Proposed New Junior School

Emmanuel Christian Community School, Girrawheen

Traffic Impact Assessment

PREPARED FOR:
Emmanuel Christian Community School

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1.0 Introduction

This Traffic Impact Assessment has been prepared by Transcore on behalf of Emmanuel Christian Community School with regard to the proposed New Junior School on Casserley Avenue, Girrawheen in the City of Wanneroo.

The existing Emmanuel Christian Community School is located at the north-west corner of Salcott Road and Hainsworth Avenue in Girrawheen. The school currently caters for K-6 students. It is proposed to construct a new junior school within close distance to the existing school.

The proposed new junior school site is at Casserley Park. As shown in Figure 1, it is bound by Casserley Avenue to the west, existing adjoining developments to the north and east, and Casserley Avenue Reserve Parkland to the south.

It is proposed to transfer the K-6 students at the existing Emmanuel Christian School to the new junior school and to expand student enrolments by providing extra classroom capacity for a second stream. The existing Emmanuel Christian School will then be used to accommodate a new senior year group.

Key issues that will be addressed in this report include the traffic generation and distribution of the proposed new junior school, access and egress movement pattern and parking demand and supply.

Figure 1: Location of the subject site

2.0 Proposed Development

The proposal for the subject site is for a new junior school entailing:

- One kindergarten class/activity room;
- Two pre-primary classrooms and one activity room;
- Two classrooms each for years 1-6 (12 classrooms); and
- Supporting undercover area and amenities such as library, multi-purpose rooms, canteen and staff room.

It is proposed to provide vehicular access via a single full movement, entry/exit crossover on Casserley Avenue and a single exit only crossover on Salcott Road.

The crossover and connecting driveways lead to an at-grade car parking facility providing 95 (90 degree) parking bays and 14 pick-up/drop-off parallel parking bays. The main car park is located at the southern end of the site and the pick-up/drop-off facility runs along the eastern boundary of the site. It is also proposed to provide 7 on-street parking bays on Casserley Avenue adjacent to the proposed school.

Waste collection, delivery and other service vehicle arrangements will be accommodated with the proposed junior school car park. Pedestrian and cycle access will be provided via the extensive footpath network provided through and around the school.

Development plans are included for reference in Appendix A.

Based on information provided to Transcore, it is proposed to transfer the K-6 students at the existing Emmanuel Christian School to this new junior school and to expand student enrolments by providing extra classroom capacity for a second stream. The existing Emmanuel Christian School will then be used to accommodate a new senior year group.

The anticipated increase in staff and student enrolments is therefore as following:

<u>New Junior School</u>

- Increase of 492 students.
- Increase of 40 Staff.

<u>Existing Emmanuel Christian School</u>

- Assume no change as junior school students transferring from existing classrooms will be replaced by new senior classes.

3.0 Vehicle Access and Parking

3.1 Access

As detailed in Figure 2, it is proposed to provide vehicular access to the new junior school via a single full movement, entry/exit crossover on Casserley Avenue and a single exit only crossover on Salcott Road.

The crossover and connecting driveways lead to an at grade open car park and pick-up/drop-off facilities. The main car park is located at the southern end of the site and the internal pick-up/drop-off facility runs along the eastern boundary of the site.

A one-way clockwise circulation system is proposed for the eastern parking module, and the pick-up/drop-off facility running along the eastern boundary of the new junior school will be designated as one-way northbound. A 5km/h speed limit will apply within the school grounds.

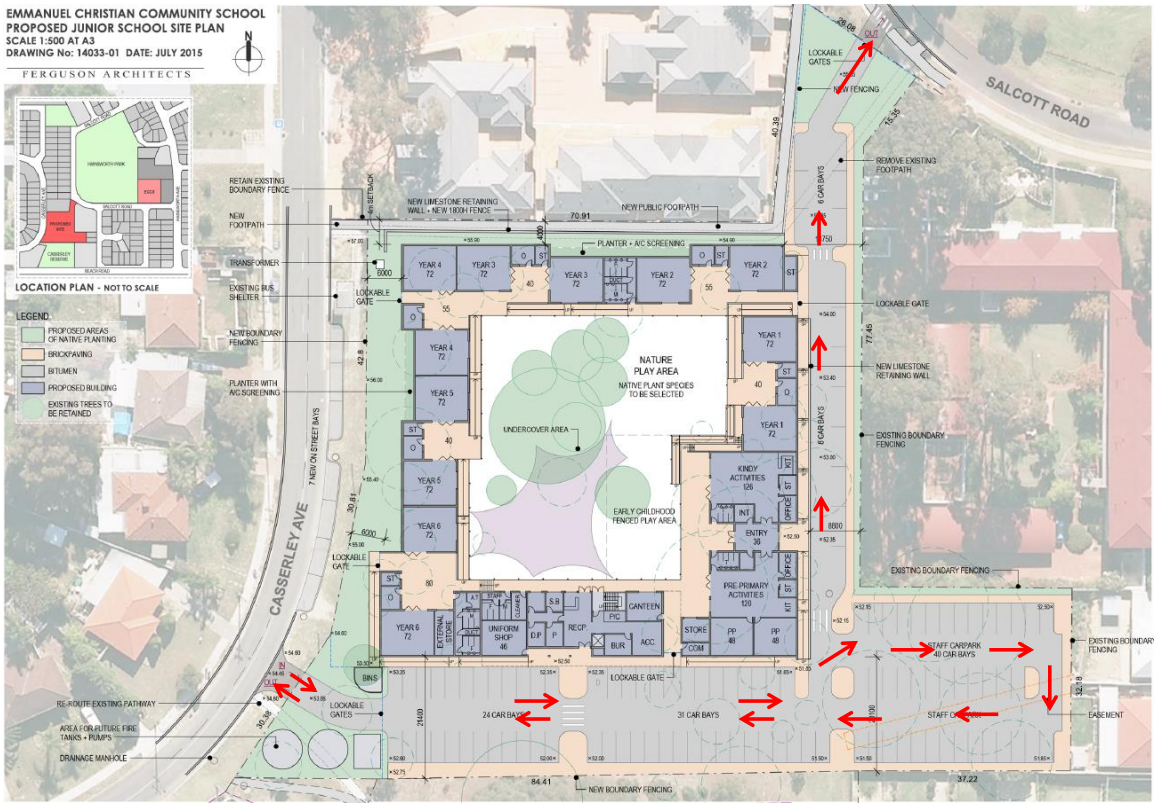


Figure 2: Proposed vehicle access and circulation system

Both proposed crossovers are located at the apex of the 90 degree bends on Casserley Avenue and Salcott Road, to maximise sight distance for vehicles at the crossovers.

3.2 Parking Demand and Supply

The City of Wanneroo Planning Scheme provides the following parking provision requirements for schools:

Kindergarten

- Provision of drive in pick-up/set-down facility; and
- 8 car bays.

Primary School

- Minimum 46 car bays for staff and visitor parking for the first 475 students and then 10 car bays per 100 students afterwards; and
- 14 pick-up/ set-down bays for every 100 students which may be provided in the road reserve.

Application of the above rates results in a calculated parking requirement as following:

- 46 car bays for staff and visitors (assuming less than 475 students excluding kindergarten classes);
- 8 car bays for kindergarten classes; and
- 69 bays for pick-up/set-down (which may be in road reserve).

The total calculated parking provision required is 46+8+69 = 123 parking spaces (including set-down/pick-up).

It is proposed to provide a total of 95, 90 degree parking spaces within the site for staff and visitor parking and pick-up/set-down. It is also proposed to provide 14 parallel parking spaces on site in a separate pick-up/set-down facility within the site. In addition to the on-site parking provision, it is also proposed to provide 7 on-street parking bays. The total parking proposed parking provision is 116 parking spaces, which only entails a theoretical shortfall of 7 parking spaces from the calculated parking requirement.

It is considered that the theoretical shortfall of 7 parking spaces can be accommodated by parking on street on Salcott Road as a pedestrian path will be provided to link the proposed junior school to the footpath network on Salcott Road.

4.0 Provision for Service Vehicles

It is anticipated that the proposed new junior school will generate a small volume of service vehicle traffic, primarily associated with deliveries of school and canteen supplies. It is recommended that smaller vehicles such as vans be used for deliveries. Delivery vehicles may park for a short time within the school car park during the day for loading and unloading activities. The deliveries are expected to occur outside the peak morning and afternoon periods.

Waste collection will be accommodated within the site with a bin store located near the Casserley Avenue entrance to the car park.

5.0 Hours of Operation

The school day runs from 8:30am to 3:15pm daily. The teacher's working hours are from 7:30am to 5:00pm.

6.0 Daily Traffic Volumes and Vehicle Types

6.1 Trip Generation and Distribution

The traffic volumes likely to be generated by the proposed new junior school have been estimated based on a school trip generation rate of 2.6 vpd (vehicles per day) per student. This rate has been specified in previous Building Management & Works consultant's briefs for school projects, and is based on analysis of Perth and Regions Travel Survey (PARTS) information by the former Department of Planning and Infrastructure.

Guidance in the WAPC Transport Assessment Guidelines for Developments (2006) indicates 1.0 vph (vehicles per hour) per student in the AM peak hour, based on the same PARTS information. Staff traffic movements are included in these trip rates.

The above trip rates have been applied to anticipated student population of the proposed new junior school as following:

Net addition of students = + 492 students.
Net increase in daily traffic volumes = 2.6vpd x 492 students = +1,280vpd.
Net increase in peak hour volumes = 1vph x 492 students = +492vph.

It is estimated that the proposed junior school would generate 1,280 daily vehicle trips, and 492 trips during the peak hour periods. These trips include both inbound and outbound vehicle movements.

Table 1 is based on a 50%/50% inbound/outbound split for school traffic:

Table 1: Peak hour trips for the proposed junior school

Time period	Direction	Total Peak Hour Trips	
		Split	Total
AM Peak	Inbound	246	**492**
	Outbound	246	
PM Peak	Inbound	246	**492**
	Outbound	246	

All vehicle entries will be from Casserley Avenue and it is assumed that vehicle exits will be split 70%/30% to Casserley Avenue and Salcott Road (based on the anticipated use of the internal pick-up/drop-off facility). The distribution of traffic to and from the proposed junior school has been evaluated by considering the catchment area served by the school as well as the available access and egress routes to and from the site. The resulting anticipated traffic flows are detailed in Section 6.2 of this report.

6.2 Traffic Flows

The traffic movements generated by the proposed junior school have been manually assigned to the adjacent road network and the resulting traffic movements generated by the proposed new school during the critical weekday peak hours are detailed in Figure 3.

School traffic assignment to the proposed on-street pick-up / drop-off facility on Casserley Avenue was calculated based on an assumed average turnover of 5 minutes per bay (for 7 proposed on-street bays).

The existing traffic flows on the abutting road network, in particular the through traffic volumes on Casserley Avenue and Salcott Road were estimated from available weekday average daily traffic data.

It was assumed that existing peak hour through traffic was 10% of daily traffic and an equal split was applied for both directions of traffic flow.

The estimated existing through traffic volumes are presented in Figure 4.

Accordingly, the estimated total post-development traffic during the critical weekday peak hour period is detailed in Figure 5.

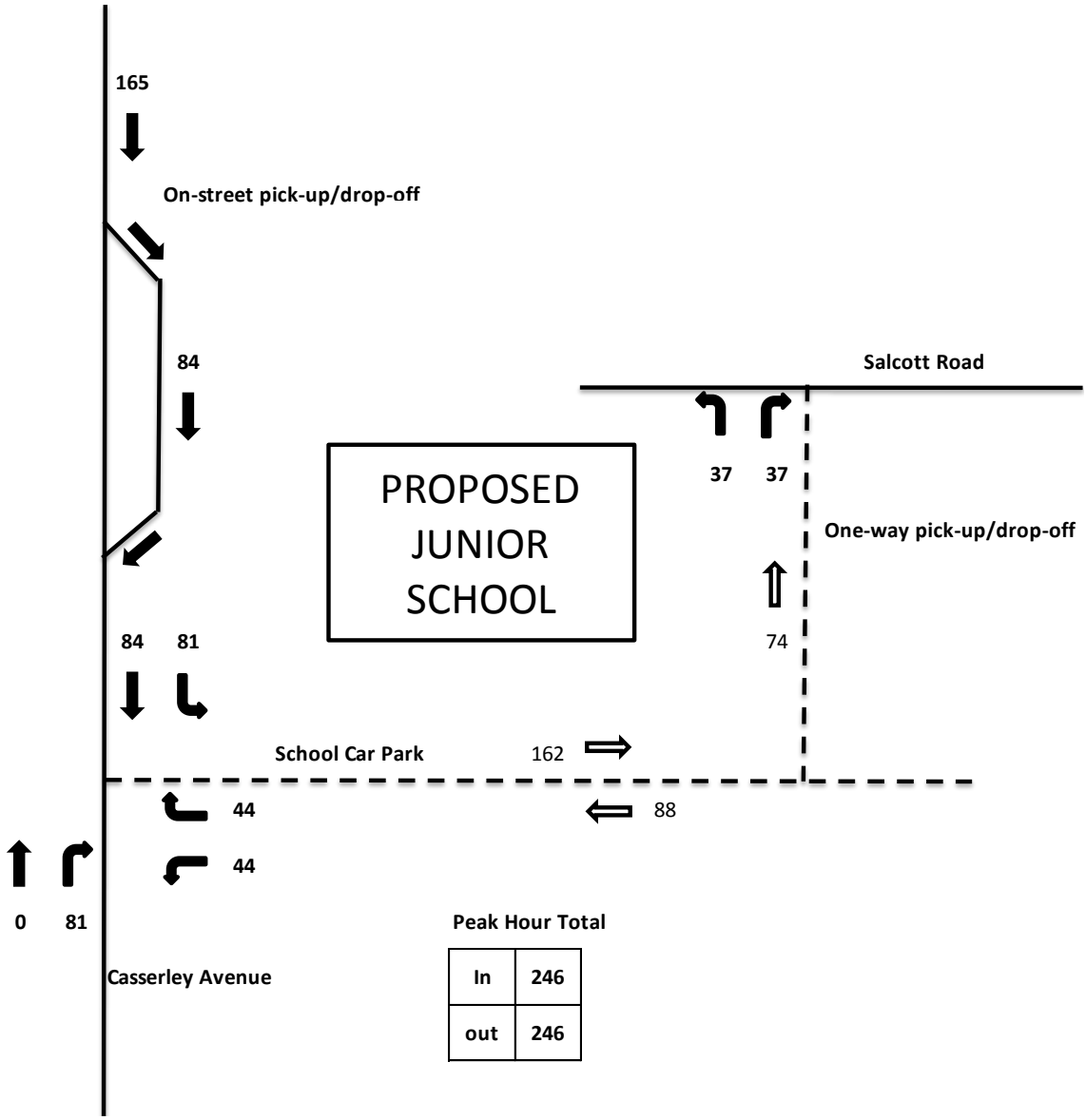


Figure 3: Estimated proposed new school traffic flows (Weekday AM & PM peak hour)

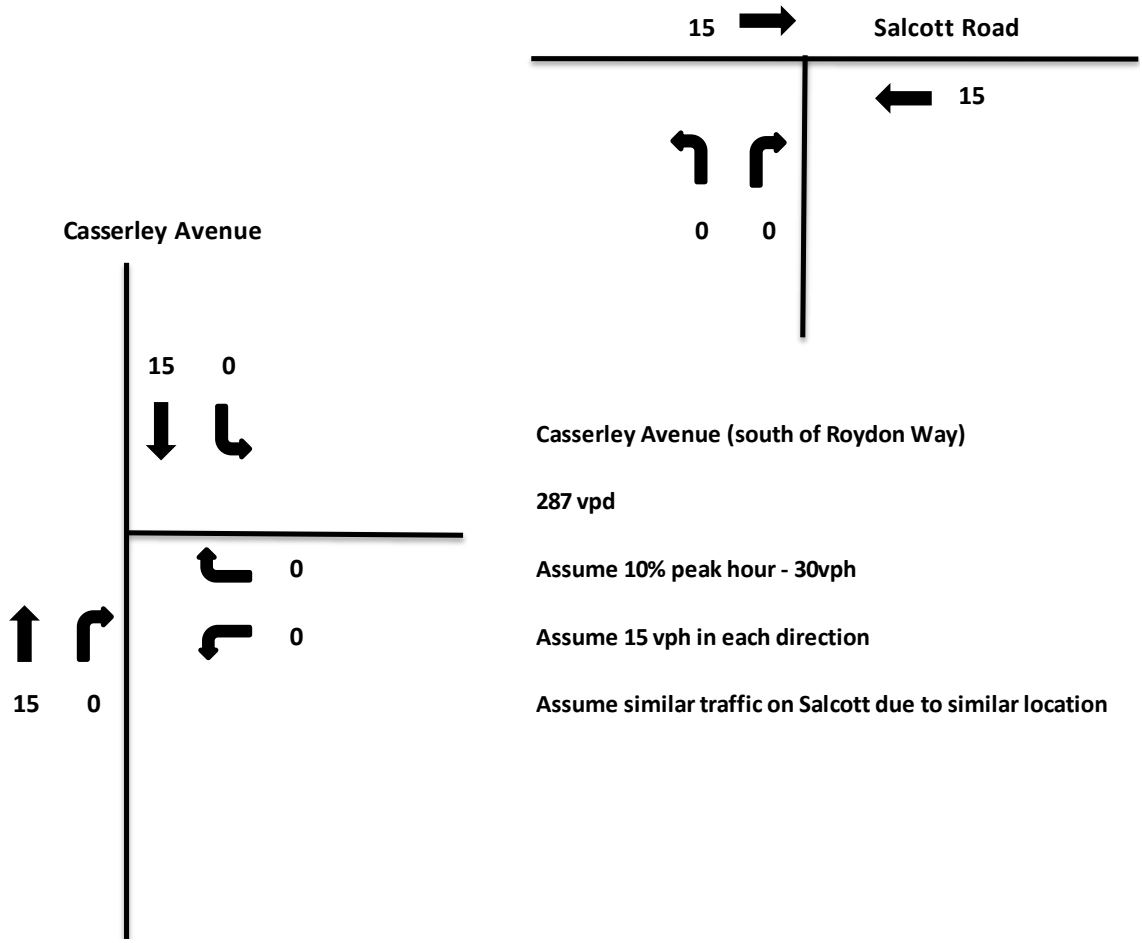


Figure 4: Estimated existing traffic flows (Weekday AM & PM peak hour)

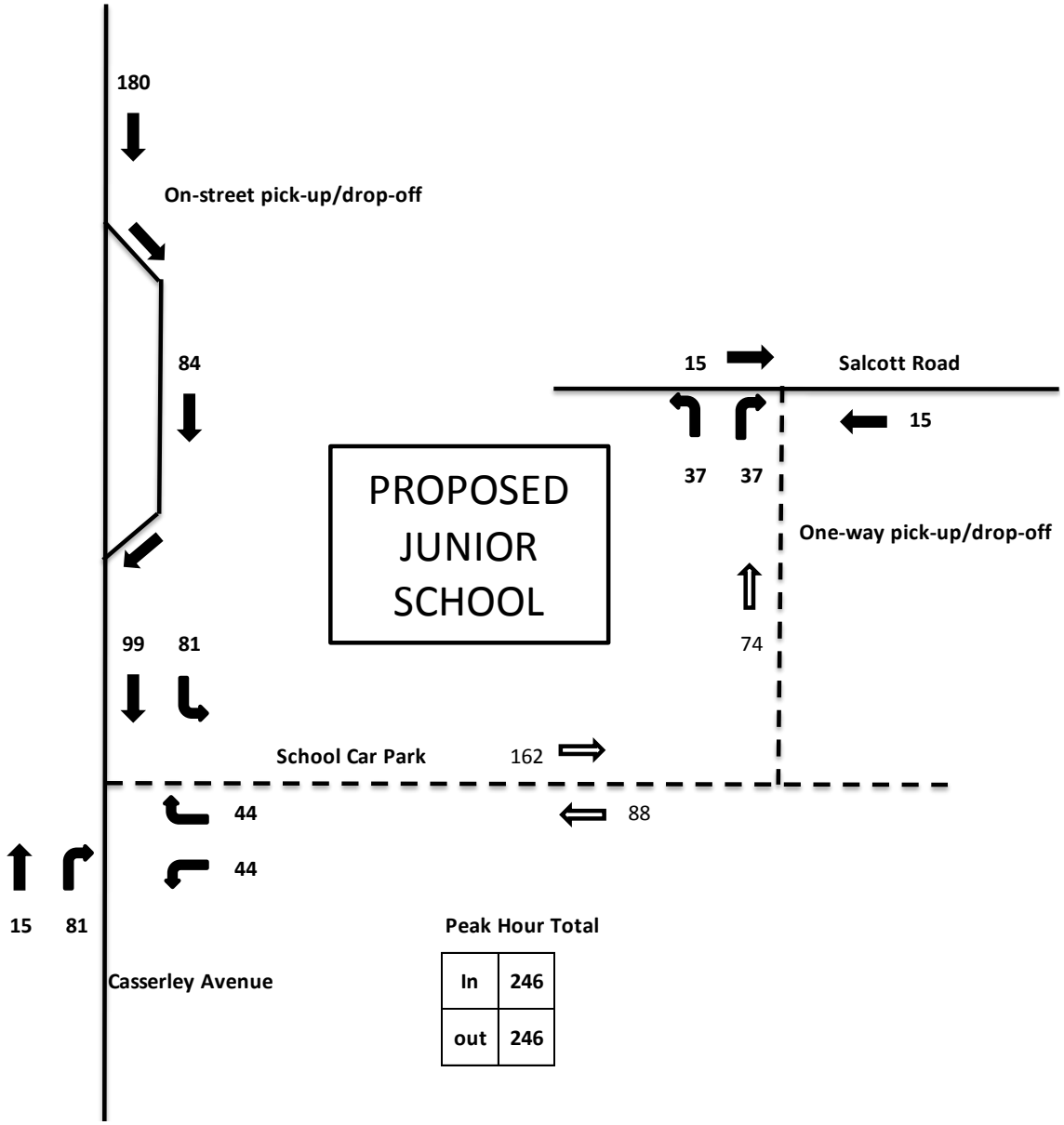


Figure 5: Total post development traffic flows
(Weekday AM & PM peak hours)

6.3 Analysis of Proposed Development Access Intersections

Table 2.4 from AUSTROADS "Guide to Traffic Management Part 6: Intersections, Interchanges and Crossings" document illustrates the traffic volume thresholds above which a detailed intersection capacity assessment is required.

Assuming that typical peak hour traffic represents approximately 10% of the total daily traffic volume, it is confirmed that uninterrupted traffic flow conditions can be expected at the proposed development crossovers.

As the peak hour through traffic volumes on Casserley Avenue and Salcott Road are significantly lower than the 400vph detailed in Table 2, sufficient capacity would be available to accommodate the anticipated proposed junior school traffic and detailed assessment or capacity analysis is therefore not warranted.

Table 2. Traffic volume threshold for detailed intersection analysis

Major Road type	Major Road Flow (vph[1])	Minor Road Flow (vph)
Two-lane	400 500 650	250 200 100
Four-lane	1,000 1,500 2,000	100 50 25

[1] *vph – vehicles per hour, typically represent 10% of total daily traffic volume*

7.0 Traffic Management on the Frontage Streets

Casserley Avenue in the vicinity of the subject site is a 7.5m wide, two lane undivided road with a paved pedestrian footpath provided on the western side of the road.

Casserley Avenue is classified as an *Access Road* in the Main Roads WA *Metropolitan Functional Road Hierarchy* and operates under a default speed limit of 50km/h.

Recent traffic count data obtained from the City of Wanneroo indicates that Casserley Avenue carried 286 vehicles per day (vpd), south of Roydon Way in November 2011.

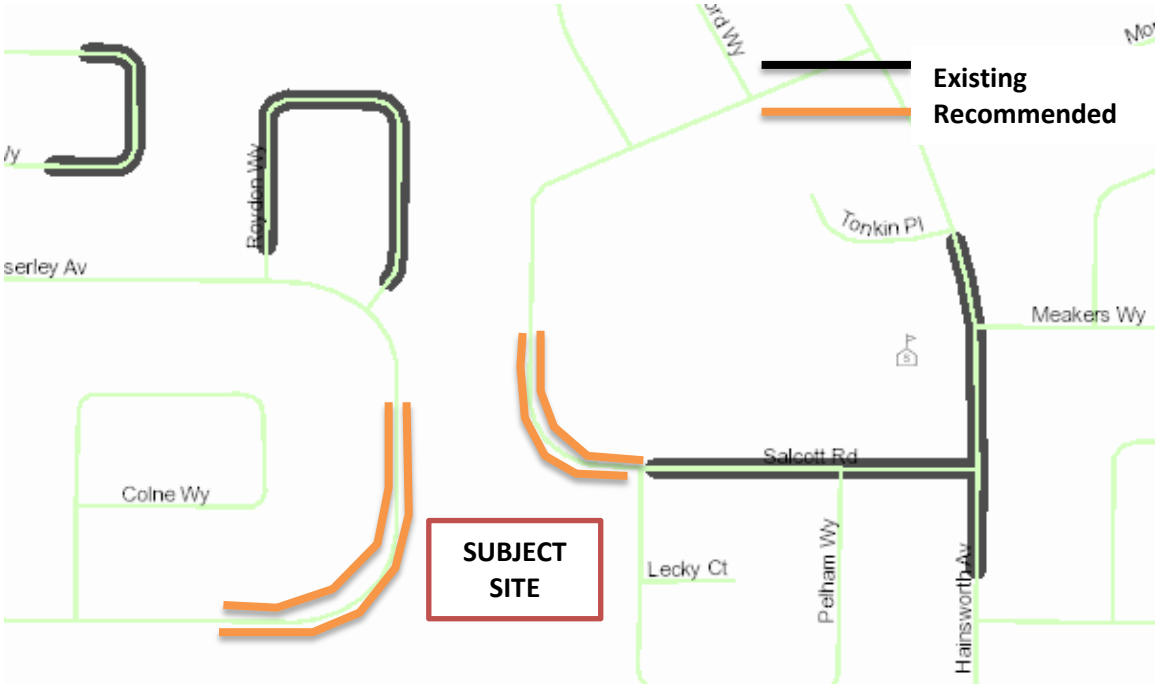


Figure 6: Existing and recommended school 40km/h zones[2]

As detailed in Figure 6, no 40km/h school speed zone is currently in place on Casserley Avenue. It is recommended that the school request the implementation of a school speed zone on Casserley Avenue from Main Roads WA prior to opening of the school.

[2] Base file source: Mainroads WA Road Information Mapping (RIM)

Salcott Road in the vicinity of the subject site is a 6.5m wide, two lane undivided road with a paved pedestrian footpath provided on the southern and eastern side of the road.

Salcott Road is classified as an *Access Road* in the Main Roads WA *Metropolitan Functional Road Hierarchy* and operates under a default speed limit of 50km/h. a 40km/h school speed zone is in place adjacent to the existing Emmanuel Christian School. However as shown in Figure 6, it is recommended that the existing school speed zone be extended further west and north past the proposed junior school access intersection.

No traffic count data was available for Salcott Road at the time of preparation of this report. However, as Salcott Road is similar to Casserley Avenue in geometry, function and location, it is considered that Salcott Road carries comparable traffic volumes to Casserley Avenue.

8.0 Pedestrian and Cyclist Access

Pedestrian access to the proposed new junior school is via the existing external footpath network comprising paved footpaths on Casserley Avenue and Salcott Road.

Pedestrian footpaths are currently provided linking Casserley Avenue with Beach Road and Salcott Road. These footpaths are proposed to be retained with minor re-routing to provide space for the proposed school crossovers.

Figure 7: Existing pedestrian facilities and proposed re-routing

Casserley Avenue and Salcott Road carry low speed, low traffic volumes and are both two lane undivided roads. Although pedestrian refuge islands are not warranted on these roads, it is recommended to implement 40km/h school speed zones to facilitate safe pedestrian crossings.

9.0 Site Specific Issues

No further site specific issues were identified within the scope of this assessment.

10.0 Safety Issues

As discussed in previous sections of this report, both proposed school vehicle access crossovers and pedestrian crossing points are located at the apex of the 90 degree bends on Casserley Avenue and Salcott Road, to maximise sight distance for vehicles and pedestrians.

It is recommended that 40km/h school speed zones be implemented on Casserley Avenue and Salcott Road in the vicinity of the site.

No further safety issues were identified within the scope of this assessment.

11.0 Conclusions

This Traffic Impact Assessment has been prepared by Transcore on behalf of Emmanuel Christian Community School with regard to the proposed New Junior School on Casserley Avenue, Girrawheen in the City of Wanneroo.

The site features good connectivity with the existing road and pedestrian and cyclist network.

The traffic analysis undertaken in this report shows that the traffic generation of the proposed junior school is highest during the typical weekday AM and PM school peak periods. The volume of traffic expected to be generated by the school is in line with typical school traffic generation experienced in residential suburbs.

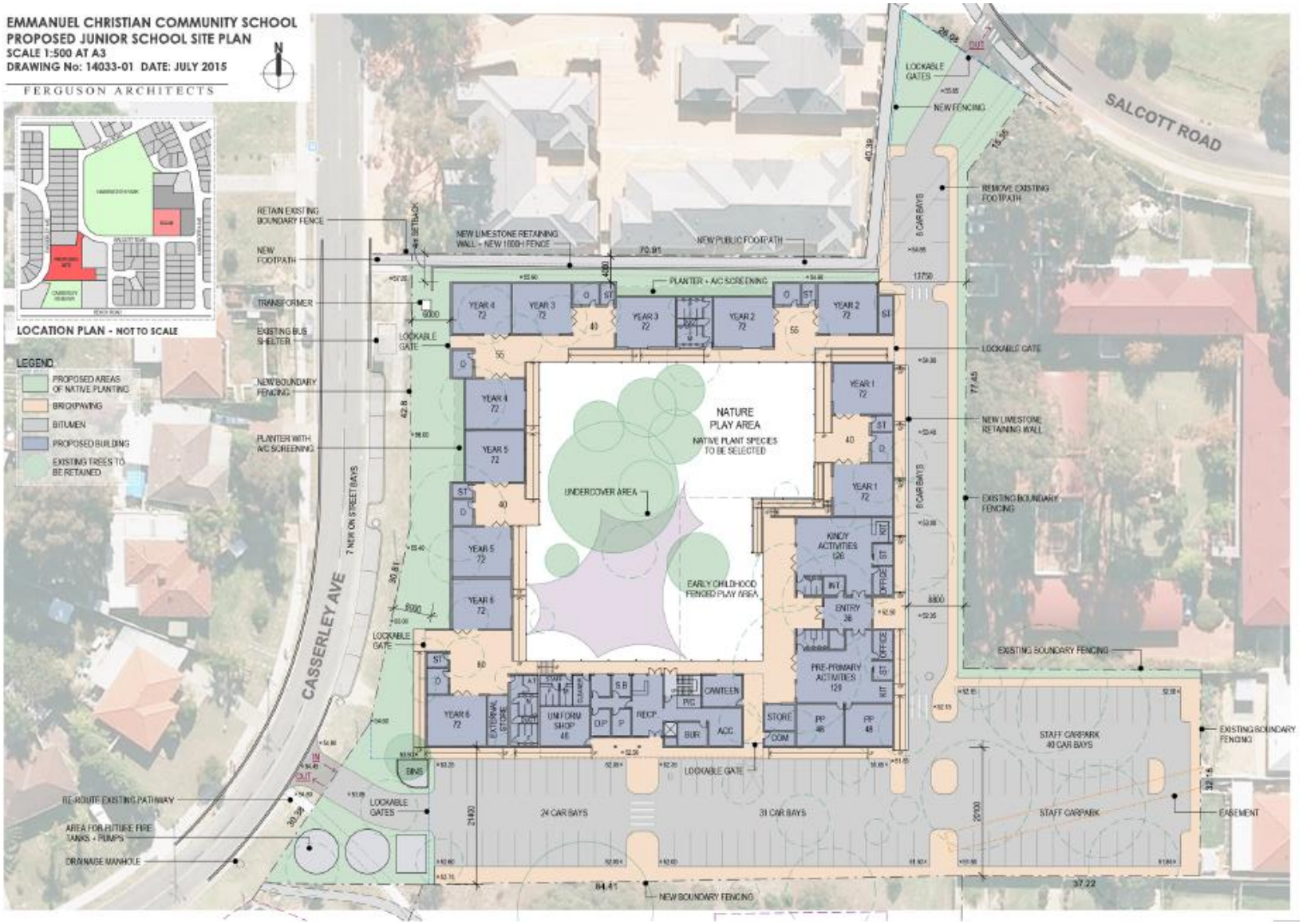
The proposed school access intersections connect to local access streets which carry low through traffic volumes, and are ideal for providing vehicular access to a school. Pedestrian and vehicular connectivity is provided to two road frontages to spread the load of pedestrian and vehicular traffic.

The parking supply of the proposed junior school meets the parking requirements of the City of Wanneroo with a very minor theoretical shortfall of 7 parking bays.

It is recommended that 40km/h school speed zones be implemented on Casserley Avenue and Salcott Road in the vicinity of the site.

Appendix A

PROPOSED DEVELOPMENT PLANS


EMMANUEL CHRISTIAN COMMUNITY SCHOOL
PROPOSED JUNIOR SCHOOL SITE PLAN
SCALE 1:500 AT A3
DRAWING No: 14033-01 DATE: JULY 2015
FERGUSON ARCHITECTS
N
LOCATION PLAN - NOT TO SCALE
LEGEND
PROPOSED AREAS OF NATIVE PLANTING
BRICKPAVING
BITUMEN
PROPOSED BUILDING
EXISTING TREES TO BE RETAINED
SALCOTT ROAD
CASSERLEY AVE
RETAIN EXISTING BOUNDARY FENCE
NEW FOOTPATH
TRANSFORMER
EXISTING BUS SHELTER
NEW BOUNDARY FENCING
PLANTER WITH A/C SCREENING
LOCKABLE GATE
LOCKABLE GATES
NEW LIMESTONE RETAINING WALL + NEW 1800H FENCE
NEW PUBLIC FOOTPATH
PLANTER + A/C SCREENING
REMOVE EXISTING FOOTPATH
NEW FENCING
NEW LIMESTONE RETAINING WALL
EXISTING BOUNDARY FENCING
NATURE PLAY AREA
NATIVE PLANT SPECIES TO BE SELECTED
UNDERCOVER AREA
EARLY CHILDHOOD FENCED PLAY AREA
7 NEW ON STREET BAYS
8 CAR BAYS
YEAR 4 72
YEAR 3 72
YEAR 2 72
YEAR 1 72
YEAR 5 72
YEAR 6 72
KINDY ACTIVITIES 126
PRE-PRIMARY ACTIVITIES 128
ENTRY 38
OFFICE
INT
KIT
CANTEEN
STORE
UNIFORM SHOP 48
EXTERNAL STORE
RECP
BUR
ACC
PP 48
STAFF CARPARK 40 CAR BAYS
STAFF CARPARK
24 CAR BAYS
31 CAR BAYS
BINS
RE-ROUTE EXISTING PATHWAY
AREA FOR FUTURE FIRE TANKS + PUMPS
DRAINAGE MANHOLE
EASEMENT
NEW BOUNDARY FENCING
84.41
37.22