each specific activity are summarised in **Table 5**.

Table 5: Forecast Average Daily Traffic Volumes (500,000tpa)

	AAWDT ¹		
Type of Vehicle	Current Performance (425,000 tonnes/yr)	Increased Performance (500,000 tonnes/yr)	
Waste Paper Deliveries			
B-Doubles	11	17	
Semi-Trailers	35	46	
Rigids (< 15 tonne loads)	65	70	
Starch/Chemicals Deliveries			
Semi-Trailers	3	4	
Finished Product Despatch			
B-Doubles & HPV's	12	13	
Semi-Trailers	34	49	
Solid Waste Removal			
Semi-Trailer – Coarse Rejects	6	7	
Semi-Trailer – Fine Rejects	3	4	
Semi-Trailer – Aerobic Biomass	1	1	
General Waste			
Rigids (Front load, hook bins etc.)	1	1	
Subtotal	171	212	
Other General Traffic (Staff, Contractors, V	'isitors, Couriers, Deliveries)		
Light Vehicles (Cars, Utilities etc.)	150	150	
Total	321	362	

Note: 1) AAWDT: Annual Average Week Day Traffic – the number of vehicles that access the Site during an average weekday. Each vehicle generates 2 trips (1 in movement, 1 out movement).

4.2.2 Peak Hour Traffic Movements

Adopting the surveyed traffic distribution profile of the Site, the additional peak hour trip generation of the Site during the AM and PM peak periods is summarised in **Table 6** below.

Table 6: Trip Generation Comparison

Time Period	Vehicle Types	Current Generation (425,000tpa)	Future Generation (500,000tpa)
	Light	300	300
Daily	Heavy	342	424
	Total	642	724
	Light	28	28
AM Peak hour	Heavy	18	24
	Total	46	52
	Light	28	28
PM Peak hour	Heavy	16	21
	Total	44	49

With reference to **Table 7**, the increased production capacity provided for by the Proposal will result in only very minor increases in Site trip generation during both the AM and PM peak hours (6vph and 5vph respectively). Forecast peak hour traffic flows (further to the Proposal) are shown in **Figure 5** (all vehicle) and **Figure 6** (heavy vehicles only) below.

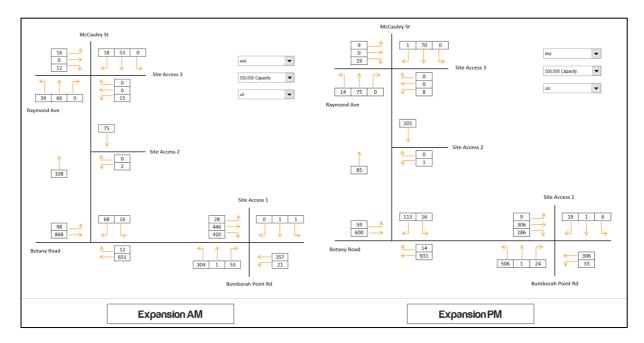


Figure 7: Future Peak Hour Traffic Flows (All Vehicles)

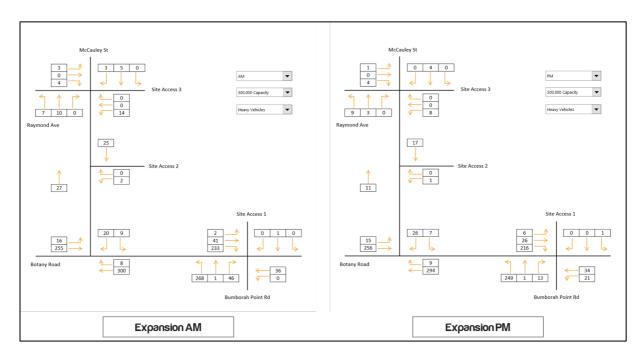


Figure 8: Future Peak Hour Traffic Flows (Heavy Vehicles)

5 Traffic Impacts

5.1 Intersection Performance

As discussed in **Section 1.4**, RMS has accepted that, given the minor increased production capacity of the Site further to the Proposal, the corresponding increase in vehicle movements would also be minor. As such, it has been agreed that detailed intersection analysis is required only for the intersection of Botany Road / Bumborah Point Road / Site.

In this regard, the performance of the intersection has been analysed using the SIDRA Intersection model. SIDRA provides outputs for a range of performance measures, including:

- Average Vehicle Delay (AVD): AVD (or average delay per vehicle in seconds) provides a measure
 of the operational performance of an intersection and is used to determine an intersection's Level
 of Service (see below). For signalised intersections, the AVD reported relates to the average of all
 vehicle movements through the intersection.
- Level of Service (LOS): LoS is a comparative measure that provides an indication of the operating
 performance of an intersection based on AVD. Table 8 below table provides a summary of current
 RMS LOS criteria.

Table 9: RMS Level of Service Summary

Level of Service	Average Delay per Vehicle (secs/veh)	Traffic Signals, Roundabout	Give Way and Stop Signs
А	less than 14	Good operation	Good operation
В	15 to 28	Good with acceptable delays & spare capacity	Acceptable delays & spare capacity
С	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	Operating near capacity	Near capacity & accident study required
Е	57 to 70	At capacity; at signals, incidents will cause excessive delays. Roundabouts require other control mode	At capacity, requires other control mode
F	More than 70	Unsatisfactory and requires additional capacity.	Unsatisfactory and requires other control mode or major treatment.

A comparison of the SIDRA modelling results of existing intersection operations, and operations further to the Proposal, is provided in **Table 10**.

Table 10: Intersection Performance - Botany Rd / Bumborah Point Rd Intersection

Peak Periods	Exis	sting	Expa	nsion
	Delay	LoS	Delay	LoS
AM	19.5	В	19.5	В
PM	22.4	В	22.4	В

With reference to **Table 11**, the SIDRA modelling clearly indicates that the increased production capacity provided for under the Proposal will result in negligible impacts on the performance of the Botany Road / Bumborah Point Road / Site intersection. This intersection is expected to continue operating at a good LOS B during both AM and PM peak periods.

Relevant SIDRA files can be provided to RMS if required.

5.2 Queuing

5.2.1 Queuing for Weighbridge

Currently there are two incoming weighbridges located to the north of the car park for waste paper deliveries, and one exit weighbridge located near the McCauley Street (at Raymond Avenue) access point for heavy vehicles exiting the Site.

Queuing of vehicles for weighbridges was not observed on-site during the Site visit of 29 March 2019 (Friday), which Orora indicates was a typical working day with average daily traffic generation. As such, there is no expectation that the minor increase in trip generation will have any impact on weighbridge queues (or general operations).

5.2.2 Queuing on Botany Road

Similar, no off-site queuing of vehicles (in Botany Road entering the Site) was observed during the Site visit, and there is no expectation that the minor increase in trip generation would result in any queues to Botany Road.

6 Parking Impacts

The Site currently provides approximately 146 car parking spaces, including 2 accessible parking spaces located near the security gate. Further to the Proposal, the number of car parking spaces provided will not change, and it is noted that – based on our observations and discussions with Orora - the maximum occupancy rate of the car park is generally no more than 50%.

Notwithstanding, as discussed in **Section 4.2.1** the Proposal does not provide for any staff increases such as would increase either light vehicle trips or parking demands.

7 Conclusions

Further to a detailed assessment, Ason Group has concluded that the Proposal would have no significant access, traffic or parking impacts. In summary:

- The Proposal will result in a net increase in daily traffic generation of 82 additionally trips, while AM and PM peak hour generation would increase by only 5vph and 6vph in the AM and PM peak periods respectively.
- RMS has accepted that, given the relatively minor increase in vehicle movements, a localised modelling assessment is appropriate, limited to the Botany Road / Bumborah Point Road / Site intersection. SIDRA analysis indicates that the minor increase in Site trips would have no significant impact on the operation of the intersection, with LOS unchanged at LOS B in both peak periods.
- Based on Site observations, the Proposal will have no significant impact on vehicle queuing for the weighbridges or in Botany Road.
- The Proposal does not provide for any increase in staff numbers; as such, the existing on-site parking will continue to provide capacity well in excess of peak demand.

The Proposal is therefore supportable on traffic planning grounds.

Appendix A Existing Site Plan

