Wanneroo Central Child Care Centre

TRANSPORT IMPACT STATEMENT

Prepared for CHARTER HALL

Prepared by Uloth and Associates 4 October 2019; Revised 8 October 2019

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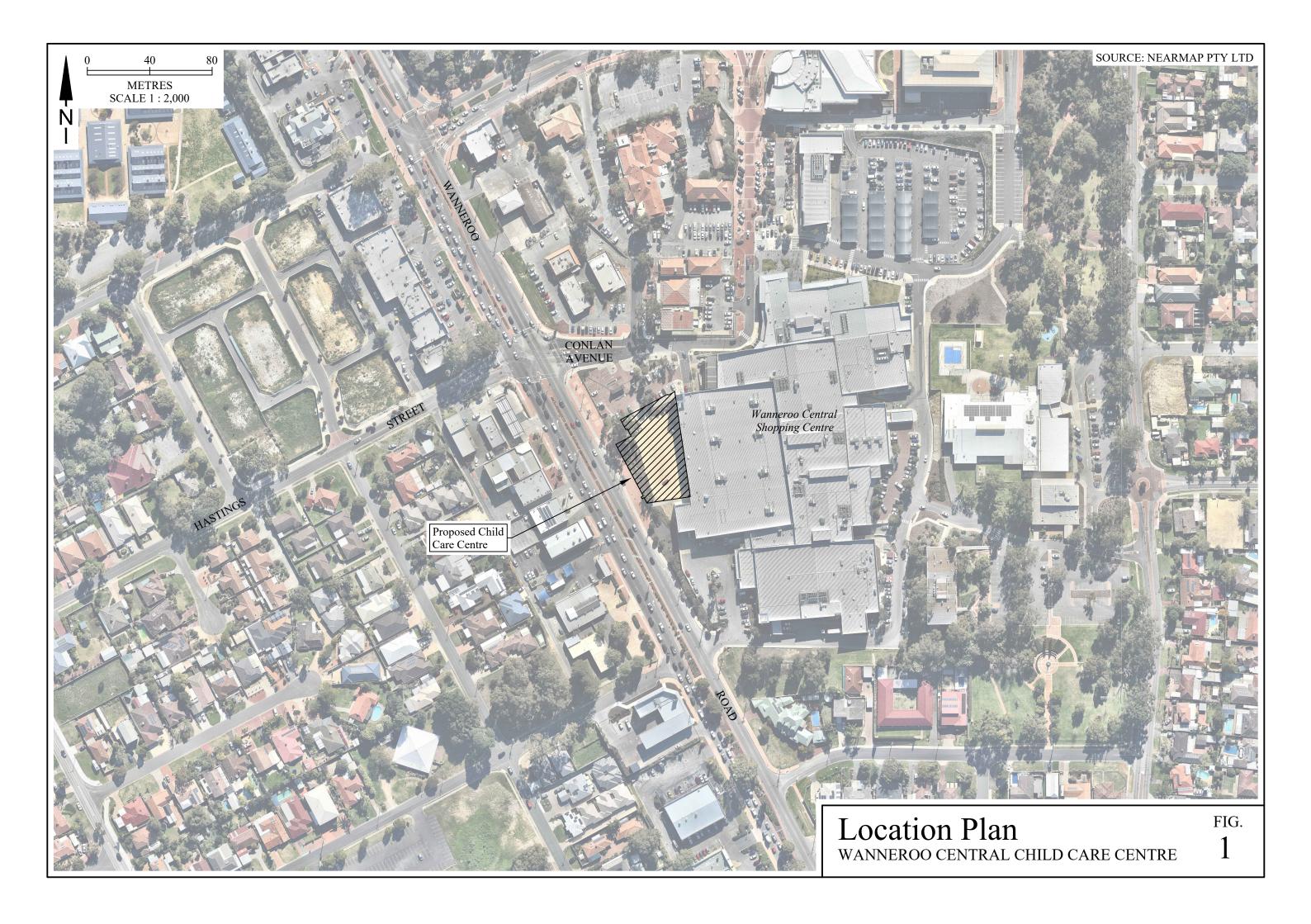
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A.6

1. INTRODUCTION

Charter Hall is preparing a Development Application for a Child Care Centre at 950 Wanneroo Road. The proposed Child Care Centre is located on the western side of Wanneroo Central Shopping Centre, just south-east of the Wanneroo Road - Conlan Avenue - Hastings Street signalised intersection, as shown in the aerial photograph Location Plan in Figure 1.

Uloth and Associates has been commissioned to prepare this Transport Impact Statement in support of the proposed development.



2. EXISTING SITUATION

The existing roads and intersections adjacent to the proposed development site are shown in the aerial photograph in Figure 2. It can be seen that the site is located adjacent to Wanneroo Road, just south of Conlan Avenue. However, it is important to note that vehicular access is only proposed via the existing Shopping Centre car park immediately south of Conlan Avenue. It is also important to note that Wanneroo Road is a Primary Distributor Road with a speed limit of 60 kilometres per hour in the vicinity of the development site, while Conlan Avenue and Hastings Street are both identified as Access Roads (with a default speed limit of 50 kilometres per hour).

Figure 2 also shows that the proposed development site is well serviced by pedestrian/cyclist facilities, with paths provided on both sides of Wanneroo Road, Hastings Street and Conlan Avenue, together with controlled crossings at the Wanneroo Road signalised intersection, and a significant path immediately north of the proposed development site linking the overall Shopping Centre to the adjacent bus stops in Wanneroo Road.

In order to identify existing traffic flows adjacent to the proposed development, Uloth and Associates carried out peak period traffic counts from 7am to 10am and from 2pm to 6pm on Thursday 19 September 2019. The surveys included full movement counts at the Conlan Avenue intersections with each of the shopping centre car park access driveways, together with all movements in and out of Conlan Avenue at Wanneroo Road. The surveys were then supplemented with SCATS traffic count data obtained from Main Roads WA for the remainder of the signalised intersection.

The resulting AM and PM peak hour traffic flows adjacent to the proposed development are as shown in Figure A.1 in Chapter A.1 in the Technical Appendix.

Tables A.1 and A.2 in Chapter A.1 then show the existing AM and PM peak hour intersection operational characteristics for the Wanneroo Road - Conlan Avenue - Hastings Street signalised intersection and the internal Driveway 1, which provides access to the Shopping Centre basement car park.

It can be seen in Table A.1 that the Wanneroo Road - Conlan Avenue - Hastings Street signalised intersection currently operates at an overall Level of Service D during both the Thursday morning and afternoon peak hours, indicating poor but manageable operating conditions with long traffic delays. Table A.2 then shows that the unsignalised Driveway 1 intersection operates at Level of Service A, indicating little or no traffic delays during both the AM and PM peak hours.



3. PROPOSED DEVELOPMENT

The Development Application plan for the proposed Child Care Centre is shown in Figure A.2 in Chapter A.2 in the Technical Appendix, while Figure A.3 shows the proposed plan in a slightly broader context with the adjoining Shopping Centre.

It can be seen in Figures A.2 and A.3 that the development car park is proposed to connect to the existing Wanneroo Central Shopping Centre car park, located immediately south of Conlan Avenue, allowing vehicle access via Conlan Avenue. The development plan also indicates that the proposed Child Care Centre will cater for up to 86 children, and will provide a total of 14 on-site parking spaces.

3.1 FUTURE PARKING REQUIREMENTS

City of Wanneroo's Local Planning Policy 2.3 provides parking requirements for proposed child care centres, resulting in a total requirement of 25 spaces. This includes 11 spaces for parents and carers (based on the proposed maximum of 86 children), plus 14 spaces for an assumed 14 staff members (based on required educator to child ratios).

The total proposed parking provision of 14 spaces (including one ACROD bay) therefore results in a technical shortfall of 11 spaces. However, it is reasonable to assume that a significant proportion of Child Care Centre pick-up and drop-off trips will be linked with visits to the Shopping Centre. It is also assumed that Child Care Centre staff members will park within the staff parking areas of the overall Shopping Centre site.

3.2 SERVICE VEHICLES

Figure A.4 in Chapter A.2 in the Technical Appendix shows the swept paths for a 10.0 metre Garbage Truck accessing the proposed Child Care Centre car park, confirming that all required service vehicle movements will be able to be accommodated, with just minor modifications to the proposed access driveway.

3.3 TRIP GENERATION AND TRAVEL ROUTES

On the basis of previous traffic counts and available survey data, it is estimated that the proposed child care centre will generate 3.5 vehicle trips per child per day. This translates to a total of 300 trips per day, including 280 trips between the hours of 7am to 10am and 3pm to 6pm, as shown in Table A.3 in Chapter A.3 in the Technical Appendix. It is also expected that the proposed Child Care Centre will generate 61 vehicle trips and 63 vehicle trips, respectively, during the future AM and PM peak hours.

On the basis of the layout of the surrounding residential areas, it is estimated that 70 percent of the Child Care Centre traffic generation will access the Centre via the Wanneroo Road - Conlan Avenue - Hastings Street signalised intersection, while the remaining 30 percent will do so via Dundebar Road and Rocca Way.

Figure A.5 in Chapter A.3 in the Technical Appendix therefore shows the anticipated future traffic flows accessing the proposed development during both the AM and PM peak hours.

4. FUTURE TRAFFIC FLOWS AND INTERSECTION OPERATIONS

Main Roads WA traffic counts on Wanneroo Road north of Dundebar Road show a significant reduction in overall daily traffic flows from 38,700 vehicles per day in 2013/14 to 30,200 vehicles per day in 2018/19, coinciding with the extension of Mitchell Freeway beyond Burns Beach Road and the widening of the Freeway between Hepburn Avenue and Hodges Drive. However, for the purpose of this analysis, a conservative 10 percent growth rate has been assumed for both Wanneroo Road traffic flows and Conlan Avenue - Hastings Street, in addition to the proposed development traffic flows in Figure A.5.

Figure A.6 in Chapter A.3 in the Technical Appendix therefore shows the resulting total future AM and PM peak hour traffic flows, while Tables A.4 and A.5 in Chapter A.5 show the corresponding future AM and PM peak hour intersection operational analyses.

It can be seen in Table A.4 that the signalised Wanneroo Road - Conlan Avenue - Hastings Street intersection will continue to operate at an acceptable Level of Service D during both the AM and PM peak hours, while Table A.5 confirms that the unsignalised Road A - Driveway 1 junction will also continue to operate at a high Level of Service.

5. OVERALL CONCLUSIONS

The overall conclusions regarding the proposed Child Care Centre at Wanneroo Central Shopping Centre are as follows:

- The Centre is well-located for access by private vehicle, via the traffic signals at Wanneroo Road Conlan Avenue Hastings Street, or via Dundebar Road and Rocca Way. It is also well-located for access by alternative transport modes, with bus stops located immediately adjacent to the site, and with good pedestrian/cyclist facilities in all directions.
- The Centre is expected to generate a total of 300 vehicle trips per day, with approximately 60 vehicle trips during each of the AM and PM peak hours, with an estimated 70 percent of traffic accessing via the Wanneroo Road Conlan Avenue Hastings Street signalised intersection, which will continue to operate at acceptable Levels of Service during the future critical peak hours.
- The proposed car park provides a technical shortfall of 11 parking spaces based on the requirements of the City's Local Planning Policy. However, Child Care Centre staff will park within the staff parking areas of the overall Shopping Centre site, and it is also reasonable to assume that a significant proportion of Child Care Centre pick-up and drop-off trips will be linked with the overall Shopping Centre.
- The proposed car park also accommodates the swept path requirements for a 10-metre Garbage truck servicing the site, with just minor modifications as shown in Figure A.4 in the Technical Appendix.

TECHNICAL APPENDIX
The Technical Appendix provides additional information regarding the existing situation, the proposed development plans, future traffic flows and intersection operational analyses.

A.1 EXISTING TRAFFIC FLOWS AND INTERSECTION OPERATIONAL ANALYSIS

Figure A.1 shows the existing AM and PM peak hour traffic flows adjacent to the proposed development site, as surveyed by Uloth and Associates on Thursday 19 September 2019.

Intersection operational (SIDRA) analyses are then shown in Tables A.1 and A.2.

TABLE A.1
OPERATIONAL CHARACTERISTICS FOR SIGNALISED WANNEROO RD - CONLAN AVE - HASTINGS STREET INTERSECTION – EXISTING AM AND PM PEAK HOUR WANNEROO CENTRAL SHOPPING CENTRE

				OPE	RATIO	HARACTERISTICS							
ITEMS		A	M Pea	ak Hou	ır		PM Peak Hour						
No. of Approach													
Lanes: NESW			43	3 2					43	3 2			
No. of Phases			5	5					5	5			
Cycle Time (sec)			12	20					12	20			
Max X Value			0.8	69					0.7	84			
Avrge Delay (sec)			39	8.					39	0.0			
Level of Service			Ι)					Ι)			
	Max.				Avrge	Level			Ma	ax.	Avrge	Level	
	Move- X- Queue		Delay	of	Move-	X-	Que	eue	Delay	of			
Approach	ment	Value	Veh.	m	(sec)	Serv.	ment	Value	Veh.	m	(sec)	Serv.	
Wanneroo Road	L	0.079	2.1	15	18.5	В	L	0.072	1.9	14	24.8	C	
- north	T	0.867	36.6	267	40.3	D	T	0.555	14.5	106	37.6	D	
	T	0.867	39.2	286	40.5	D	T	0.555	15.5	113	38.0	D	
	R	0.364	2.0	15	69.3	E	R	0.587	3.3	24	70.8	E	
Conlan Avenue	L	0.282	2.6	19	36.3	D	L	0.295	4.6	33	26.2	С	
- east	TR	0.268	1.5	11	62.9	E	TR	0.732	6.3	46	65.0	E	
	R	0.223	1.2	9	66.5	E	R	0.732	6.1	45	67.4	E	
Wanneroo Road	LT	0.357	11.5	84	22.8	С	LT	0.751	30.3	222	30.1	С	
- south	T	0.357	11.5	84	22.4	C	T	0.751	30.4	222	29.9	C	
	R	0.796	7.5	55	70.5	E	R	0.573	10.6	78	53.8	D	
Hastings Street	L	0.157	1.7	12	58.2	Е	L	0.200	2.0	15	59.7	Е	
- west	TR	0.869	11.8	86	69.3	Е	TR	0.784	9.6	70	64.3	Е	

Notes: Level of Service calculations are based on Average Delay.

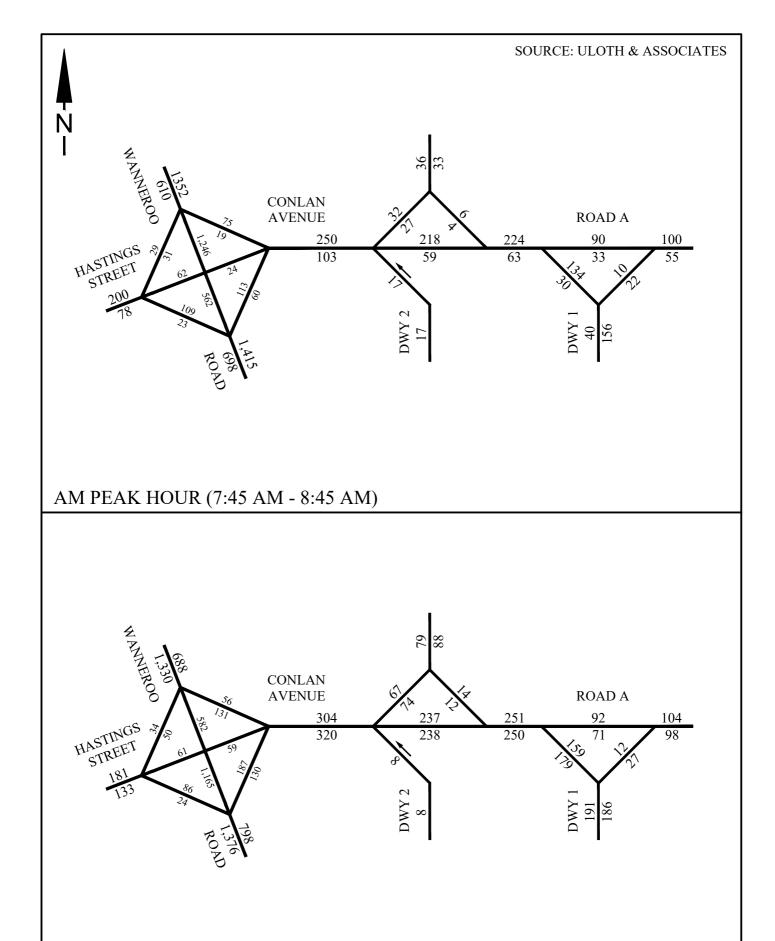
Underlined X-values denote maximum values.

TABLE A.2
OPERATIONAL CHARACTERISTICS FOR UNSIGNALISED ROAD 1 - DWY 1 JUNCTION EXISTING AM AND PM PEAK HOUR – WANNEROO CENTRAL SHOPPING CENTRE

	OPERATIONAL CHARACTERISTICS											
ITEMS		Α	M Pea	ak Hot	ır		PM Peak Hour					
No. of Approach												
Lanes: NESW			- 1	11					- 1	11		
Max X Value			0.1	36			0.158					
	Max.				Avrge	Level			Ma	ax.	Avrge	Level
	Move-	X-	Que	eue	Delay	of	Move-	X-	Qu	eue	Delay	of
Approach	ment	Value	Veh.	m	(sec)	Serv.	ment	Value	Veh.	m	(sec)	Serv.
Road A	LT	0.031	0.0	0	2.2	A	LT	0.055	0.0	0	1.5	Α
- east												
Driveway 1	LR	0.031	0.1	1	5.9	A	LR	0.140	0.6	4	5.9	Α
- south												
Road A	TR	0.136	0.7	5	1.6	A	TR	0.158	0.8	6	1.9	A
- west												

Notes: Level of Service calculations are based on Average Delay.

Underlined X-values denote maximum values.



Existing Peak Hour Traffic Flows adjacent to proposed child care centre

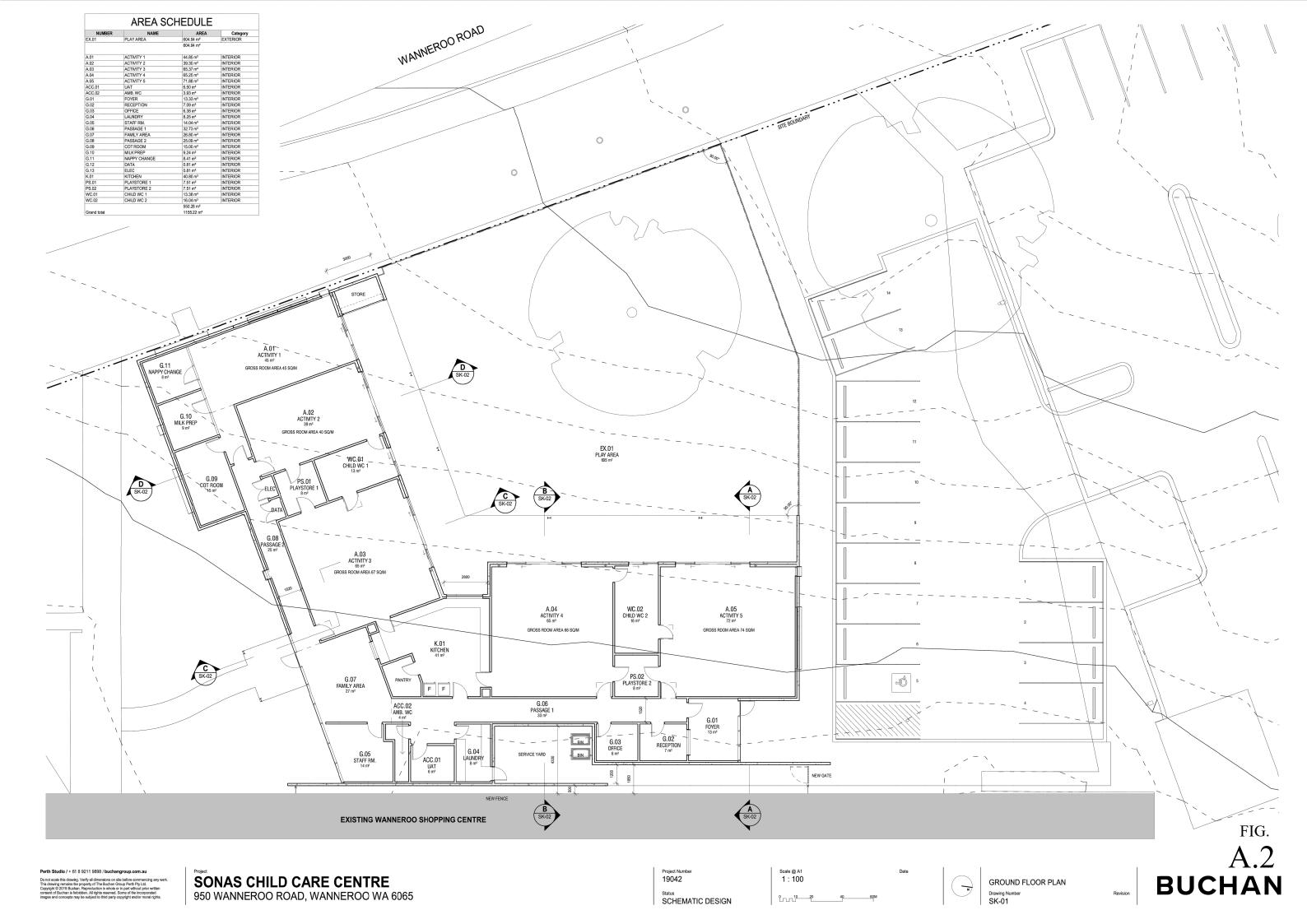
PM PEAK HOUR (4:30 PM - 5:30 PM)

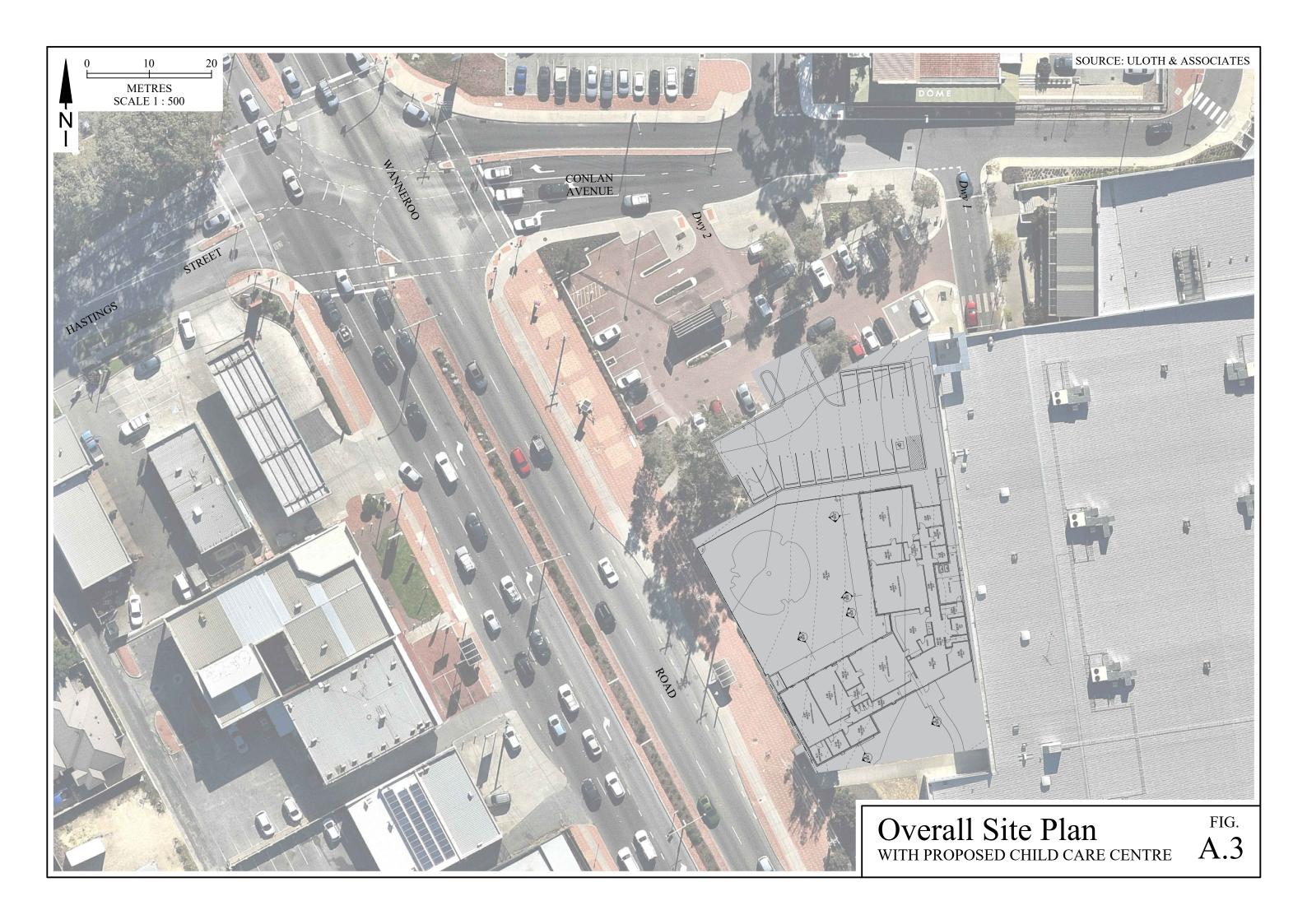
FIG.

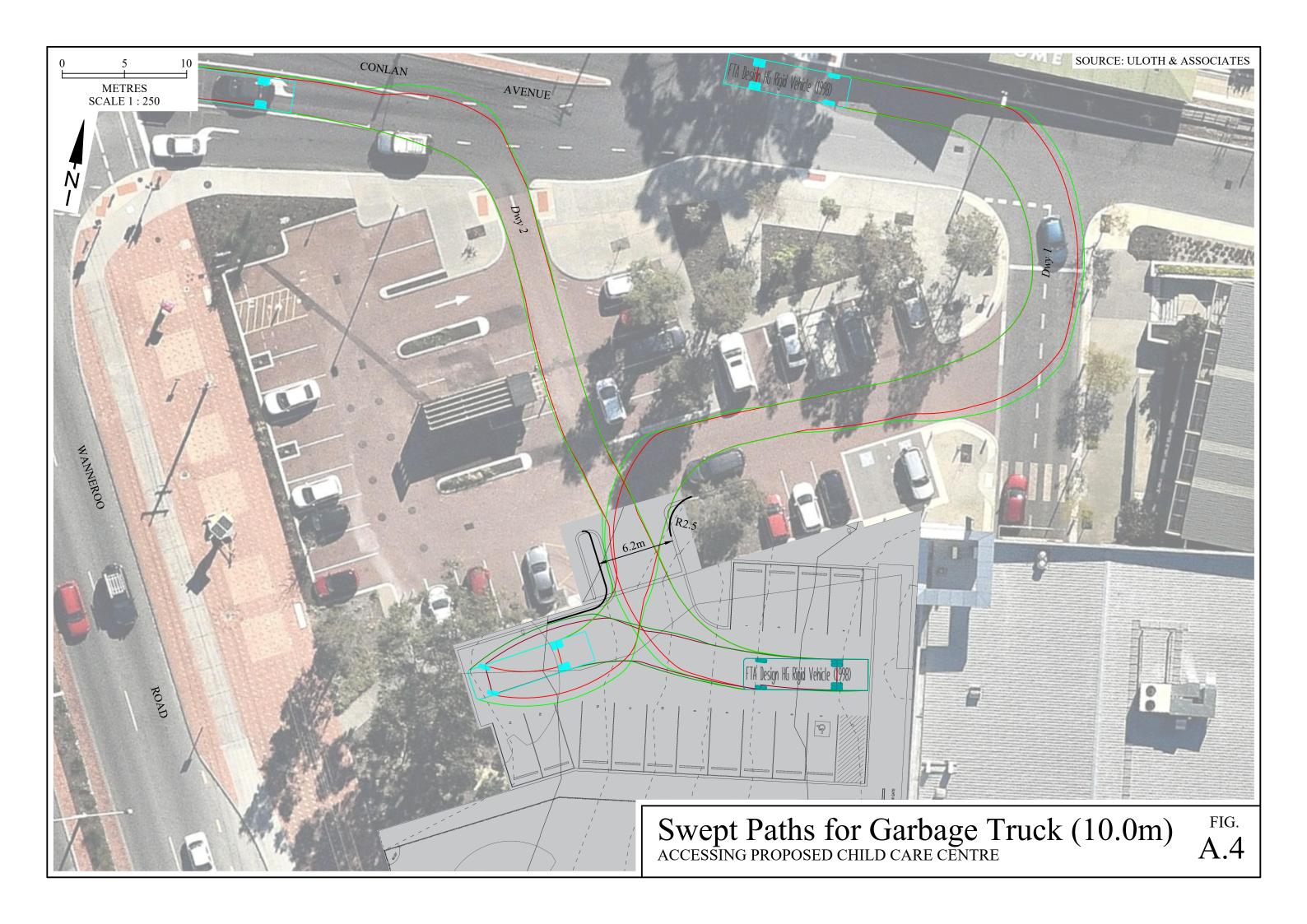
A.2 PROPOSED DEVELOPMENT PLANS

The development application plan for the proposed Child Care Centre is shown in Figure A.2, while Figure A.3 shows the plan in the context of the adjacent roads and parking areas.

Figure A.4 then shows the swept paths for a 10.0 metre Garbage Truck servicing the proposed Child Care Centre, together with recommended minor modifications to the proposed access driveway.







A.3 FUTURE TRAFFIC FLOWS

The anticipated traffic generation for the proposed Child Care Centre is as shown in Table A.3.

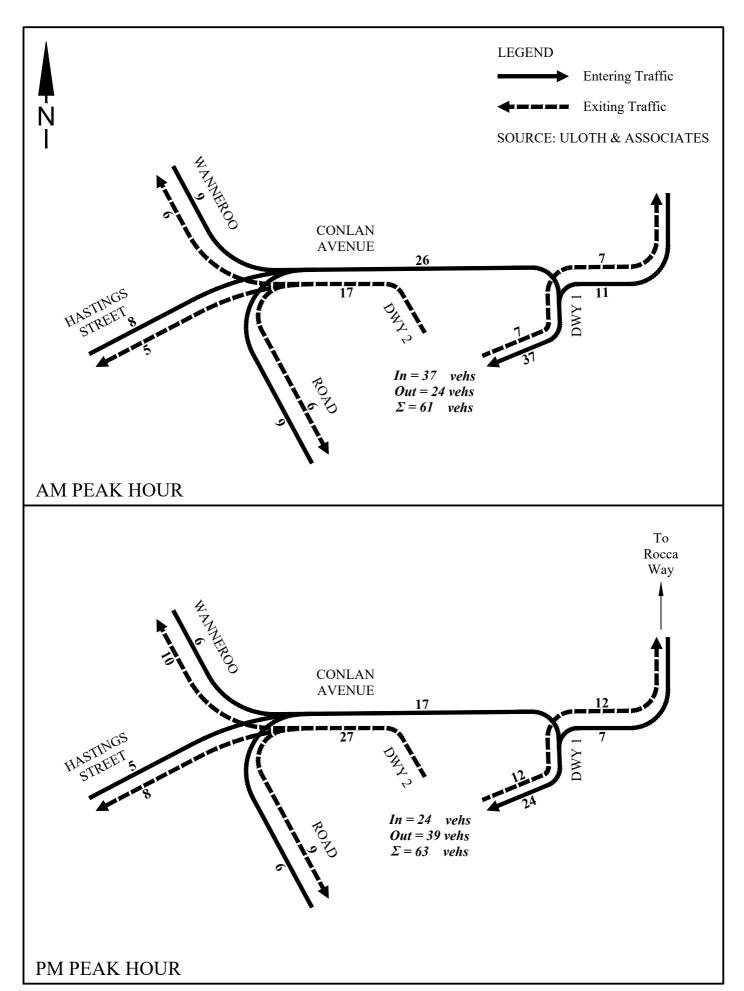
Figure A.5 then shows the expected travel routes for vehicles accessing the site, with 70 percent via the Wanneroo Road - Conlan Avenue - Hastings Street signalised intersection and 30 percent via Rocca Way.

Total future traffic flows are then shown in Figure A.6.

TABLE A.3 ANTICIPATED TRIP GENERATION FOR PROPOSED WANNEROO CENTRAL CHILD CARE CENTRE

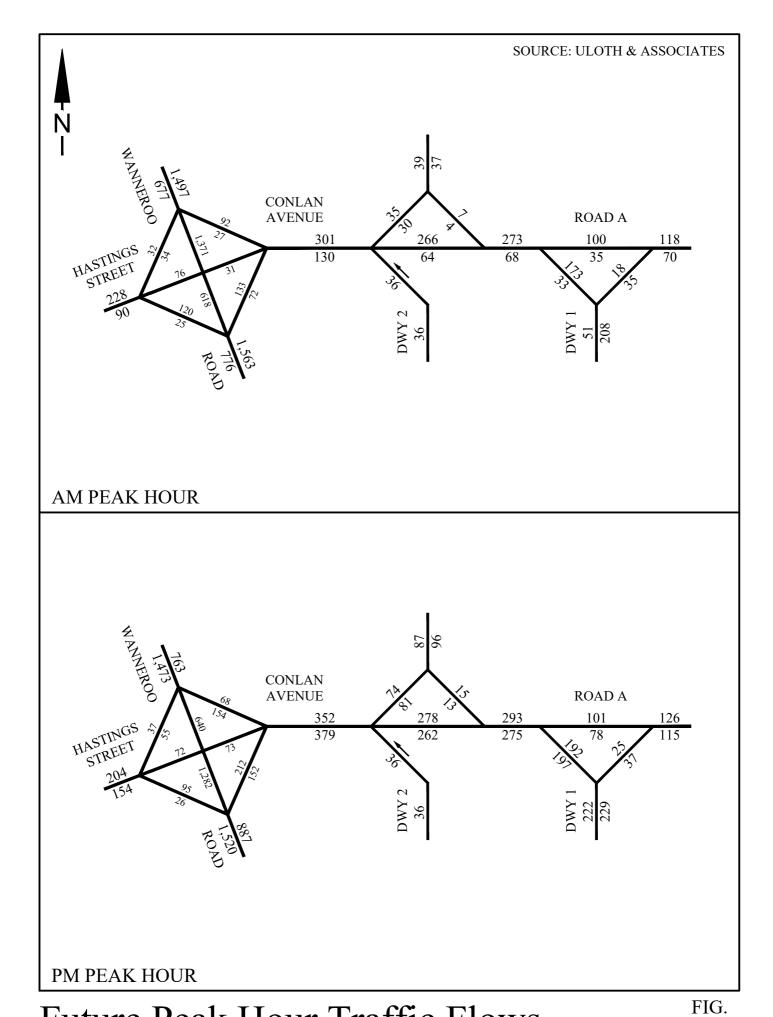
	N°. OF VEHICLE TRIPS								
TIME	In	Out	Total						
7 - 8 am	36	17	53						
8 - 9 am	37	24	61						
9 - 10 am	15	21	36						
3 - 4 pm	17	20	37						
4 - 5 pm	17	13	30						
5 - 6 pm	24	39	63						
Total (6 Hours)	146	134	280						
Total Daily	150	150	300						

Note: Bold Figures denote AM and PM peak hours.



Future Development Traffic Flows Wanneroo Central Child Care Centre

FIG.



Future Peak Hour Traffic Flows WITH PROPOSED CHILD CARE CENTRE

A.4 FUTURE INTERSECTION OPERATIONAL ANALYSIS

Tables A.4 and A.5 show the future AM and PM peak hour intersection operational characteristics for the affected intersections, based on the future traffic flows identified above in Figure A.6.

TABLE A.4
OPERATIONAL CHARACTERISTICS FOR SIGNALISED WANNEROO RD - CONLAN AVE - HASTINGS STREET INTERSECTION – FUTURE AM AND PM PEAK HOURS WITH PROPOSED WANNEROO CENTRAL CHILD CARE CENTRE

				OPE	RATIO	NAL CI	HARACTERISTICS							
ITEMS	ITEMS AM Peak Hour							PM Peak Hour						
No. of Approach														
Lanes: NESW			43	3 2					4 3	3 2				
No. of Phases			5	5					5	5				
Cycle Time (sec)			15	50					14	10				
Max X Value			0.9	06					0.8	40				
Avrge Delay (sec)			45	.7					47	.6				
Level of Service			Ι)					Ι)				
			Ma	ax.	Avrge	Level			Ma	ax.	Avrge	Level		
	Move-	X-	Queue		Delay	of	Move-	X-	Que	eue	Delay	of		
Approach	ment	Value	Veh.	m	(sec)	Serv.	ment	Value	Veh.	m	(sec)	Serv.		
Wanneroo Road	L	0.093	3.1	22	20.2	C	L	0.086	2.7	19	27.6	C		
- north	T	0.879	47.1	344	43.9	D	T	0.671	19.7	144	45.7	D		
	T	0.879	51.8	378	44.2	D	T	0.671	19.8	145	45.7	D		
	R	0.374	2.7	20	83.5	F	R	0.753	4.3	32	84.7	F		
Conlan Avenue	L	0.334	3.9	29	44.9	D	L	0.320	6.0	44	28.3	С		
- east	TR	0.324	2.4	18	77.3	E	TR	0.540	8.0	58	65.1	E		
	R	0.297	2.1	15	81.0	F	R	0.540	7.7	57	67.5	Е		
Wanneroo Road	LT	0.359	14.7	108	24.5	С	LT	0.839	43.0	314	40.5	D		
- south	T	0.359	14.8	108	24.1	C	T	0.839	43.2	316	40.2	D		
	R	0.901	11.6	85	93.3	F	R	0.670	14.4	105	63.5	E		
Hastings Street	L	0.157	2.2	16	69.1	Е	L	0.234	2.5	19	69.8	Е		
- west	TR	0.906	17.1	125	87.0	F	TR	0.840	12.8	94	75.2	Е		

Notes: Level of Service calculations are based on Average Delay.

Underlined X-values denote maximum values.

TABLE A.5
OPERATIONAL CHARACTERISTICS FOR UNSIGNALISED ROAD A - DWY 1 JUNCTION FUTURE AM AND PM PEAK HOURS – WITH PROPOSED WANNEROO CENTRAL CHILD CARE CENTRE

	OPERATIONAL CHARACTERISTICS											
ITEMS		A	M Pea	ık Hoı	ır		PM Peak Hour					
No. of Approach												
Lanes: NESW			- 1	11					- 1	11		
Max X Value			0.0	78			0.187					
			Ma	ax.	Avrge	Level			Ma	ax.	Avrge	Level
	Move-	ove- X- Queue			Delay	of	Move-	X-	Qu	eue	Delay	of
Approach	ment	Value	Veh.	m	(sec)	Serv.	ment	Value	Veh.	m	(sec)	Serv.
Road A	LT	0.040	0.0	0	2.8	A	LT	0.065	0.0	0	1.8	A
- east												
Driveway 1	LR	0.040	0.1	1	5.9	A	LR	0.171	0.7	5	6.1	A
- south												
Road A	TR	0.078	0.2	2	0.7	A	TR	0.187	1.0	7	2.0	A
- west												

Notes: Level of Service calculations are based on Average Delay.

Underlined X-values denote maximum values.



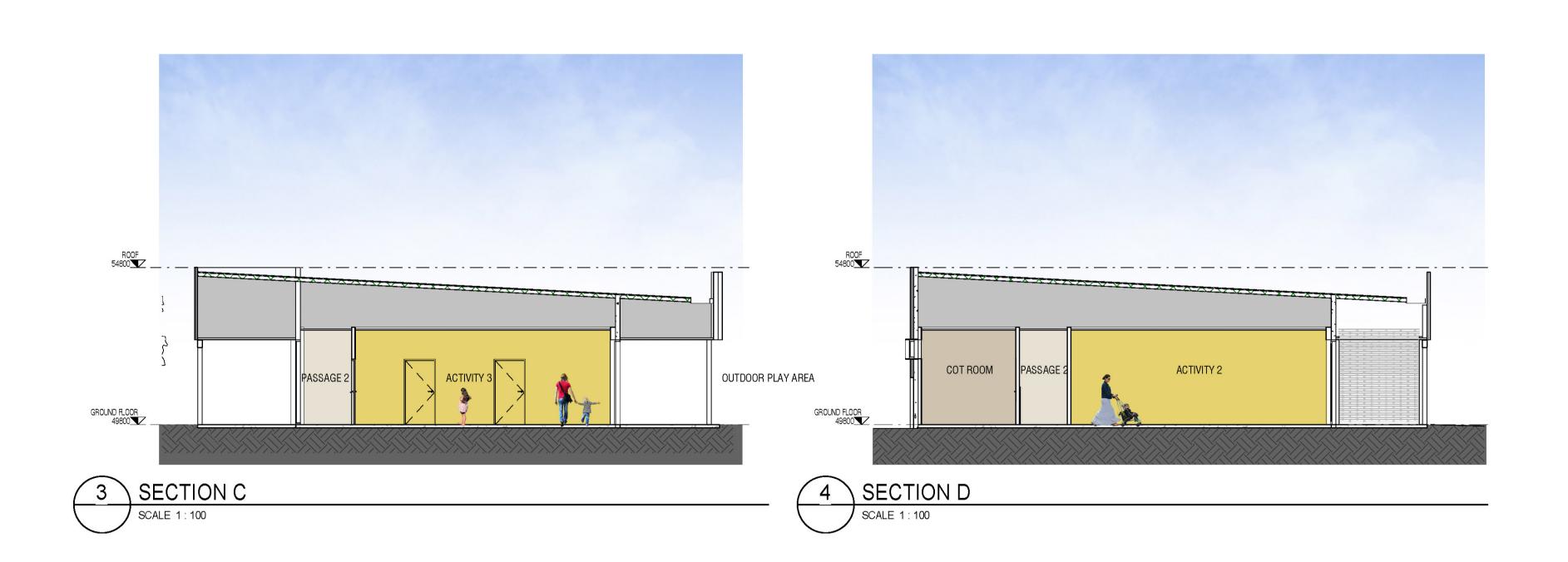


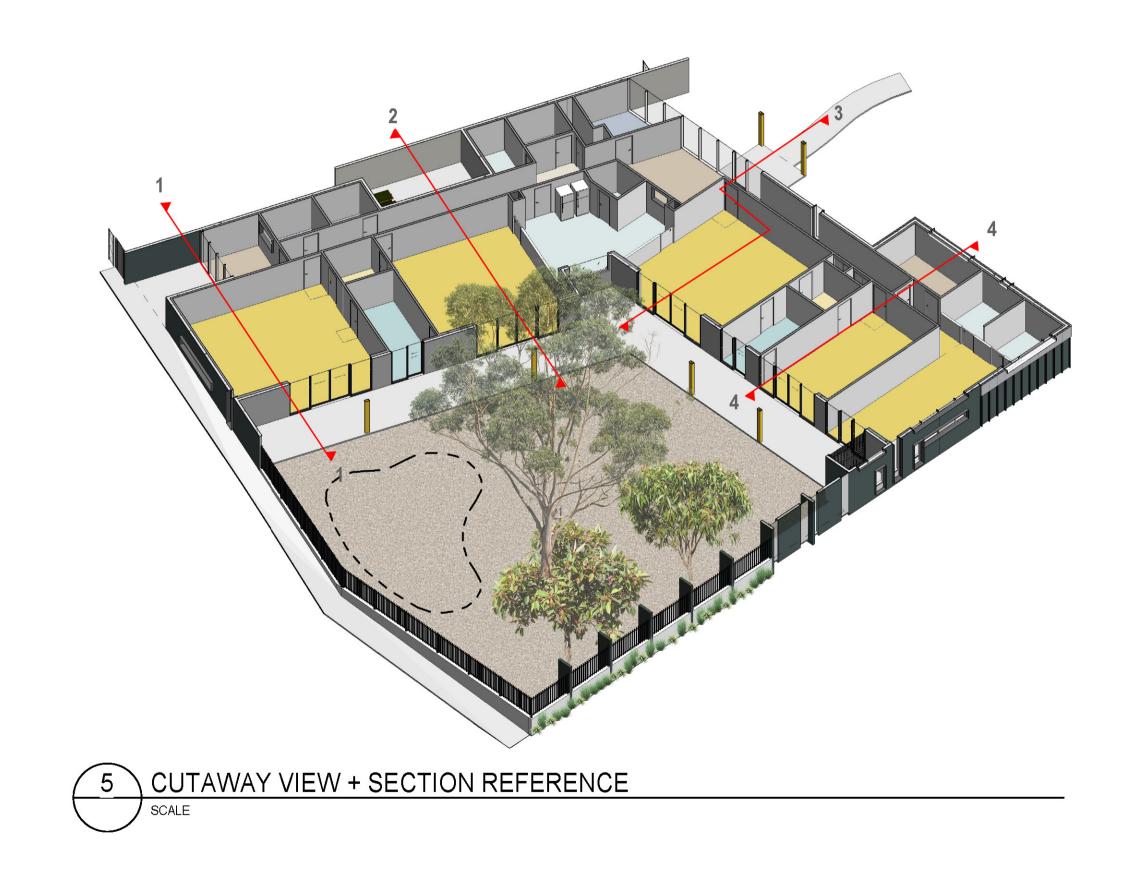












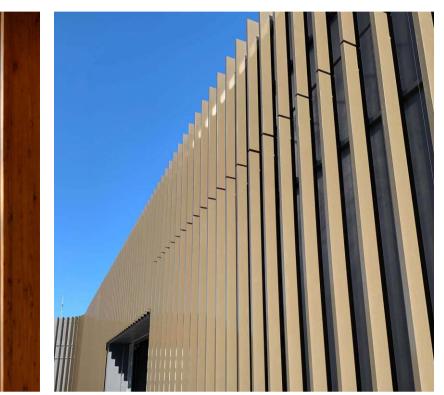


Walls + Windows

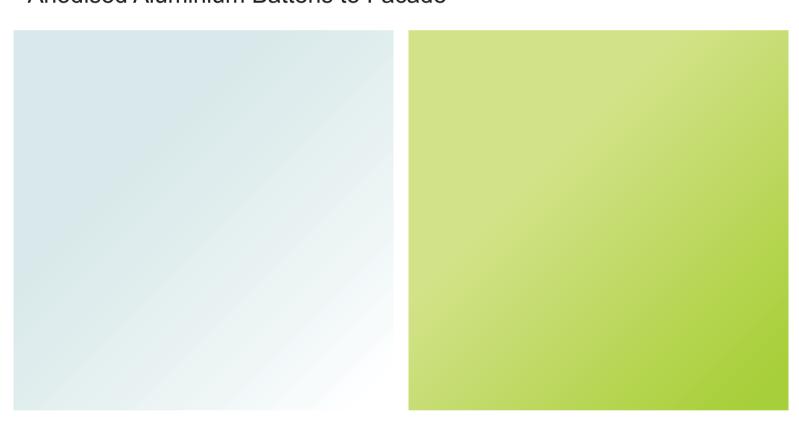




Dark/charcoal metal profile cladding to external facades. Maxline 340.



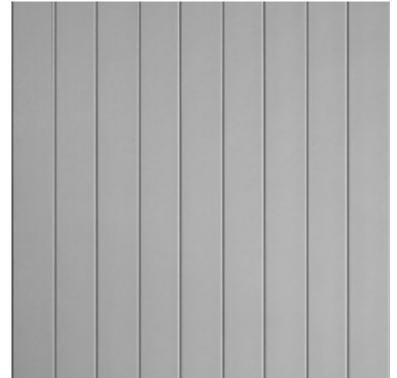
Anodised Aluminium Battens to Facade

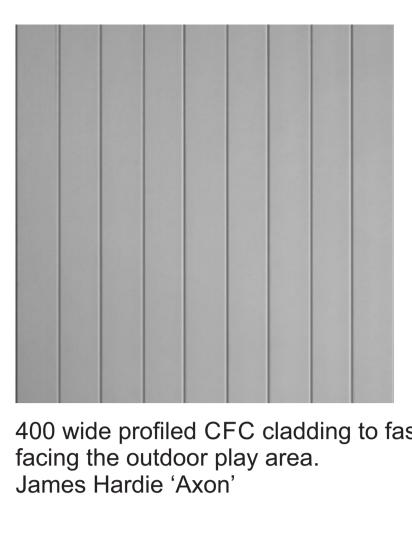


Clear vision glass + tinted / coloured opaque feature glass and spandrels.

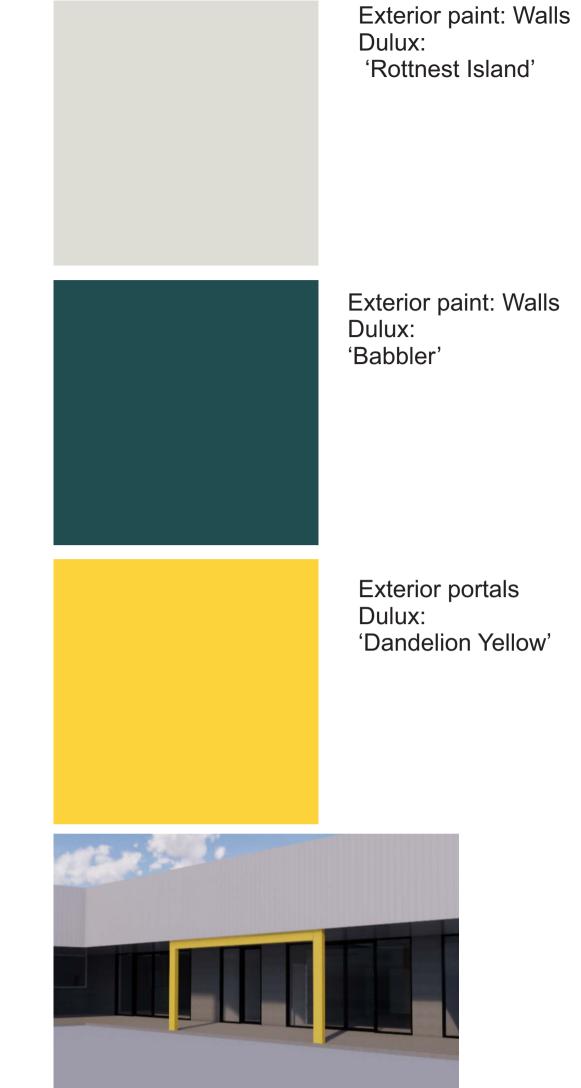


Aluminium Window / Door frames Matt Charcoal colour



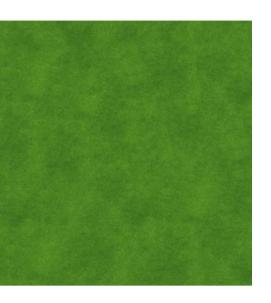


400 wide profiled CFC cladding to fascia/walls

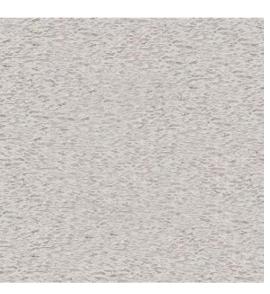


Landscape / Ground cover:





Grass



Sand



Paving



Concrete



Existing Paving

Note: All materials and Finishes are of indicative representation.

Scale @ A1

NTS