Appendix E:

Traffic and Transport Assessment

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Materials Recovery Facility & Rail Freight Terminal

Benedict Industries Pty Ltd

09-Feb-2018

Traffic and Transport Assessment

Block 9 and 11 – Section 8 Fyshwick ACT

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Prepared for – Benedict Industries Pty Ltd – ABN: 46 001 926 503

Traffic and Transport Assessment

Block 9 and 11 – Section 8 Fyshwick ACT

Client: Benedict Industries Pty Ltd

ABN: 46 001 926 503

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Quality Information

Document Traffic and Transport Assessment

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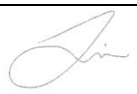
Prepared by Tim Nell

Reviewed by Brendan Hogan

Revision History

Rev	Revision Date	Details	Authorised	
			Name/Position	Signature
00	09-Feb-2018	Finial	Tim Nell Principal Traffic Modeller	

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1.0 Preliminaries

1.1 Background

AECOM understands that the proponent, Capital Recycling Solutions Pty Ltd (CRS) (a joint venture formed between Benedict and Access Trading Company), is proposing to implement a Materials Recovery Facility (MRF). The proposed facility would receive, sort and separate waste to create commercially reusable products for export.

It is understood that CRS submitted an application (No.201700053) under Section 212(1) of the Planning and Development Act 2007 to the Planning and Land authority (the Authority) (within the Environment, Planning and Sustainable Development Directorate) for scoping of an EIS for the proposed development. The Authority has identified matters to be addressed by an EIS and prepared a scoping document as outlined in Scoping Document dated 15 January 2018

This report provides a description of the likely traffic impacts of the proposed MRF in Fyshwick, to support an EIS for the installation of the facility.

1.2 Location

The site is located at Block 9 and 11 – Section 8 Fyshwick. The site plan and location are shown in Figure 1 and Figure 2.

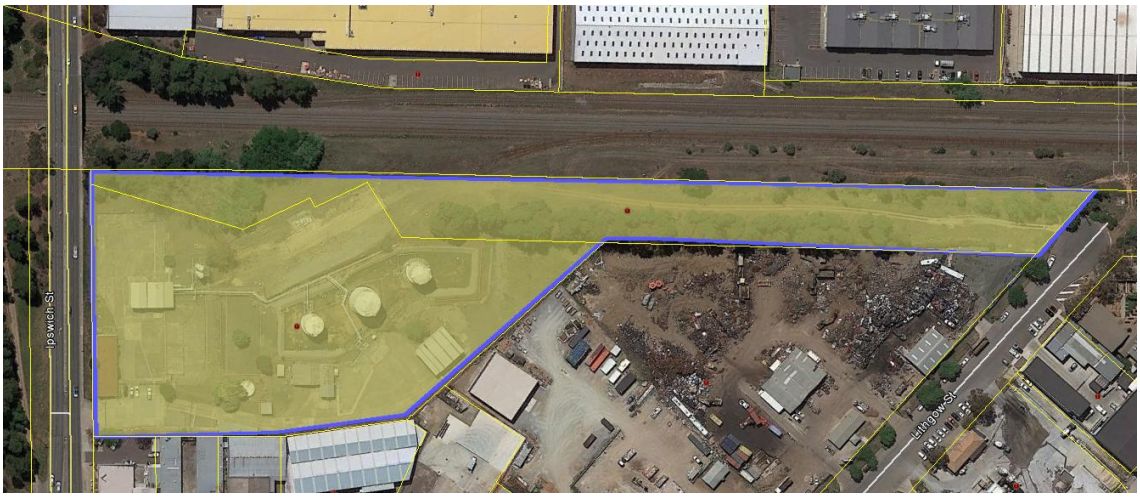


Figure 1 - Proposed Site Plan

Figure 2 - Site Location

2.0 Traffic Modelling

2.1 Traffic Data Collection

For the purposes of traffic modelling the following traffic data has been used:

- Trans Traffic Survey was requested to collect tube counts on the Canberra Avenue service road between Geelong Street and Lithgow Street from Friday 15th September 2017 to Friday 22nd September 2017.
- Trans Traffic Survey also collected turning movement counts for the intersection of Wiluna Street and Lithgow Street between 6:00am and 9:00am on Wednesday 20th September 2017.
- SCATS loop count and signal timing data from Monday 18th September 2017 to Sunday 24th September was received from Transport Canberra and City Services for the following intersections:
    - TCS 8: Intersection of Canberra Avenue and Ipswich Street.
    - TCS 130: Intersection of Ipswich Street and Wiluna Street.
    - TCS 137: Intersection of Canberra Avenue and Off Ramp from Monaro Highway.
    - TCS 267: Intersection of Canberra Avenue and Geelong Street.

Figures that follow summarise the data in the form of vehicle turning movement diagrams.

2.2 Peak Hour Periods

Using the SCATS loop counts there appeared to be two distinct peak hour periods:

- AM Peak: 8:00 to 9:00
- PM Peak: 16:15 to 17:15

These counts were adopted for the investigation of traffic on the surrounding road network.

It should be noted that the tube count on the Canberra Avenue service road shows an additional peak period midday (12:00 to 13:00) in excess of the AM and PM peaks. This should be considered if the Canberra Avenue service road was to receive significant additional traffic. However, the volumes on the service road are very low in comparison to Ipswich Street and Canberra Avenue.

2.3 Existing traffic network

From the data collected, the following figures illustrate the turning movements for the AM and PM peak hours.

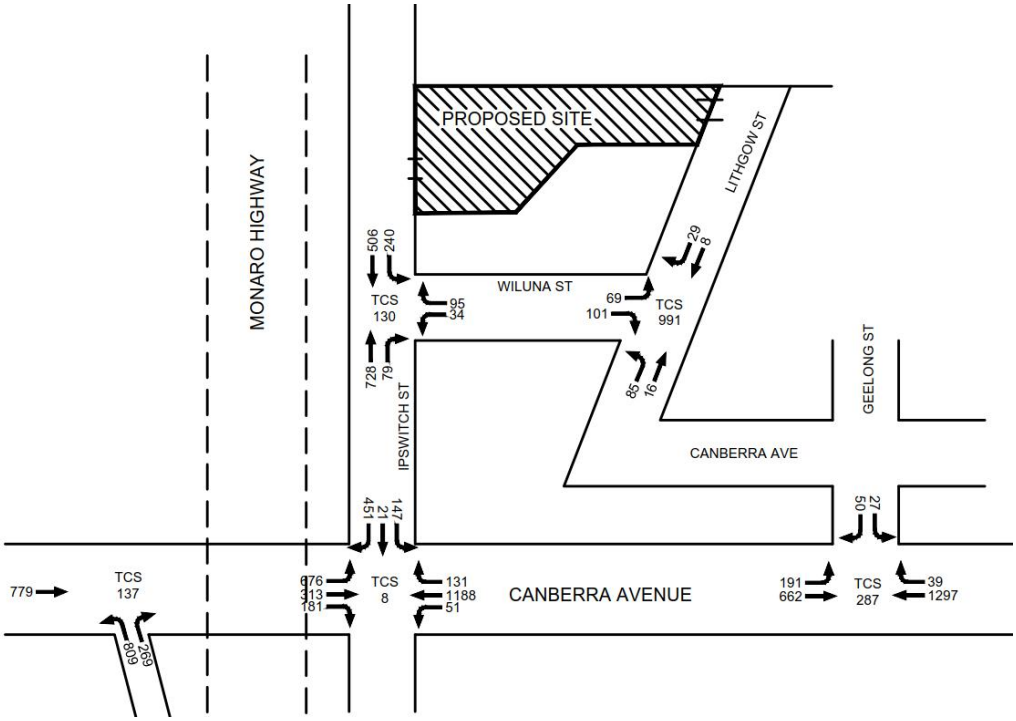


Figure 3 - Vehicle Turning Movements - Existing AM Peak (8am – 9am)

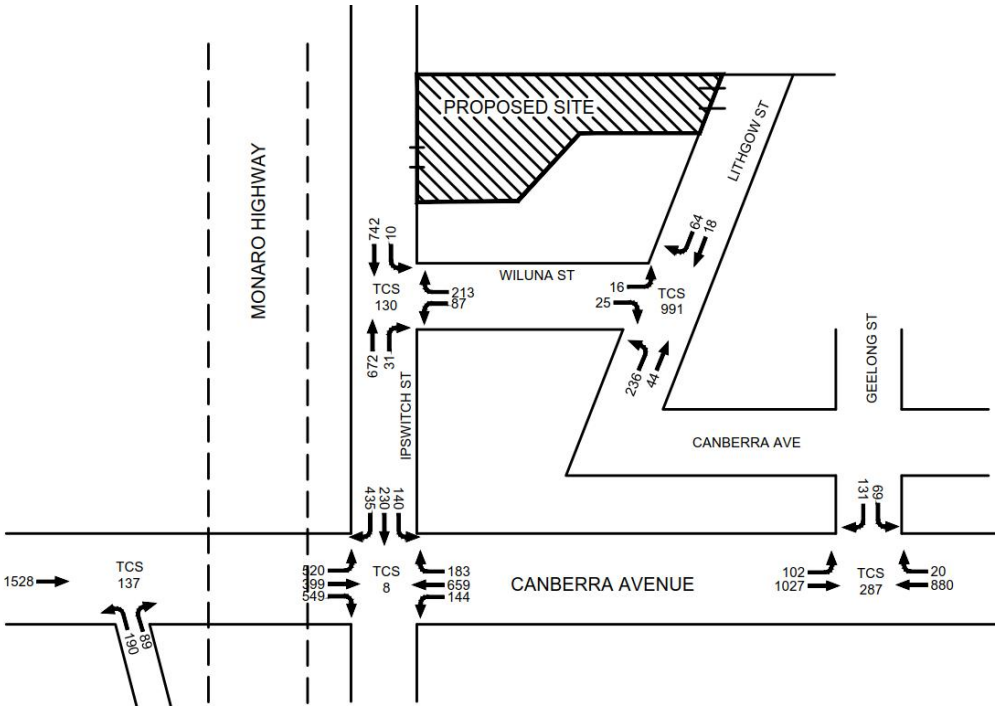


Figure 4 - Vehicle Turning Movements - Existing PM Peak (4:15pm – 5:15pm)

Using this data a SIDRA network model for both periods was developed to investigate the impact of the proposed facility on local traffic operations. This is displayed in the form of Level of Service (LOS) diagrams, which are described in Ausroads Guide to Traffic Management Part 3 as follows:

LOS A - A condition of free-flow in which individual drivers are virtually unaffected by the presence of others in the traffic stream. Freedom to select desired speeds and to manoeuvre within the traffic stream is extremely high, and the general level of comfort and convenience provided is excellent.

LOS B - In the zone of stable flow where drivers still have reasonable freedom to select their desired speed and to manoeuvre within the traffic stream. The general level of comfort and convenience is a little less than with level of service A.

LOS C - Also in the zone of stable flow, but most drivers are restricted to some extent in their freedom to select their desired speed and to manoeuvre within the traffic stream. The general level of comfort and convenience declines noticeably at this level.

LOS D - Close to the limit of stable flow and approaching unstable flow. All drivers are severely restricted in their freedom to select their desired speed and to manoeuvre within the traffic stream. The general level of comfort and convenience is poor, and small increases in traffic flow will generally cause operational problems.

LOS E - Traffic volumes are at or close to capacity, and there is virtually no freedom to select desired speeds or to manoeuvre within the traffic stream. Flow is unstable and minor disturbances within the traffic stream will cause breakdown.

LOS F - In the zone of forced flow, where the amount of traffic approaching the point under consideration exceeds that which can pass it. Flow breakdown occurs, and queuing and delays result.

Figure 5 and Figure 6 show the result of the SIDRA analysis of the existing AM and PM peak periods.

The SIDRA analysis shows the greatest traffic demands and congestion in the AM peak are on the westbound and southbound approaches to the Canberra Avenue / Ipswich Street intersection.

In the PM peak, the higher traffic demands and congestion are on the westbound and southbound approach to Canberra Avenue / Ipswich Street intersection.

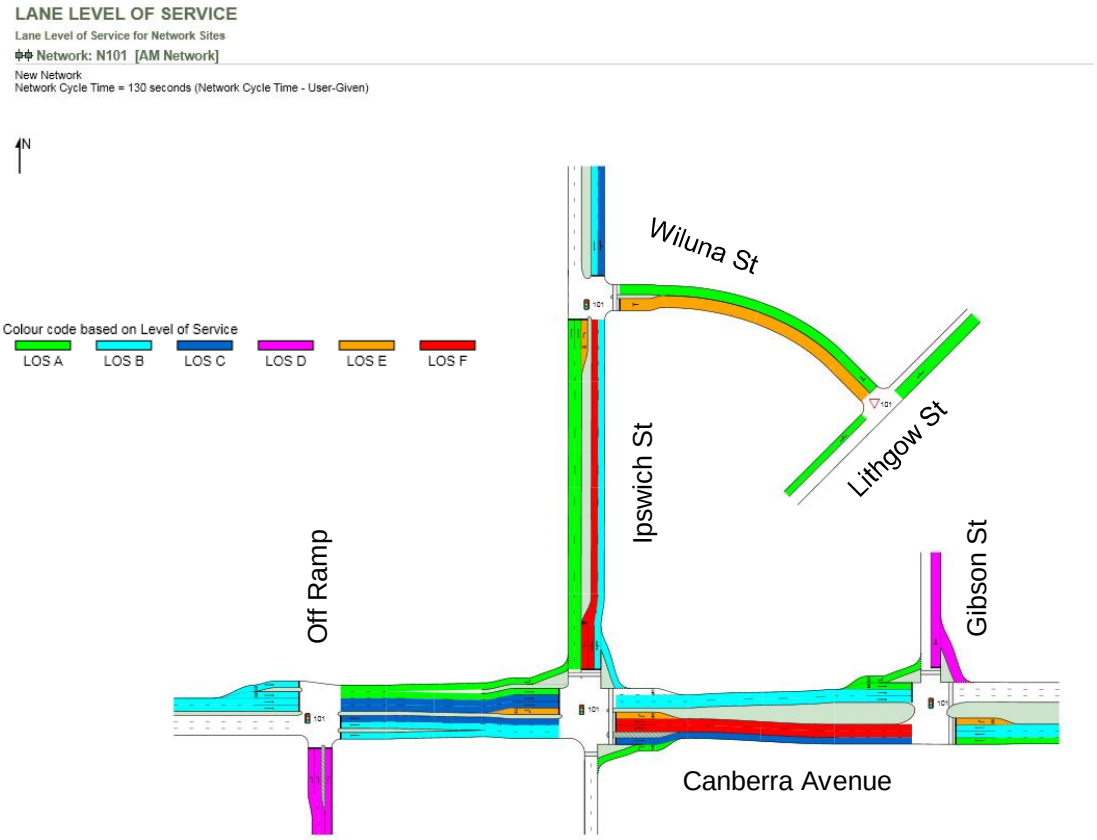


Figure 5 Lane Level of Service AM Peak (8 am – 9 am)

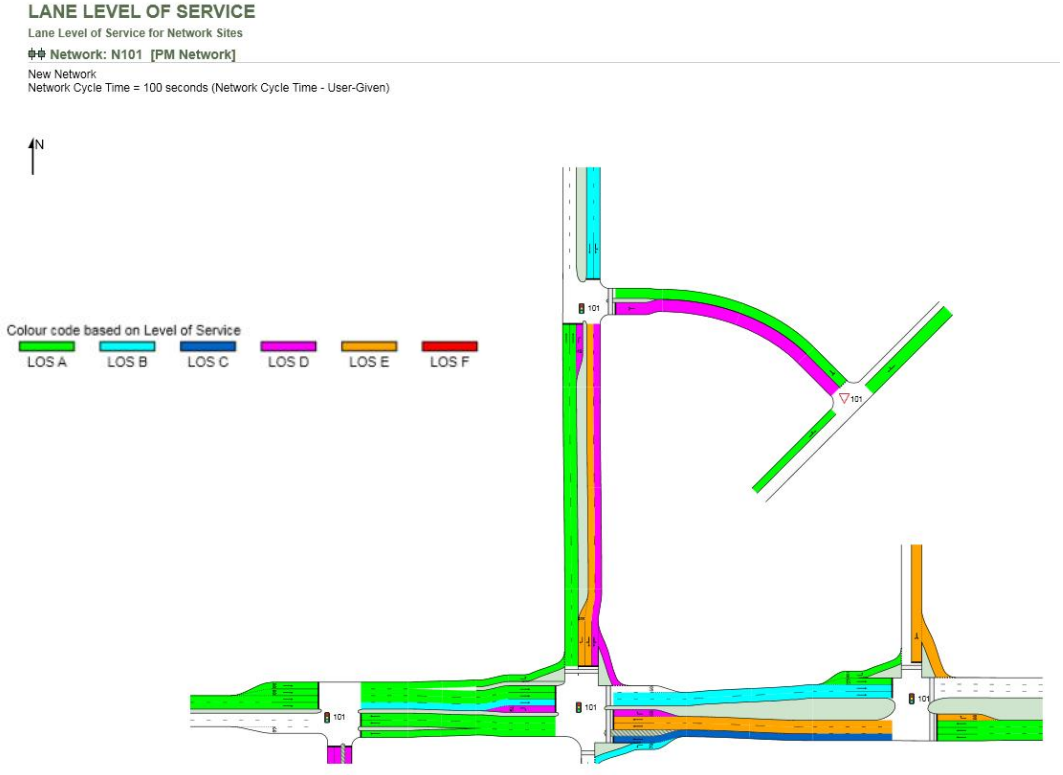
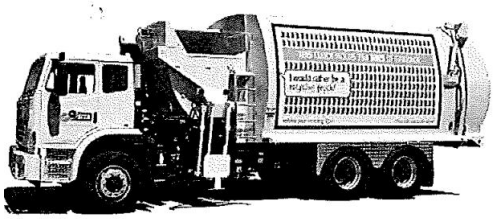


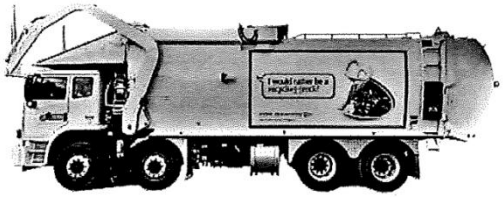
Figure 6 Lane Level of Service PM Peak (4:15 pm -5:15 pm)

2.4 Type of Waste Vehicle

The types and sizes of heavy waste vehicles varies depending on the commercial or domestic use but the ACT Waste and Recycle Management Code gives some guide to the more commonly used vehicles. They tend to fall into the following three categories.



- Side Lift Trucks:



- Front Lift Trucks:

- Rear Lift Trucks:

The majority of trucks to the site will fall into these categories. Occasional semi-trailers will also service the site for some general freight deliveries and removal of recyclables.

If additional vehicle management strategies were implemented to increase the occupancy of the waste per vehicle and consequentially the number of vehicles then the expected generation would be much lower. These considerations have not formed part of this report.

2.5 Vehicle Generation Assumption

The site is expected to generate additional traffic movement on the surrounding road network from staff and visitors but the vast majority of additional traffic movements will be from heavy vehicles redirected from the Mugga Lane Resource Management Centre (MLRC). These vehicles have been separated into two operational groups.

- Government Vehicles: These are the government-operated vehicles primarily used to collect residential waste on a regular basis.
- Other Vehicles: These are most non-government vehicles including commercial vehicles and other waste deliveries.

Inquiries with ACT NoWaste regarding the existing vehicles arriving at the MLRC passing over the weighbridge was received in December 2017. This information indicated the number and total tonnage for Government vehicles collecting the kerbside waste and non-government (Other) vehicles delivering over the weighbridge.

The MLRC operates 7 days a week for 360 days a year. The kerbside collection is only 5 days a week or 260 days a year. Using this information, we can determine the average amount of waste each type of vehicle holds and the rate of vehicles per tonne of waste per day. These rates have been used in Table 2 to calculate the vehicle generation for the site from the projected waste volumes. A smaller rate number represents fewer trucks per tonne of waste resulting in a higher truck generation.

Table 1 - Generation Rates for Heavy Vehicles

Generation Type	Waste per Vehicle (Tonnes)	Days of operation per year	Rate Vehicles/ Tonne
Kerbside and household waste collections and transfer of materials – typically using larger or more heavily filled trucks	6.9	260	0.1446
Private deliveries, commercial and mixed loads – can include smaller trucks	3.6	360	0.2744

2.5.1 Staff and Visitors

The expected generation of vehicle movements from staff will be only 20 to 25 vehicles spread over the course of a typical day. There will be 2 to 5 administrative staff expected to work on the site, which would follow typical peaks around 9 am and 5 pm. The majority of the movements would be from shift workers with the shift change outside of standard peak times (6 am and 2 pm). There are two shifts proposed on Monday to Saturday and one shift on Sunday.

All staff and visitor traffic will arrive and leave from the proposed Ipswich Street entry to the site. The impact of the small number of vehicles, which will operate mostly outside of peak traffic times, is considered negligible.

2.5.2 Heavy Vehicles

The heavy vehicles are proposed to arrive at the site via an entrance at the end of Lithgow Street and exit the site at the exit onto Ipswich Street.

To simplify estimation, two rates of vehicle generation have been applied as outlined in Table 1. These rates are then applied in Table 2 were the expected number of trucks generated by the site per year for different waste operations are calculated. Table 3 provides a summary by operational group. These were estimated using the information provided for the projected 2020/21 waste volumes and the vehicle rates from Table 1.

Table 2 – 2020/21 Heavy Vehicle Generation Projections

Type of Waste operation	Operator	Waste Volume (tonnes)	Rate*	Trucks/year
Private Deliveries (Mugga & Transfer)	Gov.	32,948	0.2744	9041
Illegal dumping, street bins, park bins	Gov.	5,481	0.2744	1504
Stormwater waste	Gov.	6,840	0.2744	1877
Street sweepings	Gov.	3,828	0.2744	1050
Road maintenance accident	Gov.	409	0.2744	112
Kerbside waste	Gov.	84,156	0.1446	12169
Bulky household waste	Gov.	233	0.1446	34
MRF residues	Gov.	6,790	0.1446	982
C&I to Mugga (comm operators)	Other	107,539	0.2744	29509
C&I to Transfer (comm operators)	Other	15,197	0.2744	4170
C&D to Mugga (mixed loads)	Other	6,329	0.2744	1737
Timber - 50% of what goes to Mugga	Other	12,500	0.1446	1808
Glass	Other	19,440	0.1446	2811
TOTAL		**301,690**		**66804**

*Applied rate is representative of the expected volume used for the type of material transfer. A smaller number represents fewer trucks per tonne of waste.

Table 3 - 2020/21 Total estimated heavy vehicle generations

Type	Heavy Vehicles
Government	26,769
Other	40,035

2.5.3 Distribution of heavy vehicle arrivals

An illustration of the distribution of arrivals to the site is shown in Figure 7.

An examination of the likely arrival routes for the waste vehicle showed the following relationship with the direction of the suburbs from the site with their likely arrival route:

- Northern Suburbs: would congregate traffic southbound onto the Majura Parkway to approach eventually southbound on Ipswich Street from Newcastle Street.
- Western Suburbs: would congregate eastbound on Canberra Avenue to approach northbound on Ipswich Street from Canberra Avenue.
- Southern Suburbs: would congregate Northbound on Monaro Highway to eventually approach northbound on Ipswich Street.
- Eastern Suburbs: would congregate westbound on Canberra Avenue and turn off at Geelong Street to approach northbound on Lithgow Street.

Trucks from the Northern, Western and Southern suburbs would access Lithgow Street via Wiluna Street.

Figure 7 - Direction of arrivals to proposed site

2.5.4 Kerbside collection distribution

Table 4 is provided to assist in understanding the distribution of government waste, including the kerb side collection, generated in Canberra. Using the population of each suburb from census data and the days of the week collection took place for each suburb. Table 4 was created to determine the worst case day of the week. Using the same information and the expended route based on the suburb location the table also indicated the expected number of vehicles for each route for the day of the week.

Table 4 - Additional Government Vehicle Movements

	Monday			Tuesday	Wednesday	Thursday	Friday			
	East	North	South	South	North	North	East	North	South	West
Trucks	23	5	60	101	93	101	29	97	8	3
Daily Total	88			101	93	101	137			

The complete sheet of calculation for population distributions can be found in Appendix A

Table 4 indicates that the daily amount of traffic arriving during the week varies from 88 to 137 trucks per day. An average value of 104 trucks per day has been adopted for this report. This number represents not only the kerbside collection but all waste types listed as Government in Table 2.

Table 5 - Daily Government Vehicle Calculations

		East	North	South	West
	Total	21%	70%	6%	2%
Daily Total	104	22	73	6	2

2.5.5 Distribution of non-government other vehicles

The distribution of vehicles shown in Table 6 is based on the origin from the town centres to the proposed site. The proposed site is expected to operate 6.5 days a week which is equivalent to 338 days a year. Based on the total vehicles shown in Table 3 the following distribution of non-government vehicles has been calculated.

Table 6 – 2020/21 Distribution of non-government vehicles (338 days per year)

	Total	East	North	South	West
Distribution		11%	53%	33%	3%
Yearly Total	40,035	4404	21219	13212	1201
Daily Total	118	13	63	39	4

2.5.6 Freight vehicles

The site will generate freight vehicles to deliver reusable material to the rail freight terminal (RFT) located at the proposed site.

The estimated generation from the known sources likely to use the RFT is 55 vehicles per week. 25 of these vehicles are from the adjacent Access Recycling services site. The development will arrange for an internal access link to be able to transfer to the RFT without the need to use the existing road network. This reduces the freight vehicles using the road network to 30 vehicles per 6 day week or 5 vehicles per day.

The freight vehicles are likely to originate from with Fyshwick.

2.5.7 Recycling

The site is expected to process 60,000 t of recycling material within the year. Of this 70% of the material will be transported from the site by rail. The remaining 30% (18,000t) will be trucked from the site to other local and regional reuse facilities using either semi-trailers or truck and dog. Both these types of vehicle can legally transport 24t and 30t respectively, a maximum load of 24t is assumed as the vehicles is expected to be fully laden.

The 18,000t is converted to average daily movements by dividing it by 24t per vehicle, 50 weeks of operation per year and 5 days a week, equating to 3 vehicles arriving and leaving the site per day.

2.5.8 Total distribution

The total volumes and distribution of trucks shown is shown in Table 7. These numbers are based on the information from Table 4 and Table 6 and Section 2.5.6 and 2.5.7.

Table 7 - 2020/21 Total daily volume and distribution

	Total	East	North	South	West
Government	**104**	**22**	**73**	**6**	**2**
Non-Government	**118**	13	63	39	4
Freight	**5**	1	1	1	2
Recycling	**3**	0	1	1	1
Daily Total	**230**	36	138	47	9

To bring the distribution to an hourly rate, the daily totals were averaged over the 16 hours of daily operation expected for the proposed site.

It is likely that the hourly rate will be less as heavy vehicles driver will try to avoid travelling in peak traffic times. For the purposes of this report, we have adopted the average, shown in Table 8.

Table 8 - 2020/21 Average Hourly generations

	Total	East	North	South	West
Average Vehicles per hour	15	2	9	3	1

Figure 8 demonstrates a relative comparison of the average additional vehicles against the existing heavy vehicles passing though the Canberra Avenue / Ipswich intersection and the Newcastle Street / Ipswich Street intersection. The additional vehicles represent approximately 5% of the existing heavy vehicle movements. The total traffic movements going through both Newcastle Street and Canberra Avenue are in excess of 3000 vehicles during the AM peak hour.

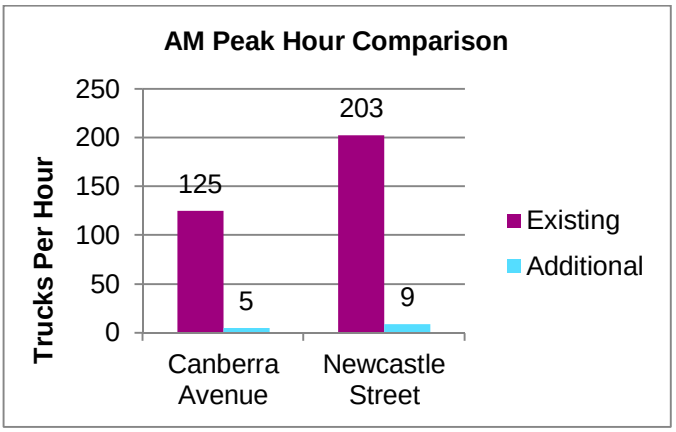


Figure 8 - Comparison of generated heavy vehicles to existing

The volume and direction of travel of all additional trucks to the site is illustrated in Figure 9.

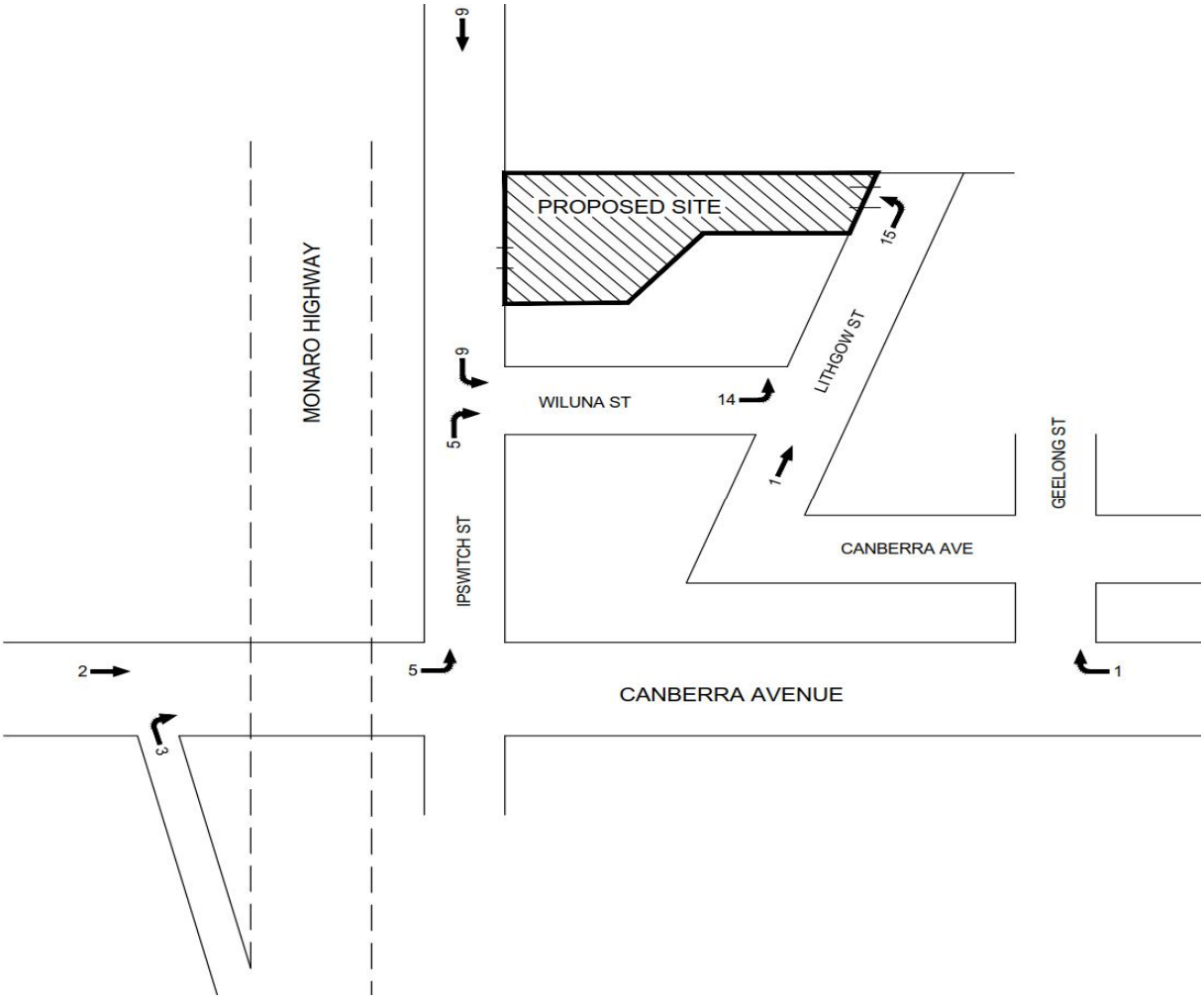


Figure 9 - Additional Hourly heavy vehicle movements 2020/21

2.6 Exiting Vehicles

None of the waste and delivery trucks will depot at the site, so the number of exiting vehicles will equal the number of entering vehicles to the site. All vehicles will exit the site onto Ipswich Street at the existing site driveway location.

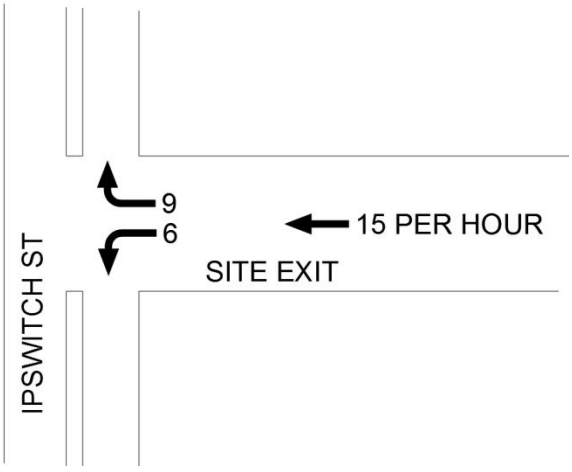


Figure 10 - Vehicles exiting the site

The heavy vehicles will generally arrive and leave between 6 am and 10 pm.

3.0 Site Entrance – Ipswich Street

3.1 Existing site driveway

The proposed development will make use of the existing site driveway in Ipswich Street. This is located on the southern-most corner of the site, as shown in the aerial photo below.

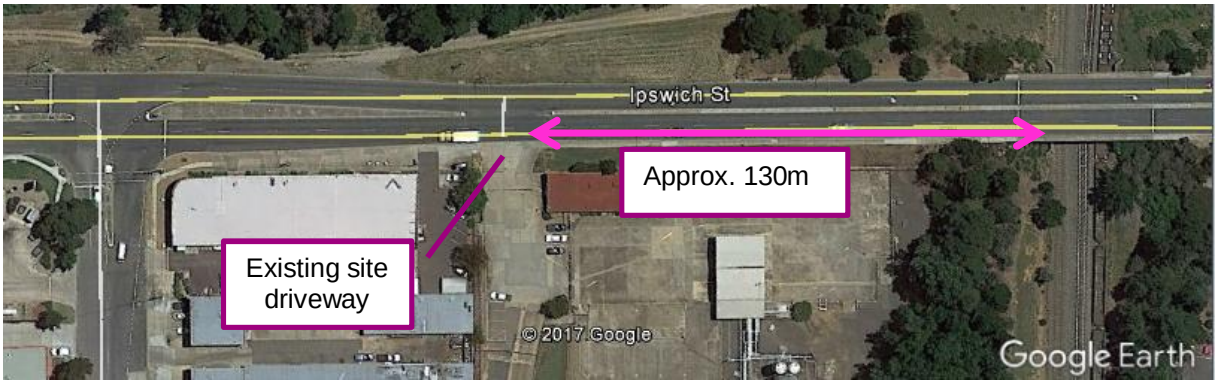


Figure 11 Site Ariel with sight distance overlay

According to Austroads Guide to Road Design Part 4a for 60 km/h and a reaction time of 2 seconds, the approach sight distance (ASD) is 73 m and the safe intersection sight distance is (SISD) is 123 m.

The site driveway has an existing median opening and is approximately 130 m from the southern side of the railway bridge on Ipswich Street. The bridge is located on the crest of a hill.

As shown in the two images from Google street view the intersection is clearly visible from the southern end of the bridge. This would indicate the current driveway would comply with ASD and SISD requirements.

Figure 12 Access looking north on Ipswich Street

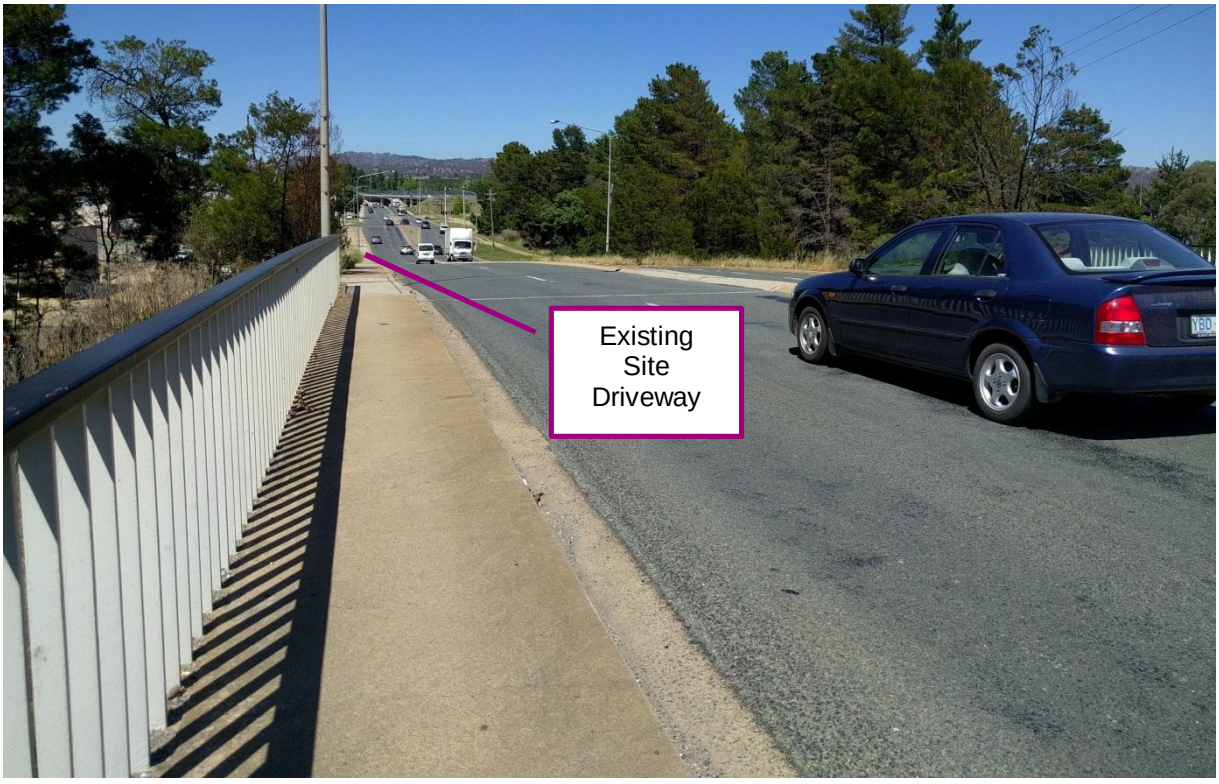


Figure 13 Approach from North looking south on Ipswich Street

3.2 Proposed signalisation of Exit

As the current site entrance on Ipswich Street has sufficient safe intersection sight distance and the additional vehicle numbers are relatively low there is no clear warrant under the Austroads Guidelines to amend the driveway arrangements.

Even though there is no warrant the development, for the safety of all road users, proposes to signalise the exit from the site. This will improve safety for the opposed turn with southbound traffic on Ipswich Street.

The signals would work in phase with the existing signals at Wiluna Street. When the turning movement phase at Wiluna Street operates then the vehicles from the site can make a safe right turn as the proposed signals on Ipswich will enter a red phase. The site exit phase will have a much shorter turning time than the Wiluna Street lights and should not significantly increase delay on to southbound traffic on Ipswich Street.

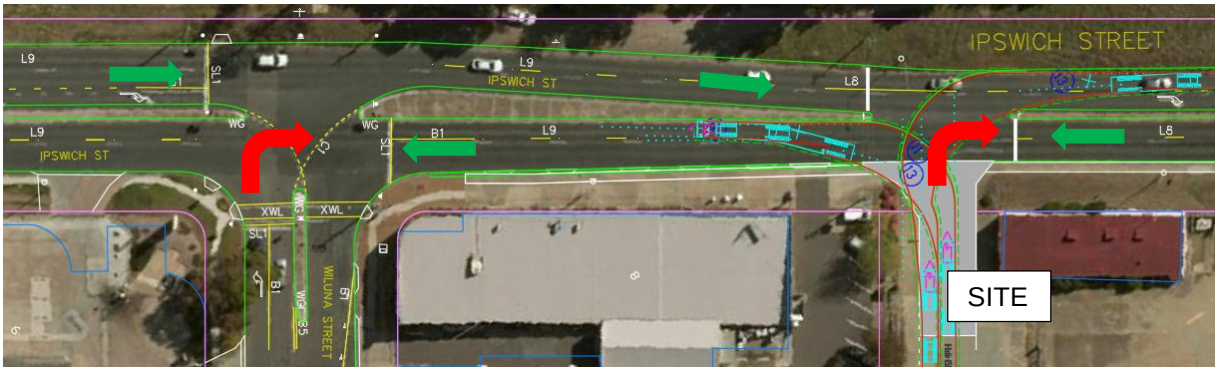


Figure 14 - Proposed Signal Phase A

Figure 15 - Proposed Signal Phase B1

Figure 16 - Proposed Signal Phase B2

Figure 17- Proposed Signal Phase C

3.3 Pedestrian Safety

In reviewing access locations and treatments, pedestrian safety as well as vehicle safety and functionality has been considered. The two access locations for the site are on Lithgow Street and Ipswich Street. The Lithgow entrance is vehicle only and no pedestrian activity is expected at the end of the cul-de-sac.

The proposed introduction of a signalised exit/entry for the site on Ipswich Street will incorporate the existing path into the signal arrangements.

As the pedestrian movement across the entry will be only need to be halted during the in and out phases, the green time for the low number pedestrian movements is expected to be relatively high. This would mean that the operation of the lights is not expected to create any significant disruption to the existing pedestrian movements along Ipswich Street.

Signals will provide a greater level of safety for pedestrian than the existing conditions and help to better delineate movements. The proposed hold areas for pedestrians will be outside the vehicle swept path.

The figure below illustrates the concept arrangements for pedestrian and the site entry.

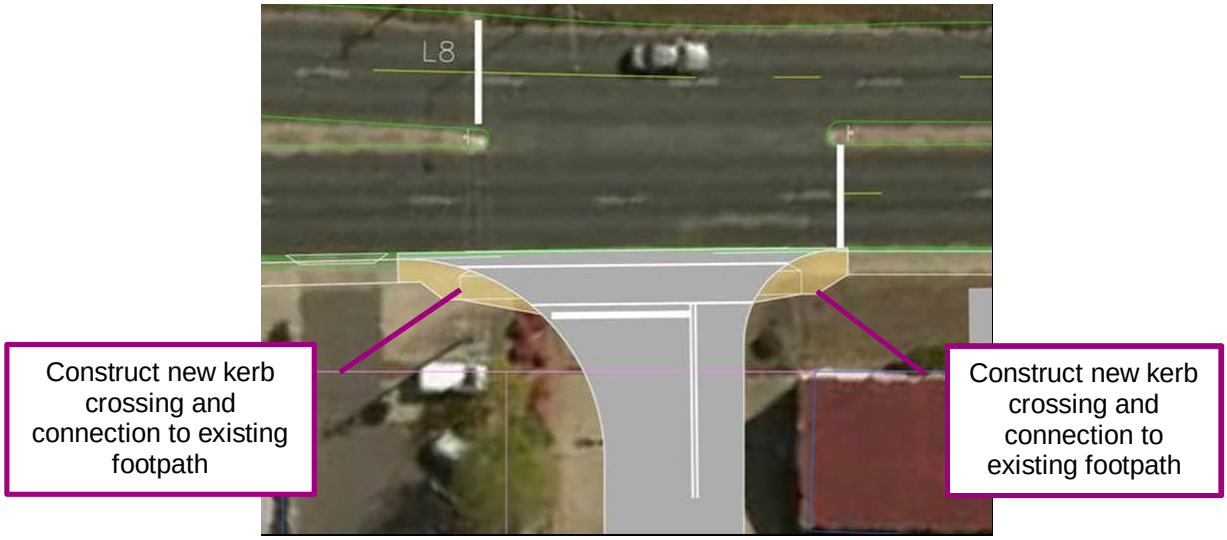


Figure 18 - Concept layout of pedestrian facilities

4.0 Construction

The site is expected to generate additional vehicles during construction to deliver material and removal of demolition materials. The majority of waste metal on site will be handled by the adjacent Access Recycling Service and will not add additional vehicles to the road network. The current proposal is to use and process as much of the existing material on site to be used in the construction of the proposed MRF & RFT.

The current proposal is for any hazardous or contaminated material to be handled and be retained permanently on site. All hazardous or contaminated material on site will need an action plan to be developed and approved by the relevant authorities.

The current proposal is for all construction vehicles to enter the site from Lithgow Street and exit the site onto Ipswich Street.

5.0 Summary

The highest impact will be on Wiluna Street and Lithgow Street, which will have the highest volumes of additional waste vehicle movements – 15 vph in 2020/21 or 1 vehicle every 4 minutes.

The average hourly generated heavy vehicles represent approximately 5% of the total number of heavy vehicles passing through Canberra Avenue / Ipswich Street and Newcastle Street and Ipswich Street. These additional heavy vehicles would represent less than 0.3% of the total traffic (3560vph) in the AM peak hour.

The heavy vehicle movements will operate between 6 am and 10 pm, which falls outside of the road network peaks. The additional volumes, even if applied to the peak periods, would have no noticeable effect to the existing level of service of the surrounding road network.

The direction of travel for the vehicle arrivals are in the opposite direction of the existing high traffic demands shown in the SIDRA analysis and as such are not likely to impact the existing level of service on the existing network.

Even though there is no warrant the development, for the safety of all road users, proposes to signalise the exit from the site. This will improve safety for the opposed turn with southbound traffic on Ipswich Street. This is not expected to significantly impact the travel times for south bound traffic on Ipswich Street.

The existing heavy duty driveway on Ipswich Street has an existing median opening and complies with site distance and stopping distance requirements.

Appendix A

Population Distribution Calculations

Appendix A Appendix A

day of the week..

Table 9 - Additional Government Vehicle Movements

Suburb/ Direction	Monday			Tuesday	Wednesday	Thursday	Friday			
	East	North	South	South	North	North	East	North	South	West
Acton								2021		
Ainslie								4854		
Amaroo					5503					
Aranda						2255				
Banks				4749						
Barton										1305
Beard							0			
Belconnen						6330				
Bonner					6554					
Bonython				3626						
Braddon								5169		
Bruce						6626				
Calwell				5464						
Campbell								4713		
Casey					5553					
Chapman			2510							
Charnwood					2852					
Chifley			2290							
Chisholm				4893						
City								4069		
Conder				4855						
Cook						2667				
Crace					4335					
Curtin	4970									
Deakin							2683			
Dickson								2039		
Downer								3472		
Duffy	2980									
Dunlop						6919				
Evatt					5075					
Fadden				2756						
Farrer			3040							
Fisher			2812							
Florey						4578				
Flynn					3187					
Forde					4161					
Forrest							1502			
Franklin								6179		
Fraser					1913					
Fyshwick								40		
Garran				3311						
Gilmore				2595						
Giralang						3142				
Gordon				7245						
Gowrie				2889						
Greenway			1770							
Griffith							4273			
Gungahlin								5936		

Suburb/ Direction	Monday			Tuesday	Wednesday	Thursday	Friday			
	East	North	South	South	North	North	East	North	South	West
Hackett								2828		
Hall					259					
Harrison								7392		
Hawker						2822				
Higgins						2890				
Holder	2469									
Holt						4389				
Hughes									2824	
Isaacs				2199						
Isabella Plains				4236						
Jacka					650					
Kaleen						6921				
Kambah			14104							
Kingston							4064			
Latham						3444				
Lawson						141				
Lyneham								4833		
Lyons			2928							
Macarthur				1358						
Macgregor						6570				
Macquarie						2563				
Mawson		3090								
McKellar						2609				
Melba					2957					
Monash				5172						
Moncrieff					84					
Narrabundah							5596			
Ngunnawal					10047					
Nicholls					6544					
Oaks Estate										244
Oxley			1607							
Page						2863				
Palmerston					5278					
Pearce			2429							
Phillip				2833						
Pialligo								109		
Red Hill									2969	
Reid								1525		
Richardson				2861						
Rivett			3011							
Scullin						2791				
Spence					2444					
Stirling			2053							
Tharwa				70						
Theodore				3656						
Throsby								0		
Torrens			2098							
Turner								3817		
Wanniassa				7167						
Waramanga			2473							
Watson								5525		
Weetangera						2412				

Suburb/ Direction	Monday			Tuesday	Wednesday	Thursday	Friday			
	East	North	South	South	North	North	East	North	South	West
Weston	3401									
Wright	2641									
Yarralumla							2637			
O'Connor								5174		
O'Malley				940						
Grand Total	**16461**	**3090**	**43125**	**72875**	**67396**	**72932**	**20755**	**69695**	**5793**	**1549**
Collection Day	317	59	829	1401	1296	1403	399	1340	111	30
Trucks	23	5	60	101	93	101	29	97	8	3
Daily Total	88			101	93	101	137			

	Monday			Tuesday	Wednesday	Thursday	Friday			
	East	North	South	South	North	North	East	North	South	West
Trucks	23	5	60	101	93	101	29	97	8	3
Daily Total	88			101	93	101	137			

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13 September 2018

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Dear Ewen

Response to Comments Materials Facility & Freight Terminal Traffic and Transport Assessment

We are grateful to the reviewers for their time and comments on Traffic and Transport Assessment for Materials Facility and Freight Terminal. We have consolidated these comments, and have provided a point-by-point response below.

General Comments -Traffic

1. *Congestion (existing and new) – existing roads "too narrow" (095)*

Response: The existing road lane widths comply with the ACT Standard and exceed the Australian standard for the roadways.

2. *Accidents and safety (need a Road Safety Assessment) (070)*

Response: a review of the crash history along the site frontage and broader area was considered and it was found that there was no significant crash history in proximity to the site. A plot of the nearby crashes showing the most recent five year period of recorded data from January 2012 to December 2016 is show in Figure 1. There were no fatality crashes recorded in the study area. In the broader area there were 16 injury crashes and 276 property damage only crashes recorded. Within the area, the most common crash type were rear end crashes, accounting for 62% of the crashes. Right-thru crashes at intersections were the second most common type of crash, accounting for 7% of all crashes in the study area.

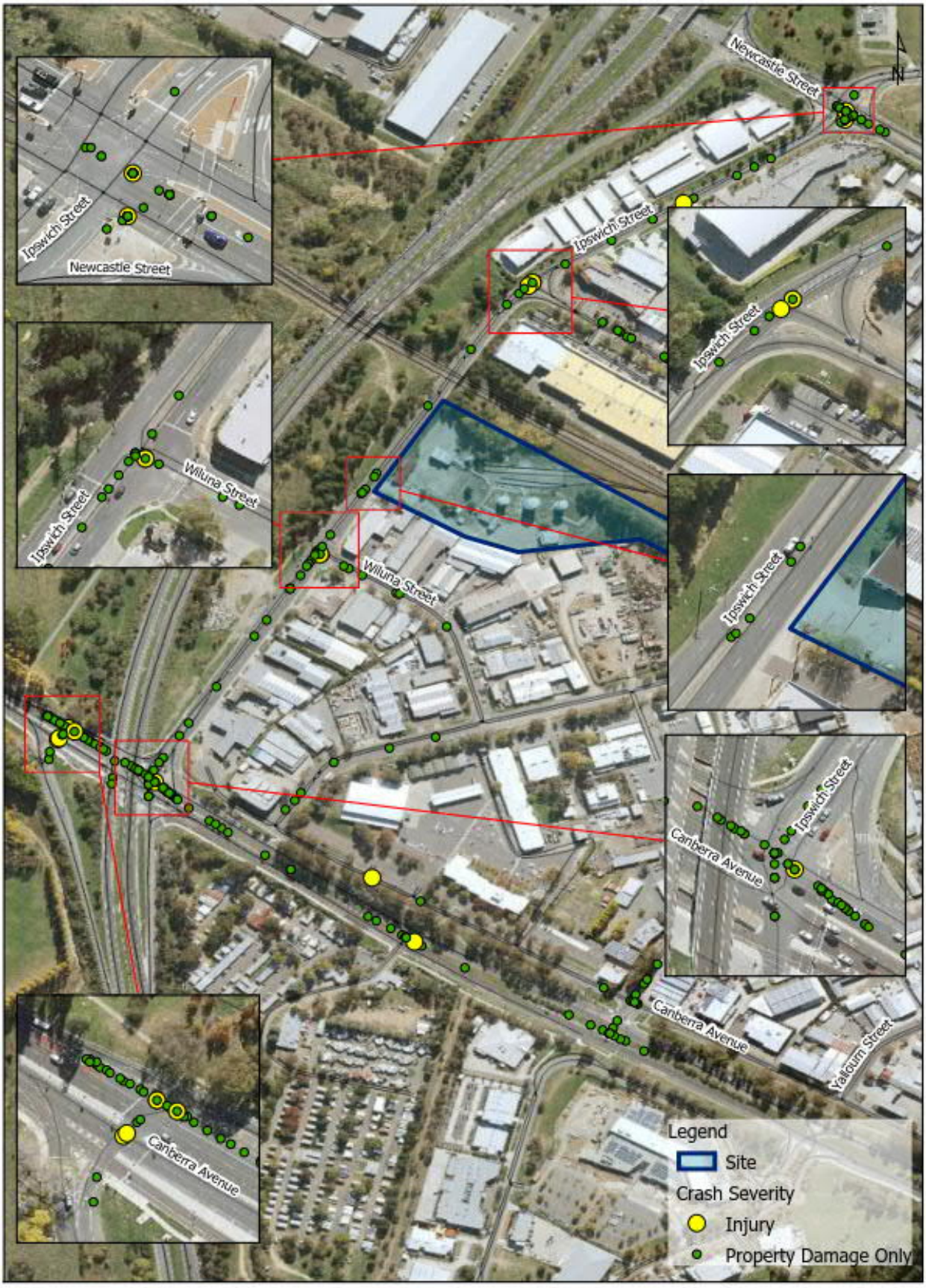

Figure 1 Crash severity plot (2012-2016)

In front of the proposed site access point, there were five recorded crashes over the 2012-2016 period. Four out of the five crashes were rear end crashes with the RUM (Road User Movement) codes listed in Table 1. The fifth crash a vehicle veered off the carriageway, striking an object. All crashes were property damage only crashes. Three of the rear end crashes occurred on wet surface where there was heavy or light rain. The crash where the vehicle veered off the carriageway occurred on a muddy or oily surface. These would indicate that adverse environmental conditions could be a contributing factor.

Table 1 Site access crashes by RUM Code

RUM Code	Description	Number of Crashes
301	Rear end	1
302	Left rear	2
304	Right rear	1
703	Left off carriageway into object	1

A review of the remainder of the area is outlined below.

Intersection crashes have been determined where the first impact occurs at or within 10 m of an intersection. This is according to the definition outlined by Transport for NSW in their *Definitions and Notes to Support Road Crash Data, June 2018* document. The intersections in the area included are:

- Ipswich Street / Newcastle Street
- Ipswich Street / Barrier Street
- Ipswich Street / Wiluna Street
- Ipswich Street / Canberra Avenue
- Monaro Highway Off-ramp / Canberra Avenue

At the Ipswich Street / Newcastle Street intersection, there were 67 recorded crashes in the 2012-2016 period. There were two injury crashes and the remaining 65 were property damage only crashes.

Table 2 summarises the crashes at the Ipswich Street / Newcastle Street intersection by RUM Code. The most common crash type were rear end crashes which are common at intersections but typically result in lower levels of severity. The two injury crashes were both thru-right crashes.

Table 2 Ipswich Street / Newcastle Street crashes by RUM Code

RUM Code	Description	Number of Crashes
101	Thru-thru	1
202	Thru-right (from opposing directions)	4
301	Rear end	14
302	Left rear	42
305	Lane side swipe	1
307	Lane change - left	1
308	Right turn side swipe	1
309	Left turn side swipe	1
404	Reversing in traffic	1
408	Manoeuvring from footway	1

At the Ipswich Street / Barrier Street intersection, there were three injury crashes and five property damage only crashes recorded over the five year period. Two of the injury crashes were thru-right collisions and the third injury crash left turn manoeuvre striking an object off-road. It should also be

noted that there was a head-on collision as outlined in Table 3 as Ipswich Street is partly undivided near the Barrier Street intersection.

Table 3 Ipswich Street / Barrier Street crashes by RUM Code

RUM Code	Description	Number of Crashes
201	Head-on	1
202	Thru-right (from opposing directions)	3
301	Rear end	1
302	Left rear	1
704	Right off carriageway into object	1
706	Left turn	1

There were two injury crashes and 13 property damage only crashes recorded at the Ipswich Street / Wiluna Street intersection. The most common crash type was thru-right crashes followed by rear end crashes, shown in Table 4. The two injury crashes were as a result of thru-right collisions. Thru-right and rear end crashes were the two most common crash types.

Table 4 Ipswich Street / Wiluna Street crashes by RUM Code

RUM Code	Description	Number of Crashes
104	Thru-right (at intersection)	2
202	Thru-right (from opposing directions)	6
301	Rear end	5
302	Left rear	1
303	Right rear	1

At the Ipswich Street / Canberra Avenue intersection, there was one injury crash and 61 property damage only crashes. The injury crash was a thru-right collision at the intersection. The most common crash type were rear end collisions accounting for 80% of the crashes.

Table 5 Ipswich Street / Canberra Avenue crashes by RUM Code

RUM Code	Description	Number of Crashes
104	Thru-right (at intersection)	2
107	Thru-left (at intersection)	1
202	Thru-right (from opposing directions)	2
203	Right-left (from opposing directions)	3
301	Rear end	23
302	Left rear	20
303	Right-rear	6
305	Lane side swipe	1
309	Left turn side swipe	2
404	Reversing in traffic	1
505	Pulling out rear end (overtaking)	1
704	Right off carriageway into object	1

Out of the 23 crashes recorded at the Monaro Highway Off Ramp / Canberra Avenue intersection, five were injury crashes. Two of the injury crashes were rear ends, the remaining were a right-thru, a thru right and a right turn manoeuvre striking an object off-road. The injury severity of the rear end crashes could have been higher due to vehicles speeding as they are exiting the highway. A summary of the crashes by RUM code are shown in Table 6.

Table 6 Monaro Highway Off-ramp / Canberra Avenue crashes by RUM Code

RUM Code	Description	Number of Crashes
102	Right-thru	9
104	Thru-right (at intersection)	2
301	Rear end	14
302	Left rear	1
704	Right off carriageway into object	1
707	Right turn	1

The available data was not able to determine the vehicle classification, i.e. heavy vehicle or passenger vehicle.

3. *Need a Traffic Hazard Risk Analysis/Truck Safety Crash Analysis and Trends (121)*

Response: The response above covers a review of the crash history.

4. *Traffic lights will create danger, speed in Wiluna St, more congestion*

Response: The introduction of traffic lights will improve safety at the driveway entry. The vertical and horizontal geometry of the site provides sufficient Safe Intersection Sight Distance, which allows for the introduction of traffic signals. Furthermore, the new traffic lights would operate in conjunction with the existing traffic lights, and would not be expected to contribute delays in existing travel times.

5. *Difficult to park cars and cars get dirty (already happening in Wiluna St)*

Response: There is no parking on the frontages to the site. The parking requirements for the site are catered for internal to the site and do not contribute to the existing street parking. The existing cleanliness of vehicles is not within the concern of the site and would more likely be a result of the industrial zoning of the area. The development of the site is not expected to contribute to this issue any more than any other potential use for the site.

6. *Adverse impact of articulated trucks*

Response: The previous use of the site as a fuel depot incorporated the use of articulated vehicles, as would many potential uses for the site. The development intends to improve the safety of road users with the introduction of signals at the entry to reduce any existing impacts of articulated vehicles. The majority of trucks utilising the site would be rigid rather than articulated vehicles.

7. *EIS has missed lunchtime peaks and Sat morning peak (030,121). Should assess worst case (7am-4pm) (030)*

Response: The traffic volume profile for the area is shown in the figure below. This is based on SCATS intersection data. Is compares the average weekday and weekend volumes as well as Saturday. The diagram shows the clear weekdays AM and PM network peaks.

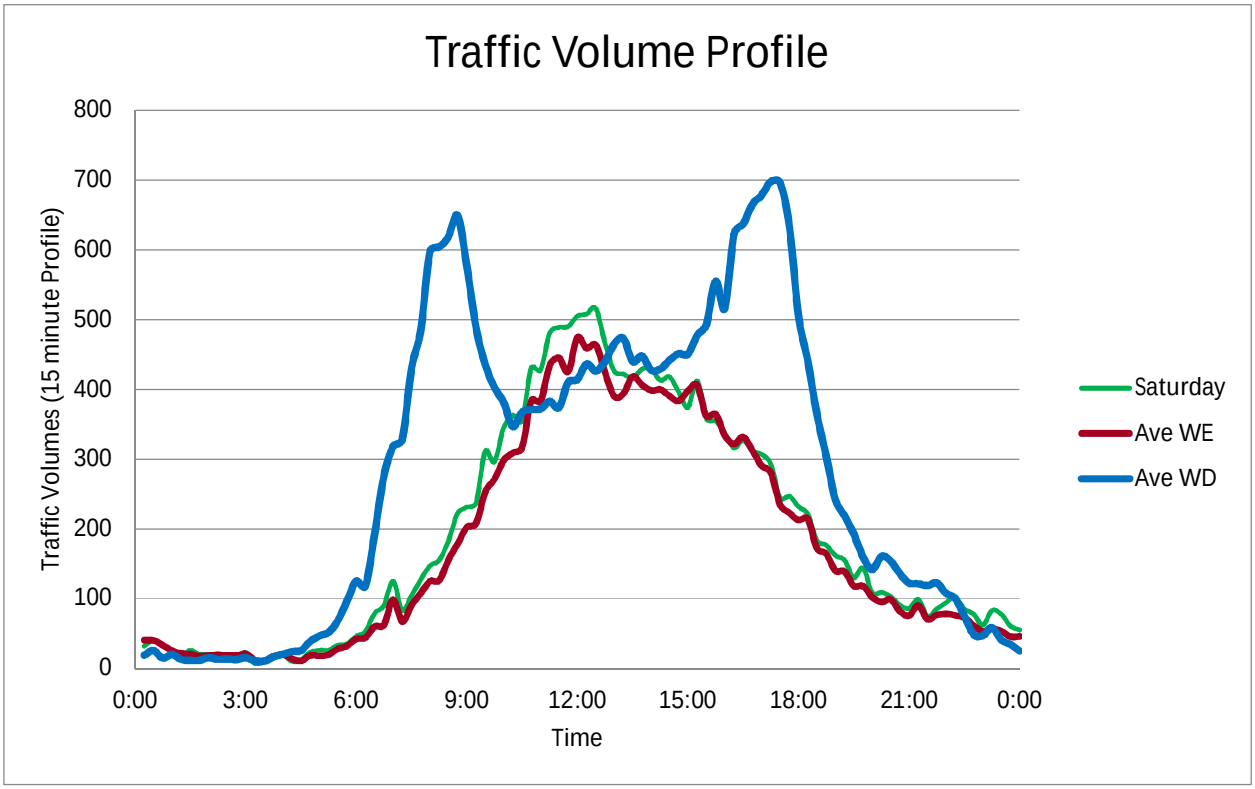

Figure 2 Weekday and Weekend Traffic Volume Profile

Unlike commuter traffic where peak hours increase the demand to the development, heavy vehicles and waste collection drivers in general, avoid peak traffic times as they affect the operation and economics of operating a large vehicle. Traffic modelling and considerations used the highest volume weekday for heavy vehicle waste collection and over estimation of the expected vehicles by using the highest possible yield of vehicles waste diverted from Mugga Lane and other commercial waste. The traffic information used already represents the worst case. If the report focused on the peak periods only then we would have to report even lower heavy vehicles numbers.

8. *460 traffic "movements"*

Response: A movement is a vehicles trip to or from the site. The same vehicle could make a number of trips to and from the site. Each of these trips would be considered a movement.

Internal movements and manoeuvring within the site are not part of the report. One truck that arrives at the site, unloads, and then leaves the site represents two movements, one into the site and one out of the site.

9. *Traffic numbers not accounted for (363) Metal trucks/leachate/contaminated soil*

Response: It is our understanding that metal containers are movements that are intended to be internal to the site. The removal of leachate is by container and the site does not receive or process contaminated soil. Traffic allowance were made for waste vehicles, local recycling deliveries and general freight

10. *5% increase is statistically significant (422, 427)*

Response: 5 percent is the increase in heavy vehicles representing less than 0.2% of the total vehicles during AM peak. This is based on the worst-case day and is expected to be lower for the rest of the week. 0.2% is not statistically significant. It should be noted that if the site was used for some of the other permitted uses on the site, the number of vehicle movements is expected to be significantly higher.

11. *Need a Pavement Impact Assessment (PIA)*

Response: The uses of the site fit within the allowable uses for the site zoning and the general industrial area of Fyshwick.

The existing pavement appears to be in good condition. It would be expected that the existing pavement meets the zoning of the area and the maintenance to the roadway to fall under the responsibility of Transport Canberra and City Services (TCCS). There would be no expectation of a PIA for this project given its not changing permissible uses, and we believe it would not be necessary. It was not requested as part of the EIS scoping.

12. *Mortality modelling (427)*

Response: Mortality Modelling would exceed the requirements of reporting the development

13. *Effect on health – health and GHG (014)*

Response: Effect on health is not part of traffic and transport assessment scope

14. *Failure to provide a congestion analysis (cost/benefit)*

Response: Economic analysis (cost/benefit) is not part of traffic and transport assessment scope

15. *Growth of traffic not assessed in the context of East lake ("9000" residents) and Dairy Flats ("10,000 visitors per week") (121)*

Response: To date there is no public information as to how and when these numbers are realised. There is no traffic analysis showing the projected traffic impact of these numbers, possibly in the future. Projected traffic analysis used to make the East Lake decision and any traffic analysis for any of the Dairy Flat land use DA's are being sought. CRS is reusing a site that previously had significant truck movements and is not a new land release. CRS believes that the strategic planning by the ACT would already have taken into account the trucks from the CRS site as it was still operating as a fuel terminal when the East Lake concept plans were developed

16. *No provision for offsite queuing (366)*

Response: The internal layout of the site and intended operation is not expected to result in any traffic queue propagating from the site entries. Off-site "layby" on approach to the site is not expected based traffic forecasts.

17. *Bus stops on Ipswich and Wiluna Street not considered (121,366)*

Response: Given the small number of vehicles generated from staff, visitors and heavy vehicles (section 2.5), development traffic would not have an effect on the operation of the bus stop.

18. *Brick yard is obliged to close off Lithgow st more than once a day to take deliveries (371)*

Response: It is understood that this occurs currently without supervision and consultation and the yard is south of Wiluna Street. This short term interruption to traffic is not expected to have any noticeable impact on the performance or queueing from for the low number of vehicles entering the site given that traffic can also enter from Ipswich Street. It would impact less than 1 truck per hour.

The brickyard delivery already inhibits all businesses on Lithgow Street and if it is causing detrimental impacts to the road network, efforts should be made to minimise these impacts by Government.

19. *Figure 24 does not show the trucks leaving the site – extra truck movements (462)*

Response: Exiting vehicles movement are shown in Figure 10, Section 2.6 of the traffic report

20. *Extra set of traffic lights is assumed by proponent and not justified (462)*

Response: CRS would fund the lights – the impact and effect on safety has been assessed with the proposed traffic light design and it is identified as a benefit. The raw traffic data and volumes do not, technically, require the traffic lights. However, CRS believes introducing the traffic lights would make turning movements safer.

21. *Truck movement is not the same as car and will slow the traffic flow (121)*

Response: This is being considered in our analysis. The number of truck is not considered to significantly impact the traffic flow in the existing 60km per hour road network.

22. *Canberra Ave service road peak is higher than am or pm (121)*

Response: The low number of additional vehicle movements from the subject would not impact the current operation of the Canberra Avenue service road to given its daily volumes and speed environment.

23. *Figure 25 should be redrawn to show number of trucks and cars across each hour of the day rather than just peaks (121)*

Response: Peak hours represent the “worst case”. Generally all other hours would result in lower volumes and not contribute any real value to the illustration.

24. *EIS fails to show the number of trucks bringing general freight to the terminal (121)*

Response: Freight vehicle are specifically discussed in 2.5.6 of the AECOM traffic and transport assessment

25. *Traffic generations does not allow for fuel deliveries, leachate removal, maintenance vehicles etc (121)*

Response: The traffic analysis has allowed for a worst case scenario and, should there be less than 300,000 tonnes (as ACT NoWaste is now suggesting), then the traffic generated would be less than the worst case before the facility opens. Fuel is stored onsite, meaning there would be only one delivery every two weeks (p47 EIS) .The inclusion of this delivery and periodic maintenance is statistically insignificant and more than covered in the conservative generations assumed for the general waste traffic. The leachate is to leave by shipping container and does not involve a traffic movement unless we are directed by the ACT EPA to pump out the fuel. Even then, this would be on an as needs basis and irregular.

26. *Bike lane and riders on the southbound lane of Ipswich street has not been considered (121)*

Response: Road safety and pedestrian safety have been considered in the design and traffic light turning paths assessment and detail. There is no dedicated bike lane near the site.

27. *Construction traffic not quantified in the EIS (121) p68*

Response: If the planning for the site is successful the proponent will prepare and submit construction traffic management plans to the required level of detail to satisfy TCCS requirements as part of the next, more detailed, design phase development for the site. This will include details on construction traffic movements, construction related traffic management plans, details on expected cut and fill to determine the amount of material to be imported or exported to / from the site. The current concept for site is looking to minimise import or export of material reducing haulage and truck movements during construction.

The concrete for the site is proposed to come from the batching plants on the adjacent blocks and as such, will have a negligible impact on the broader road network for that aspect.

Comment from TCCS

28. *Further details required on the increase of heavy vehicles and the structural impact on the roads that approach the facility*

Response: The roads that approach the facility are listed as level 1 and level 2 heavy vehicle routes as outlined by TCCS. These include Lithgow and Wiluna Street. As Such, these roads would be expected to cater for larger vehicles with higher such as the previous site use and other facilities adjacent that site including the metal and brick handling.

Pre-development SIDRA and post development SIDRA have to be provided to TCCS for review and assessment

Response: The relevant SIDRA files will be submitted to TCCS.

29. Response: Noted. Pre-development SIDRA and post development SIDRA will be provided to TCCS for review and assessment *Must consider the entry and exit points of the Murrays buses, Block1 Section 72 Fyshwick*

Response: We believe that this is in reference to Block 1 Section 76, as section 72 is located at north side of Fyshwick, far from our site. Our understanding is that Murrays busses may be accessing the above site at Wiluna Street/ Ipswich Street intersection. We currently do not have any details regarding Murrays busses development, however, our understanding is that the turning movement will not influence or be influenced by our site.

30. *Swept path drawings showing waste trucks entry and exit onto Ipswich street should also be provided*

Response: A swept path assessment drawings showing trucks entry and exit onto Ipswich Street is provided below. This presents the worst Case B Double egress and heavy rigid vehicle ingress. Articulated vehicles are not proposed to enter the site from Ipswich Street.

Figure 3 Ipswich Street Access Swept Path

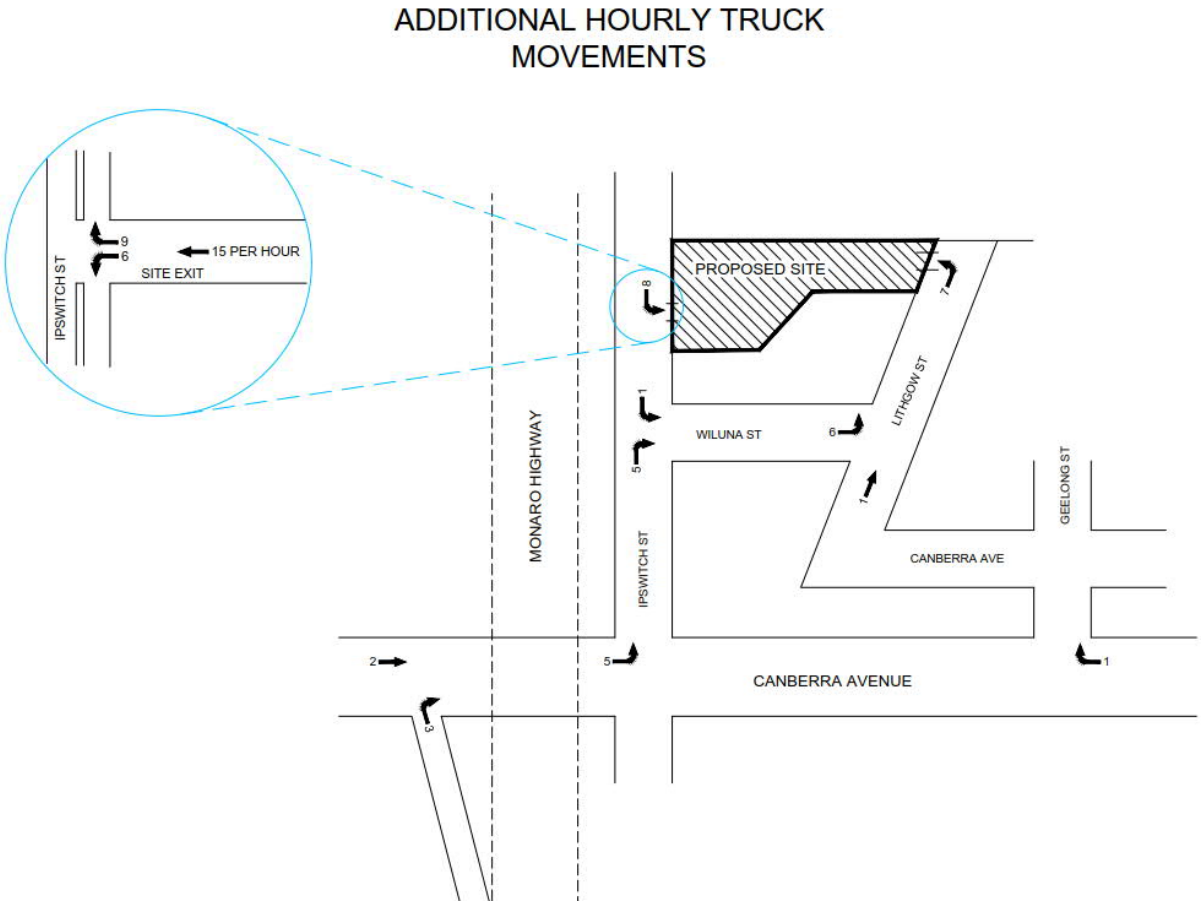

Figure 4 Additional Hourly Truck Movements at each access

31. *Under 2.3, the Canberra Strategic Transport Model concurs with Figure 5 and Figure 6 that the critical points, which are close to capacity, for future truck movements to reach the proposed development are:*

the right turning movements from the northbound Monaro Highway/Canberra Avenue off ramp

the right turning movements from Canberra Avenue to Geelong Street

the southbound movement along Ipswich Street will be impacted by the upstream movements at its intersection with Newcastle Street.

Response: Figure 9 from the report outlines conservative heavy vehicle movements expected within an average hour. This does not include the likely reduction in heavy movements during the concertinaed network peak times likely. The demand from the Monaro Highway is only 3 additional truck movements and the right turn to Geelong Street is only one per hour. Figure 9 from the report has been updated and is presented above at Figure 4.

32. *Under 2.5, noting the above, it would be beneficial to identify trip generation beyond 2020/21 up to 2031 to obtain a better picture of the additional traffic that will be generated and its impact on the critical locations.*

For table 4, it would be useful to include the assumptions on the daily number of trucks based on the population of each suburb and the number of collection days to determine the daily number of truck movements.

It would be useful to identify how heavy vehicles (2.5.3) differs from the freight vehicles (2.5.6). Noting that 25 of the 55 identified freight vehicles will be coming from the adjacent Access Recycling site, it would beneficial to indicate upfront under 1.0 Preliminaries that Access Recycling is already operating at Section 8 Block 13 and the current site status, i.e. owned/leased.

Response: The vehicle projections for the site include the ultimate of use of governments kerbside and non-government generation which would be valid for 2031. Details on the suburb generation are outlined in appendix A of the traffic report.

33. Under 2.6, what is the dwell time of the vehicles at the site? Would the entrance and exit of vehicles be regular, i.e. 1 vehicle per 4 minutes? For safety considerations, signalisation of the site exit is supported.

Response: It is not expected to be a constant flow of traffic from the site. Therefore, the dwell time is not overly relevant. Support of the signalised egress is noted.

34. Under 5.0 Summary, 2nd paragraph indicated that heavy vehicle movements will operate between 6am and 10pm, which falls outside of the road network peaks. This is only partially true as the AM peak is between 8am and 9am and the PM peak is between 4pm to 5pm.

Response: The statement above is true. However, the intent of that paragraph was to indicate that spread of traffic would be over a broader period and drivers of heavy vehicles would avoid peak hour traffic where possible.

Comments from the EIS

35. 8.1.2 Traffic and Transport

6.2.3.1 Further information required around the traffic increase during construction and the proposed mitigation measures. Also see entity advice from TCCS and Transport Policy.

Response: as outlined above, if the planning for the site is successful the proponent will prepare and submit construction traffic management plans to the required level of detail to satisfy TCCS requirements as part of the next, more detailed, design phase development for the site. This will include details on construction traffic movements, construction related traffic management plans, details on expected cut and fill to determine the amount of material to be imported or exported to / from the site. The current concept for site is looking to minimise import or export of material reducing haulage and truck movements during construction.

The concrete for the site is proposed to come from the batching plants on the adjacent blocks and as such, will have a negligible impact on the broader road network for that aspect.

36. 6.2.1 Further information needs to be provided for mitigation measures relating to preventing truck queuing on the existing road network (e.g. timing of trucks, waiting bays etc). As indicated in the Executive Summary (page ix), impact needs to be addressed in relation to truck movements to Woodlawn Bio Reactor if the RFT is not available. Provide further information as to how vehicle movements will be spread across the full 16-hour operation period, especially if avoiding peak traffic periods as per measures proposed in health impact assessment. Also, further information required from Health, TCCS and Environmental Protection Policy.

Response: While divers would typically plan to avoid peak traffic, the collection schedule is impacted by many external factors such as the number and volume of bins but out on the kerb for any particular day/location. It should be noted that these vehicles are already on the road network across the Territory and that they are not additional. The increased operation periods give greater flexibility to the network and operators and would results in a net positive result for the broader network.

In the event that the rail line is out not operational the site has up to three days of storage space on-site before it would need to ship the waste out by road. The likelihood of the rail line being out of action for more than 3 days is considered low. At that time, the containers could be loaded on to trucks which could be scheduled to leave at any time of the day to minimise impact on the network.

Yours faithfully

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