

SYDNEY CATHOLIC SCHOOLS

TRANSPORT AND ACCESSIBILITY
IMPACT ASSESSMENT FOR
PROPOSED ST ANTHONY OF
PADUA CATHOLIC SCHOOL,
125-165 TENTH AVENUE AND
140-170 ELEVENTH AVENUE,
AUSTRAL

JULY 2018
(AMENDED OCTOBER 2018)

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TABLE OF CONTENTS

1. INTRODUCTION	1
2. EXISTING CONTEXT.....	6
3. IMPLICATIONS OF PROPOSED DEVELOPMENT	12

APPENDIX - AUTHORITY CORRESPONDENCE

I. INTRODUCTION

- I.1 Colston Budd Rogers and Kafes Pty Ltd has been commissioned by Sydney Catholic Schools to prepare a transport and accessibility impact assessment for the proposed St Anthony of Padua Catholic School on Tenth and Eleventh Avenues at Austral. The site has frontage to these roads, as well as Fourth Avenue to the west. The site of the proposed development is shown in Figure I.
- I.2 Following the review of adequacy, our original July 2018 report has been amended to address the matters raised by the department regarding separating the assessments for the concept proposal and the stage I works. This is discussed in paragraphs 3.63 to 3.66.
- I.3 The site is currently rural/residential land. It is in the Austral and Leppington North precincts in the South West Priority Growth Area. Planning for the area identifies the site for residential uses. There have been a number of previous studies undertaken in planning for the transport and traffic requirements to accommodate development in these precincts.
- I.4 The Concept Development Application is for a school for 2,480 students from pre-school to year 12, a church to replace the existing church on the northern side of Eleventh Avenue and a future educational development. The Stage I works would provide the school facilities.
- I.5 The Secretary's Environmental Assessment Requirements, dated 19 December 2017, include the following:
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6. Transport and Accessibility

Include a transport and accessibility impact assessment, which details, but not limited to the following:

- *accurate details of the current daily and peak hour vehicle, public transport, pedestrian and cycle movement and existing traffic and transport facilities provided in the road network located adjacent to the proposed development;*
 - *details of the traffic and access arrangements considering the full development plan for the Austral precinct in accordance with the development standards as the baseline scenario instead of the existing traffic movements;*
 - *an assessment of the operation of existing and future transport networks including public transport networks, and their ability to accommodate the forecast number of trips to and from the development;*
 - *details of estimated total daily and peak hour trips generated by the proposal, including vehicle, public transport, pedestrian and bicycle trips based on surveys of the existing and similar schools within the local area;*
 - *the impact of the traffic generated by the proposed development on intersections and the need/associated funding for upgrading or road improvement works (if applicable);*
 - *an assessment of the cumulative impact of traffic associated with the proposal and other known or future developments in the study area;*
 - *impact of the proposed development on the planned road network as identified in Indicative Layout Plan (ILP) in Schedule 1 of Liverpool Growth Centre Precincts DCP and any plans to widen Fourth Avenue;*
 - *proposals for alternative road layouts to improve accessibility between the street blocks;*
 - *assessment of the operation of the key access intersections from the sub-arterial/arterial road network including for the 2026 and 2036 scenarios, within the context of the transport assessments undertaken for the Austral and Leppington North precinct plans;*
 - *comparison of the traffic generated by the proposed development with the next best alternative (such as planned housing) on the site;*
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- *the identification of infrastructure required to ameliorate any impacts on traffic efficiency and road safety impacts associated with the proposed development, including details on improvements required to affected intersections;*
 - *the adequacy of public transport, pedestrian and bicycle networks and associated infrastructure to meet the likely future demand of the proposed development;*
 - *the impact of the proposed development on existing and future public transport infrastructure within the vicinity of the site in consultation with Council, Roads and Maritime Services and Transport for NSW and identify measures to integrate the development with the transport network;*
 - *details of travel demand management measures to minimise the impact on general traffic and bus operations, including details of a location-specific sustainable travel plan and the provision of facilities to increase the non-car mode share for travel to and from the site;*
 - *the impact of trips generated by the development on nearby intersections, with consideration of the cumulative impacts from other approved developments in the vicinity, and the need/associated funding for, and details of, upgrades or road improvement works, if required. Traffic modeling is to be undertaken using SIDRA network modeling for current and future years;*
 - *details of any new Local Area Traffic Management (LATM) facilities proposed including roundabouts;*
 - *the proposed walking and cycling access arrangements and connections to public transport services;*
 - *details of any proposed school bus routes along bus capable roads (i.e. travel lanes of 3.5m minimum) and infrastructure (bus stops, bus layovers etc.);*
 - *the proposed access arrangements, including car and bus pick-up/drop-off facilities, and measures to mitigate any associated traffic impacts and impacts on public transport, pedestrian and bicycle networks, including pedestrian crossings and refuges and speed control devices and zones;*
 - *measures to maintain road and personal safety in line with CPTED principles;*
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- *proposed bicycle parking provision, including end of trip facilities, in secure, convenient, accessible areas close to main entries incorporating lighting and passive surveillance;*
 - *proposed number of on-site car parking spaces for teaching staff and visitors and corresponding compliance with existing parking codes and justification for the level of car parking provided on-site;*
 - *an assessment of the cumulative on-street parking impacts of cars and bus pick-up/drop-off, staff parking and any other parking demands associated with the development;*
 - *details of emergency vehicle access arrangements;*
 - *an assessment of road and pedestrian safety adjacent to the proposed development and the details of required road safety measures;*
 - *service vehicle access, delivery and loading arrangements, estimated service vehicle movements (including vehicle type and the likely arrival and departure times) and compliance with the requirements of relevant Australian Standards (turn paths, sight distance, aisle width);*
 - *in relation to construction traffic:*
 - *assessment of cumulative impacts associated with other construction activities (if any);*
 - *an assessment of road safety at key intersection and locations subject to heavy vehicle construction traffic movements and high pedestrian activity;*
 - *details of construction program detailing the anticipated construction duration and highlighting significant and milestone stages and events during the construction process;*
 - *details of anticipated peak hour and daily construction vehicle movements to and from the site;*
 - *details of on-site car parking and access arrangements of construction vehicles, construction workers to and from the site, emergency vehicles and service vehicle;*
 - *details of temporary cycling and pedestrian access during construction; and*
 - *traffic and transport impacts during construction, including cumulative impacts associated with other construction activities, and how these impacts will be*
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mitigated for any associated traffic, pedestrian, cyclists, parking and public transport, including the preparation of a draft Construction Traffic Management Plan to demonstrate the proposed management of the impact.

I.6 This report assesses the transport and accessibility requirements for the proposed school, including addressing the SEARs, through the following chapters:

- Chapter 2 - describing the existing context; and
- Chapter 3 - assessing the transport and accessibility implications of the proposed development.

2. EXISTING CONTEXT

Site Location and Road Network

- 2.1 The site occupies the western part of a block bounded by Eleventh Avenue to the north, Tenth Avenue to the south, Edmondson Avenue to the east and Fourth Avenue to the west, as shown in Figure 1. It is currently rural/residential land. A primary school commenced on the site in 2017.
- 2.2 Surrounding land use is generally rural/residential. There is a shopping centre east of the site on Tenth Avenue/Edmondson Avenue. There are playing fields north of the site, on the northern side of Eleventh Avenue.
- 2.3 Roads in the area, including roads along the site frontage, generally provide for two-way traffic, with unsealed shoulders, and provide access to rural and residential properties. The intersections of Fourth and Edmondson Avenues with Tenth and Eleventh Avenues are unsignalised, four-way intersections controlled by give way signs.

Previous Work

- 2.4 The site is within the Austral and Leppington North precincts in the South West Priority Growth Area. An indicative layout plan and development control plan have been prepared for these precincts.
- 2.5 The Austral and Leppington North precincts are two of 19 precincts in the South West Priority Growth Area. The precincts comprise some 2,025 hectares and will ultimately provide:
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- 17,350 dwellings;
 - 54,000 residents;
 - 220 hectares of employment land;
 - 135 hectares of open space and recreational areas;
 - Leppington Major Centre with regional shopping, employment, cultural and community facilities;
 - new Leppington railway station;
 - three neighbourhood shopping centres;
 - new schools (there are seven school sites identified) and upgrades to major roads; and
 - walking and cycling routes.

2.6 In association with the rezoning of the precincts, transport studies^{1,2} were prepared. The studies assessed the transport requirements to accommodate a level of development generally described above. These studies recommended road and transport works to accommodate development of the precincts.

2.7 The DCP for the Austral and Leppington North Precincts identifies upgrades to Edmondson Avenue (which will become a transit boulevard), Fourth and Tenth Avenues (which will become collector roads) and Eleventh Avenue (which will be a local street. Traffic signals are identified for a number of intersections along Edmondson Avenue (including at Tenth Avenue) and Fourth Avenue.

¹ "Austral and Leppington North (ALN) Precincts Transport Assessment." Prepared by Aecom for NSW Department of Planning and Infrastructure, 11 August 2011.

² "Post Exhibition Traffic Report (Addendum)." Prepared by Aecom for NSW Department of Planning and Infrastructure, 4 July 2012.

- 2.8 Further identified road and intersection upgrades, in association with the proposed school, are discussed in Chapter 3 of this report.
- 2.9 The Liverpool Contributions Plan 2014 Austral and Leppington North Precincts includes the road and transport works from the DCP and previous transport studies and provides a mechanism for their funding. In the vicinity of the site, the works include:
- traffic signals at Edmondson Avenue/Tenth Avenue;
 - Edmondson Avenue to become a “transit boulevard”;
 - cycle lanes in both directions on Edmondson Avenue;
 - roundabouts on Fourth Avenue at Tenth and Eleventh Avenues;
 - off-road bicycle routes along Fourth Avenue and Tenth Avenue;
 - provision of bus shelters; and
 - provision of footpaths, pedestrian crossings and pedestrian refuges.
- 2.10 In addition to these works, other major works within the South West Priority Growth Area, including upgrades to Camden Valley Way, Bringelly Road and South West Rail Link Extension, have and are being provided to accommodate future development in the South West Priority Growth Area, including the Austral and Leppington North precincts and other surrounding areas. The overall transport and traffic planning for the area has therefore identified works to cater for this development, with mechanisms in place or being put in place to facilitate their implementation.

Traffic Flows

- 2.11 Traffic flows on roads in the vicinity of the site are currently relatively low. This is because much of the development planned for the precinct is yet to occur.
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- 2.12 Similarly, pedestrian volumes are low and there is little existing infrastructure, including footpaths, cycle paths or bus stops, in the vicinity of the site.
- 2.13 Traffic generated by the proposed school will have its greatest effects during weekday morning and afternoon periods, around school start and finish times.
- 2.14 The previous transport studies for the precinct include two-way (sum of both directions) peak hour traffic flows for when the precinct is ultimately developed, by 2036. Flows for roads in the vicinity of the site are summarised in Table 2.1.

Table 2.1: 2036 two-way peak hour traffic flows for ultimate precinct development			
Road	Location	Weekday morning	Weekday afternoon
Edmondson Avenue	North of Eleventh Avenue	1,610	1,920
	North of Tenth Avenue	1,500	1,480
	South of Tenth Avenue	1,340	1,660
Fourth Avenue	North of Eleventh Avenue	770	870
	North of Tenth Avenue	670	940
	South of Tenth Avenue	610	620

- 2.15 Table 2.1 shows that with the ultimate development of the precinct, Edmondson Avenue would carry traffic flows of some 1,300 to 2,000 vehicles per hour two-way at peak times. Fourth Avenue would carry some 600 to 950 vehicles per hour two-way.
- 2.16 Flows for Tenth and Eleventh Avenues were not included in the previous traffic studies. However, based on the intended land uses and the role of these roads in the hierarchy, flows on Tenth and Eleventh Avenue would likely be some 200 to 400 vehicles per hour two-way at peak times.

Public Transport

- 2.17 Local bus services are provided by Interline. Buses operate along Edmondson Avenue, east of the site. Route 855 connects Austral with Liverpool. Services also provide a link to Leppington station. A limited service is provided on weekdays and weekends.
- 2.18 As previously noted, new bus infrastructure will be provided in association with new roads and future development in the area. Leppington railway station has also been completed and is operational, south of the site. Public transport services are therefore being progressively improved to serve the precinct.
- 2.19 The following chapter includes measures to cater for public transport travel to and from the school.

3. IMPLICATIONS OF PROPOSED DEVELOPMENT

- 3.1 The Concept Development Application is for a school for 2,480 students from pre-school to year 12. A church would be provided to replace the existing church on the northern side of Eleventh Avenue. A future educational development would also be provided. The Stage 1 works would provide the school facilities.
- 3.2 Vehicular access will be provided from Tenth Avenue (to employee parking and parking for set-down and pick-up operations), Eleventh Avenue (to the pre-school car park and for set-down and pick-up) and Fourth Avenue (to the administration and employee parking and for set-down and pick-up and service vehicles).
- 3.3 In association with the proposed development, upgrades to roads around the site will be required to cater for buses, cars, pedestrians and cyclists. These measures will include widening of Fourth, Tenth and Eleventh Avenues (beyond that envisaged in the precinct planning), as well as intersection treatments at Fourth Avenue with Tenth and Eleventh Avenues, and Edmondson Avenue with Eleventh Avenue. A new internal road through the site will be provided between Tenth and Eleventh Avenues. These measures are discussed later in this chapter.
- 3.4 This chapter assesses the transport and accessibility implications of the proposed development through the following sections:
- ❑ public transport, walking and cycling;
 - ❑ travel demand management;
 - ❑ parking provision;
 - ❑ access, servicing and internal layout;
 - ❑ traffic generation and effects;
 - ❑ construction traffic management;
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- ❑ concept proposal and stage I applications;
- ❑ matters raised in SEARs; and
- ❑ summary.

Public Transport, Walking and Cycling

- 3.5 As previously discussed in Chapter 2, buses currently use Edmondson Avenue, east of the site. In the future, with road upgrades and additional development, buses services will increase through the area.
- 3.6 To accommodate the transport requirements of the school, bus parking bays are proposed to be provided on Eleventh Avenue (northern and southern sides, adjacent to the school) and Fourth Avenue (eastern side, adjacent to the school).
- 3.7 Provision for 13 buses is proposed, plus draw-in and draw-out area. Nine spaces are proposed on Eleventh Avenue, and four on Tenth Avenue.
- 3.8 As discussed in later sections, these measures, plus other measures to provide for appropriate road and intersection capacity, will require widening of Fourth, Tenth and Eleventh Avenues along the site frontages to these roads.
- 3.9 Start and finish times for the junior and senior schools will be staggered. The provision for 13 buses simultaneously will therefore readily cater for the requirements of buses at the school. This provision represents a rate of more than one bay per 200 students, which is consistent with other schools.
- 3.10 The bus bays on Eleventh Avenue will operate during morning and afternoon peak periods around school start and finish times. At other times of the week, these areas could provide for general on-street parking. The bays on Fourth Avenue
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could also operate in this regard, although it is likely that regular route services will also use Fourth Avenue. At least one permanent bus bay would likely be required on Fourth Avenue, adjacent to the site.

- 3.11 Buses would operate from surrounding areas around school start and finish times. These services would include links to and from Leppington Station. Buses serving the school would include dedicated school route services and regular public services on which students travel. Services would be agreed with local operators.
- 3.12 In association with the proposed development, footpaths will be provided along the site frontages to Fourth, Tenth and Eleventh Avenues. Pedestrian access to and from the school will be provided from the three street frontages.
- 3.13 Pedestrian links between the school and surrounding areas will therefore be important. To facilitate appropriate pedestrian connections to and from the school, as well as cater for traffic flows, the intersection of Fourth Avenue with Eleventh Avenue is proposed to be signalised. A signalised intersection in this location will cater for pedestrians to and from bus stops and surrounding areas.
- 3.14 In addition to these traffic signals, pedestrian crossings could be provided on Tenth and Eleventh Avenues, east of Fourth Avenue. These will supplement the signalised intersection at Fourth Avenue/Eleventh Avenue and assist in providing appropriate pedestrian links between the school, bus stops and surrounding areas.
- 3.15 Within the site, pedestrian links between the various buildings and facilities will be provided. Pedestrian connections will also be provided to and from the car parking areas.
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- 3.16 For students and employees who cycle, on-site bicycle racks will be provided in various locations, as shown in the architect's plans. Provision for some 150 bicycles is proposed. This represents a provision of more than one space per 20 students which is considered appropriate. There is space to provide for additional bicycle parking, should it be required. The proportion of students who cycle to school is typically lower for private schools as they draw from a wider catchment than a local school.
- 3.17 The proposed development is therefore consistent with government objectives and the planning principles of:
- (a) improving accessibility to employment and services by walking, cycling, and public transport;
 - (b) improving the choice of transport and reducing dependence solely on cars for travel purposes;
 - (c) moderating growth in the demand for travel and the distances travelled, especially by car; and
 - (d) supporting the efficient and viable operation of public transport services.

Travel Demand Management

- 3.18 A number of measures will be implemented at the school to reduce and manage travel demands. These include appropriate provision for non-car based travel, including the measures for buses, pedestrians and cyclists discussed in the previous section.
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- 3.19 Additionally, the staggering of start and finish times for the junior and senior schools will reduce the number of cars and buses at the school at any one time during the morning and afternoon set-down and pick-up periods. This measure will provide for efficient use of the on-street bus bays and the on-site parking areas to be used for set-down and pick-up operations.
- 3.20 For employees, to encourage travel modes other than private vehicle, a travel demand management approach will be adopted, through a workplace travel plan to meet the specific needs of the site, future employees and visitors. The specific requirements and needs of the future employees and visitors, including travel from surrounding areas and public transport nodes, would be incorporated in the workplace travel plan to support the objectives of encouraging the use of public transport.
- 3.21 The principles of a workplace travel plan, to be developed by the school in consultation with council, RMS, bus operators and other stakeholders, would include the following:
- ❑ encourage the use of public transport, including train and bus services in the area;
 - ❑ work with public transport providers to improve services;
 - ❑ encourage public transport use by employees and visitors through the provision of information, maps and timetables;
 - ❑ raise awareness of health benefits of walking and cycling (including maps showing walking and cycling routes);
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- ❑ encourage cycling by providing safe and secure bicycle parking and end of trip facilities;
- ❑ provide appropriate on-site parking provision, consistent with the objective of reducing traffic generation; and
- ❑ provision of travel passes to some staff as part of salary packages.

3.22 The workplace travel plan will assist in delivering sustainable transport objectives by considering the means available for reducing dependence solely on cars for travel purposes, encouraging the use of public transport and supporting the efficient and viable operation of public transport services. The guide will be prepared by the school prior to occupation.

Parking Provision

3.23 The Liverpool Growth Centre Precincts Development Control Plan includes the following parking requirements:

- one space per employee; plus
- one space per 100 students; plus
- one space per five students in year 12.

3.24 Based on a student population of 2,480 (including 240 in year 12) and 200 employees, 273 parking spaces would be required.

3.25 The DCP also identifies the requirement for a drop-off/pick-up facility of appropriate size.

- 3.26 317 parking spaces plus some 143 set-down/pick-up spaces are proposed on the site. These are provided as follows:
- 124 spaces in the north-western part of the site, adjacent to the indoor recreational centre and hall (99 parking spaces plus 25 set-down/pick-up spaces);
 - 32 spaces on the south-western part of the site, adjacent to the school playing fields;
 - 33 spaces adjacent to the pre-school;
 - 152 spaces on the south-eastern part of the site (114 parking spaces plus 38 set-down/pick-up spaces);
 - 118 spaces on the eastern boundary of the site, in a car park and on both sides of a new internal road connecting Tenth and Eleventh Avenues (39 parking spaces plus 80 set-down/pick-up spaces).
- 3.27 As noted above, a number of the parking areas will include parking for set-down and pick-up operations. These will be the north-western parking area, the south-eastern parking area and along both sides of the internal road between Tenth and Eleventh Avenues.
- 3.28 The provision of 143 on-site parking spaces for set-down and pick-up activities will cater for activities at the school. The proposed provision is one space per 17 students, which is consistent with the provision at other schools.
- 3.29 The operation of the proposed on-site parking for set-down and pick-up activities is discussed in the following section.
- 3.30 The proposed parking provision therefore satisfies the DCP, and will be appropriate for the site.
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- 3.31 Appropriate disabled parking will be provided in accordance with the DCP requirements.

Access, Servicing and Internal Layout

- 3.32 Vehicular access will be provided from Tenth Avenue (to employee parking and parking for set-down and pick-up operations), Eleventh Avenue (to the pre-school car park and for set-down and pick-up) and Fourth Avenue (to the administration and employee parking and for set-down and pick-up and service vehicles).
- 3.33 Access from Fourth Avenue, to and from the north-western car park, will be provided via separate entry and exit driveways. This will provide for one-way circulation for the spaces in this car park used for set-down and pick-up.
- 3.34 The south-western car park will have a combined entry/exit driveway from Fourth Avenue. This will be appropriate for this small car park of some 30 spaces.
- 3.35 The existing access arrangements and car park from Eleventh Avenue to the pre-school on the north-eastern part of the site will be amended to provide the new access road along the eastern side of the site.
- 3.36 The south-eastern car park will have separate entry and exit driveways from Tenth Avenue, which will be appropriate for a car park of this size and its intended operations.
- 3.37 As previously discussed, a new internal road will be provided on the eastern side of the site, connecting between Tenth and Eleventh Avenues. It will provide a two-way connection and will provide for set down and pick-up activity on both
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sides, for the junior school. Driveways at Tenth and Eleventh Avenues will provide for access to and from this area.

- 3.38 The on-site parking areas for set-down and pick-up (in the north-western and south-eastern car parks, and on the eastern side of the site) will be managed by school staff during the morning and afternoon set-down and pick up periods.
- 3.39 Driveways to the site will be provided in accordance with the Australian Standard for Parking Facilities (Part 1: Off-street car parking and Part 2: Off-street commercial vehicle facilities), AS 2890.1:2004 and AS 2890.2 – 2002, to cater for two-way traffic (where proposed), as well as car and service vehicle swept paths.
- 3.40 Within parking areas, spaces will be a minimum of 5.4 metres long by 2.6 metres wide. Spaces with adjacent obstructions will be 0.3 metres wider to appropriately provide for doors to open. Circulation aisles will be 6.2 metres wide. Disabled spaces will be 2.4 metres wide, with a 2.4 metre wide adjacent area for wheelchairs. These dimensions are considered appropriate, being in accordance with AS 2890.1:2004 and AS 2890.6:2009.
- 3.41 Service vehicles to the development would include garbage collection and deliveries. A loading and waste collection area will be provided with access from Fourth Avenue. The loading area will provide for rigid trucks to enter the site, circulate and exit in a forward direction. The access driveway, loading and manoeuvring area will be provided to accommodate the swept paths of these vehicles, in accordance with AS 2890.2 – 2002. Swept paths are shown in Figure 2.
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Traffic Generation and Effects

- 3.42 Traffic generated by the proposed development will have its greatest effects during weekday morning and afternoon periods around school start and finish times.
- 3.43 As discussed in Chapter 2, previous planning for the South West Priority Growth Area has identified road works and transport infrastructure to cater for the overall development in the area to 2036, including residential, employment, retail, recreational and other development. These works include the upgrade to Camden Valley Way and Bringelly Road, provision of new roads, the South West Rail Link Extension and more local works in Austral, including:
- traffic signals at Edmondson Avenue/Tenth Avenue;
 - Edmondson Avenue to become a “transit boulevard”;
 - cycle lanes in both directions on Edmondson Avenue;
 - roundabouts on Fourth Avenue at Tenth and Eleventh Avenues;
 - off-road bicycle routes along Fourth Avenue and Tenth Avenue;
 - provision of bus shelters; and
 - provision of footpaths, pedestrian crossings and pedestrian refuges.
- 3.44 The proposed development would likely have a traffic generation of some 1,500 vehicles per hour two-way during morning and afternoon periods around school start and finish times. This compares to a generation of some 200 to 300 vehicles per hour two-way which would be generated by residential development on the site, as envisaged in the current planning controls.
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3.45 The development traffic has been assigned to the road network. 2036 traffic flows, plus the additional traffic from the proposed school are shown in Figures 3 and 4, and summarized in Table 3.1. Traffic increases on Fourth and Edmondson Avenues as a result of the proposed development would be some 220 to 520 vehicles per hour two-way at peak times.

Table 3.1: 2036 two-way peak hour traffic flows plus development traffic					
Road	Location	Weekday morning		Weekday afternoon	
		2036 base	Plus development	2036 base	Plus development
Edmondson Avenue	North of Eleventh Avenue	1,610	+350	1,920	+350
	North of Tenth Avenue	1,500	+240	1,480	+240
	South of Tenth Avenue	1,340	+520	1,660	+520
Fourth Avenue	North of Eleventh Avenue	770	+260	870	+260
	North of Tenth Avenue	670	+220	940	+220
	South of Tenth Avenue	610	+370	620	+370

3.46 To cater for this traffic, road works will be required in addition to those previously identified for the precinct. The works will include:

- widening of Fourth, Tenth and Eleventh Avenues along the site frontages to provide four travel lanes, indented bus bays and turning bays;
- traffic signals at the intersections of Fourth Avenue with Tenth and Eleventh Avenues to cater for traffic flows and pedestrian connectivity (instead of the roundabouts previously identified); and
- traffic signals at the intersection of Edmondson Avenue with Eleventh Avenue.

3.47 The widening of Fourth, Tenth and Eleventh Avenues along the site frontages will require land from the subject site. This is reflected in the plans for the development. Typical cross sections for these roads are shown in Figures 5 to 7.

3.48 The operations of the following intersections have been assessed using SIDRA 7 Network for the traffic flows shown in Figures 3 and 4:

- Edmondson Avenue/Tenth Avenue;
- Edmondson Avenue/Eleventh Avenue;
- Fourth Avenue/Tenth Avenue; and
- Fourth Avenue/Eleventh Avenue.

3.49 SIDRA simulates the operations of intersections to provide a number of performance measures. The most useful measure provided is average delay per vehicle expressed in seconds per vehicle. Based on average delay per vehicle, SIDRA estimates the following levels of service (LOS):

- For traffic signals, the average delay per vehicle in seconds is calculated as delay/(all vehicles), for roundabouts the average delay per vehicle in seconds is selected for the movement with the highest average delay per vehicle, equivalent to the following LOS:

0 to 14	=	"A"	Good
15 to 28	=	"B"	Good with minimal delays and spare capacity
29 to 42	=	"C"	Satisfactory with spare capacity
43 to 56	=	"D"	Satisfactory but operating near capacity
57 to 70	=	"E"	At capacity and incidents will cause excessive delays. Roundabouts require other control mode.
>70	=	"F"	Unsatisfactory and requires additional capacity

- For give way and stop signs, the average delay per vehicle in seconds is selected from the movement with the highest average delay per vehicle, equivalent to following LOS:

0 to 14	=	"A"	Good
15 to 28	=	"B"	Acceptable delays and spare capacity
29 to 42	=	"C"	Satisfactory but accident study required
43 to 56	=	"D"	Near capacity and accident study required
57 to 70	=	"E"	At capacity and requires other control mode
>70	=	"F"	Unsatisfactory and requires other control mode

3.50 It should be noted that for roundabouts, give way and stop signs, in some circumstances, simply examining the highest individual average delay can be misleading. The size of the movement with the highest average delay per vehicle should also be taken into account. Thus, for example, an intersection where all movements are operating at a level of service A, except one which is at level of service E, may not necessarily define the intersection level of service as E if that movement is very small. That is, longer delays to a small number of vehicles may not justify upgrading an intersection unless a safety issue was also involved.

3.51 The analysis found that with the proposed works, the intersections of Fourth Avenue with Tenth and Eleventh Avenues would operate with average delays of less than 25 seconds per vehicle during peak periods. This represents level of service B, a good level of service.

3.52 The intersections of Edmondson Avenue with Tenth and Eleventh Avenues would operate with average delays of less than 35 seconds per vehicle during peak periods. This represents level of service C, a satisfactory level of service.

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- 3.53 The identified upgrades will also cater for other development in the precinct, including potential increases in residential densities in other locations.
- 3.54 The school will be constructed in stages to cater for the intended population. Initially, traffic signals will be provided at the intersection of Fourth Avenue with Eleventh Avenue. Eleventh Avenue will be widened adjacent to the site, including the provision of bus bays. As future stages of the school are constructed, the other works, discussed above in paragraph 3.48, would also be constructed. Staging of other works would likely be as follows:
- 2025: traffic signals at Fourth and Tenth Avenues;
 - 2028: widening of Tenth and Fourth Avenues (including bus bays);
 - 2031: traffic signals at Edmondson Avenue and Eleventh Avenue.
- 3.55 The school expects that most of its population will come from Austral/Leppington North and immediately surrounding areas. These are students who, without the proposed school, would have attended other local schools in the area. They will therefore not create new demands for travel in the broader area, compared to that already envisaged in previous precinct planning.
- 3.56 The other traffic would be minor and would be dispersed among a number of potential access routes to and from the school. Its effects in any one location would be not be noticeable in the context of that considered in previous studies.
- 3.57 The regional works identified for the wider area, including upgrades to Camden Valley Way and Bringelly Road, will be able to cater for these flows.
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Construction Traffic Management

3.58 At this stage in the planning process, the construction methodology, process and staging has not been precisely defined. For each stage of the development, the builder will be responsible for the preparation of a construction traffic management plan, which will be prepared prior to the commencement of work, taking into account relevant consent conditions. The plan will include consideration of the following:

- vehicle access to the site during construction;
- construction vehicle routes;
- traffic and parking effects;
- measures to manage and protect pedestrian movements;
- on-street works zones; and
- measures to manage and control construction traffic at the site.

3.59 The overall principles for traffic management during construction will be:

- provide a convenient and appropriate environment for pedestrians;
 - minimise effects on pedestrian movements and amenity;
 - provide appropriate safety fencing/hoardings around the perimeter of the construction site;
 - maintain access to adjacent properties;
 - manage and control vehicular movements to and from the site;
 - to the extent practical, maintain existing on-street parking in the vicinity of the site;
 - restrict construction vehicle activity to designated truck routes through the area;
-
-

- construction vehicles to enter and exit the site in a forward direction; construction activity to be carried out in accordance with the approved hours of construction;
- maintain safety for workers; and
- the preparation of the construction traffic management plan, signage detail, control of pedestrians and management of construction vehicles in the vicinity of the site will be the responsibility of the appointed builder.

3.60 As a principle, on-site parking will be made available for construction employees. As various parts of the new car parks are completed, their use will be available for construction activities and parking. This will minimise the number of construction employee vehicles parking in surrounding streets. Construction compounds will be located on the parts of the site subject to construction activities at that time.

3.61 The number of vehicles generated during the various stages of construction is likely to be up to some 100 vehicles per hour two-way at peak times. The effects of construction vehicle activity on the surrounding road network will therefore be less than the operational effects.

3.62 Large construction vehicles will use major roads in the area, including Fifteenth Avenue, Edmondson Avenue, Bringelly Road and Fourth Avenue. These routes are shown in Figure 8.

Concept Proposal and Stage I Applications

3.63 As noted above, the difference between the concept proposal and the stage I works is the provision of the church (to replace the existing church on the northern side of Eleventh Avenue), and a future educational development on the south-western part of the site.

- 3.64 The Stage I works would therefore provide the majority of the facilities envisaged in the concept proposal.
- 3.65 During the review of adequacy of the application, the department raised the matter of separating the assessments for the concept proposal and the stage I works.
- 3.66 With respect to traffic and parking implications, there would be little difference between the concept proposal and the stage I works, for the following reasons:
- the majority of the development envisaged in the concept proposal will be provided as part of the stage I works;
 - the church, which would be provided later, is effectively being relocated from across the road. Its traffic is already using the adjacent road network. The road and transport works being provided to accommodate the school will readily accommodate the much lower traffic generation of the church on Sundays;
 - the church would be able to use school parking on Sundays, without requiring additional parking;
 - similarly, the road and transport works being provided to accommodate the school will readily accommodate the traffic generation of the future educational facility on the south-western part of the site. The works will not be sensitive to this relatively minor component of the concept proposal.
-

Matters Raised in SEARs

3.67 The matters raised in the SEARs are discussed below.

- *accurate details of the current daily and peak hour vehicle, public transport, pedestrian and cycle movement and exiting traffic and transport facilities provided in the road network located adjacent to the proposed development;*

3.68 These existing conditions are discussed in paragraphs 2.11 to 2.18.

- *details of the traffic and access arrangements considering the full development plan for the Austral precinct in accordance with the development standards as the baseline scenario instead of the existing traffic movements;*

3.69 Our assessment is based on the full development of the Austral precinct for 2036, based on traffic flows from the previous transport studies for the precinct. The additional school traffic has been added to these flows to consider the effects of the additional intensity that a school would have, compared to residential development of the site.

- *an assessment of the operation of existing and future transport networks including public transport networks, and their ability to accommodate the forecast number of trips to and from the development;*

3.70 To accommodate the transport requirements of the proposed school, a number of measures would be required in addition to those identified in previous planning for the precinct. These measures include:

- widening of Fourth, Tenth and Eleventh Avenues along the site frontages to provide four travel lanes, indented bus bays and turning bays;
-
-

-
-
- traffic signals at the intersections of Fourth Avenue with Tenth and Eleventh Avenues to cater for traffic flows and pedestrian connectivity; and
 - traffic signals at the intersection of Edmondson Avenue with Eleventh Avenue.

3.71 These additional measures, including additional provision for buses, pedestrians and traffic, will cater for the transport requirements of the development.

- *details of estimated total daily and peak hour trips generated by the proposal, including vehicle, public transport, pedestrian and bicycle trips based on surveys of the existing and similar schools within the local area;*
- *the impact of the traffic generated by the proposed development on intersections and the need/associated funding for upgrading or road improvement works (if applicable);*
- *an assessment of the cumulative impact of traffic associated with the proposal and other known or future developments in the study area;*
- *impact of the proposed development on the planned road network as identified in Indicative Layout Plan (ILP) in Schedule 1 of Liverpool Growth Centre Precincts DCP and any plans to widen Fourth Avenue;*

3.72 These matters are discussed in paragraphs 3.5 to 3.17, 3.23 to 3.31 and 3.42 to 3.57.

- *proposals for alternative road layouts to improve accessibility between the street blocks;*

3.73 With the school occupying a significant proportion of the subject block, some local access roads identified in the precinct plan will not be required. A new internal road is proposed along the eastern boundary of the site, between Tenth and Eleventh Avenues, as discussed in paragraph 3.37.

- *assessment of the operation of the key access intersections from the sub-arterial/arterial road network including for the 2026 and 2036 scenarios, within the context of the transport assessments undertaken for the Austral and Leppington North precinct plans;*

3.74 Our assessment is based on the ultimate development of the precinct to 2036, using information from the previous traffic and transport assessments undertaken for the precinct. Prior to that time, lesser works would be required. These matters are discussed in paragraphs 3.42 to 3.57.

- *comparison of the traffic generated by the proposed development with the next best alternative (such as planned housing) on the site;*

3.75 Based on information provided by the applicant's town planner, development of the site for residential purposes would provide for some 250 to 300 residential dwellings. Development of the site for residential purposes would result in a traffic generation of some 200 to 300 vehicles per hour two-way at peak times.

3.76 The traffic generation for the proposed school would be higher than for residential development of the site. As noted in paragraph 3.44, the school generation would be some 1,500 vehicles per hour two-way. Our assessment is based on an additional 1,300 vehicles per hour two-way.

- *the identification of infrastructure required to ameliorate any impacts on traffic efficiency and road safety impacts associated with the proposed development, including details on improvements required to affected intersections;*
 - *the adequacy of public transport, pedestrian and bicycle networks and associated infrastructure to meet the likely future demand of the proposed development;*
-

- *the impact of the proposed development on existing and future public transport infrastructure within the vicinity of the site in consultation with Council, Roads and Maritime Services and Transport for NSW and identify measures to integrate the development with the transport network;*

3.77 These matters are discussed in paragraphs 3.42 to 3.57. In consultation with the authorities, no additional significant matters were raised, in addition to those in the SEARs. Copies of the authority correspondence are provided in Appendix A.

3.78 A meeting was held with council officers prior to lodgement. The matters raised by council and our comments are as follows:

- council asked whether provision was being made for buses on the site. Road widening is proposed using land from the subject site, including to accommodate buses. It is a more efficient use of land to accommodate buses on the street which can also be used for public services. Having buses on the street also provides greater separation between buses and passenger cars setting down and picking up students;
- council requested information regarding the number of bus bays and who would operate bus services. These matters are discussed in paragraphs 3.7, 3.10 and 3.11;
- council requested information regarding parking provision for each stage of development, compliance of the proposed parking layouts and description of the set-down and pick-up arrangements. These matters are discussed in paragraphs 3.23 to 3.31 and 3.32 to 3.41;

- council asked whether there would be conflicts between the access to the drop-off and pick up area and the early learning centre access on Eleventh Avenue. We note that the ELC access will provide only a small number of parking spaces and school set-down and pick-up activities will generally occur at different times to the ELC. The potential for conflict will therefore be low; and
- council requested that SIDRA modelling be undertaken for the proposed signalized intersections and that the traffic measures should be identified for each stage of development. These matters are discussed in paragraphs 3.42 to 3.57.
- *details of travel demand management measures to minimise the impact on general traffic and bus operations, including details of a location-specific sustainable travel plan and the provision of facilities to increase the non-car mode share for travel to and from the site;*

3.79 These matters are discussed in paragraphs 3.18 to 3.22.

- *the impact of trips generated by the development on nearby intersections, with consideration of the cumulative impacts from other approved developments in the vicinity, and the need/associated funding for, and details of, upgrades or road improvement works, if required. Traffic modeling is to be undertaken using SIDRA network modeling for current and future years;*
 - *details of any new Local Area Traffic Management (LATM) facilities proposed including roundabouts;*
-

3.80 These matters are discussed in paragraphs 3.42 to 3.57. Our assessment of the operations of surrounding intersections has been undertaken using SIDRA 7 Network.

- *the proposed walking and cycling access arrangements and connections to public transport services;*
- *details of any proposed school bus routes along bus capable roads (i.e. travel lanes of 3.5m minimum) and infrastructure (bus stops, bus layovers etc.);*
- *the proposed access arrangements, including car and bus pick-up/drop-off facilities, and measures to mitigate any associated traffic impacts and impacts on public transport, pedestrian and bicycle networks, including pedestrian crossings and refuges and speed control devices and zones;*

3.81 These matters are discussed in paragraphs 3.5 to 3.17 and 3.32 to 3.41. It is expected that 'school zone' speed signage would be introduced on roads adjacent to the school.

- *measures to maintain road and personal safety in line with CPTED principles;*

3.82 These matters are being addressed by other study team members. However, appropriate facilities for pedestrians, cyclists and site users are proposed in association with the development.

- *proposed bicycle parking provision, including end of trip facilities, in secure, convenient, accessible areas close to main entries incorporating lighting and passive surveillance;*
 - *proposed number of on-site car parking spaces for teaching staff and visitors and corresponding compliance with existing parking codes and justification for the level of car parking provided on-site;*
-
-

- *an assessment of the cumulative on-street parking impacts of cars and bus pick-up/drop-off, staff parking and any other parking demands associated with the development;*

3.83 These matters are discussed in paragraphs 3.23 to 3.31. The proposed development does not rely on on-street parking to meet its requirements.

- *details of emergency vehicle access arrangements;*

3.84 Emergency vehicles will be able to access the site at any of the proposed access points.

- *an assessment of road and pedestrian safety adjacent to the proposed development and the details of required road safety measures;*

3.85 For appropriate pedestrian safety and management, a number of measures have been included in the development. These are discussed in paragraphs 3.5 to 3.17 and 3.42 to 3.57.

- *service vehicle access, delivery and loading arrangements, estimated service vehicle movements (including vehicle type and the likely arrival and departure times) and compliance with the requirements of relevant Australian Standards (turn paths, sight distance, aisle width);*

3.86 These matters are discussed in paragraph 3.41. The number of service vehicles to the school would be less than 10 per day. Service vehicles would be scheduled to arrive outside school start and finish times.

- *in relation to construction traffic:*
-

- *assessment of cumulative impacts associated with other construction activities (if any);*
- *an assessment of road safety at key intersection and locations subject to heavy vehicle construction traffic movements and high pedestrian activity;*
- *details of construction program detailing the anticipated construction duration and highlighting significant and milestone stages and events during the construction process;*
- *details of anticipated peak hour and daily construction vehicle movements to and from the site;*
- *details of on-site car parking and access arrangements of construction vehicles, construction workers to and from the site, emergency vehicles and service vehicle;*
- *details of temporary cycling and pedestrian access during construction; and*
- *traffic and transport impacts during construction, including cumulative impacts associated with other construction activities, and how these impacts will be mitigated for any associated traffic, pedestrian, cyclists, parking and public transport, including the preparation of a draft Construction Traffic Management Plan to demonstrate the proposed management of the impact.*

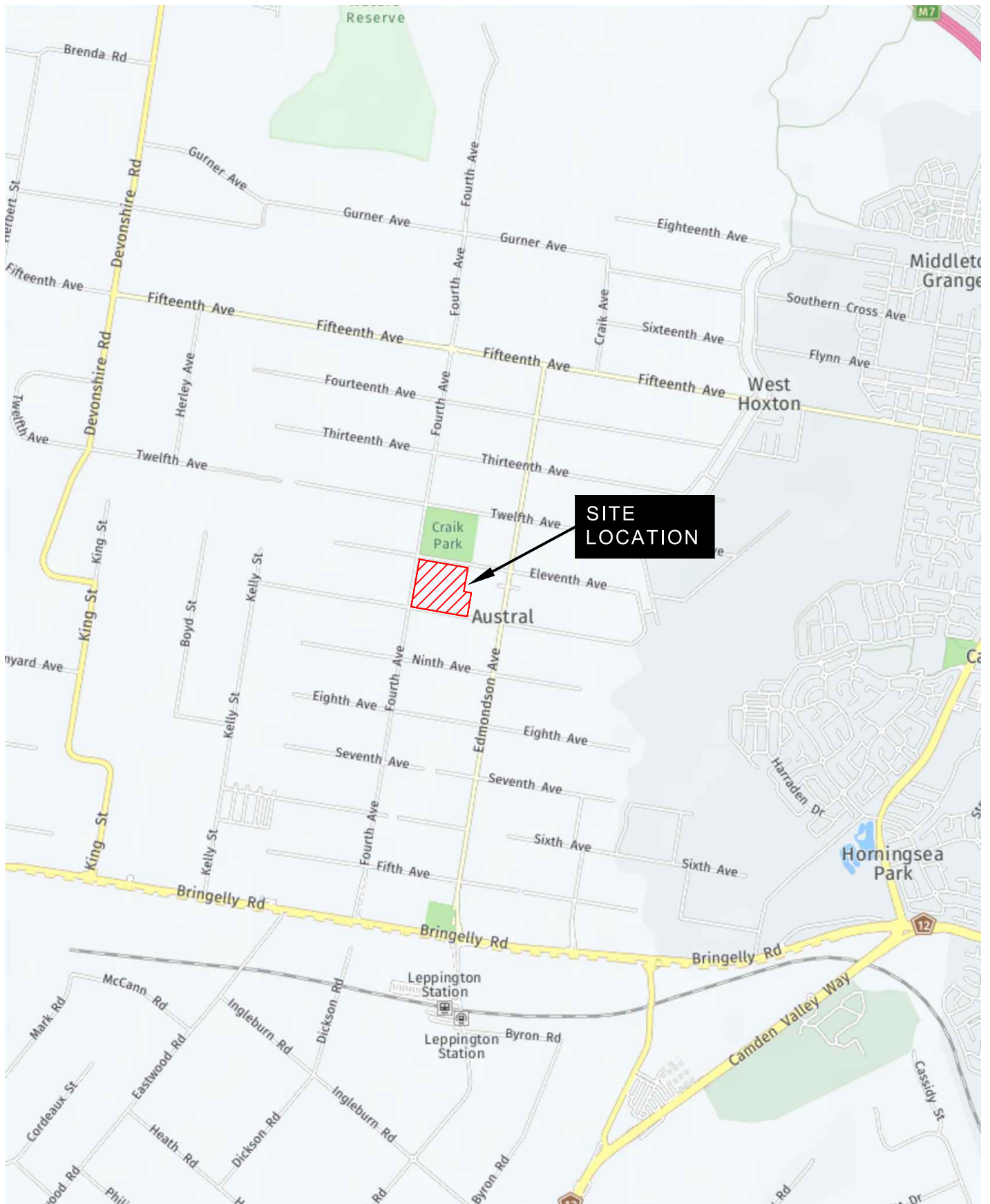
3.87 Construction traffic management is discussed in paragraphs 3.58 to 3.62.

Summary

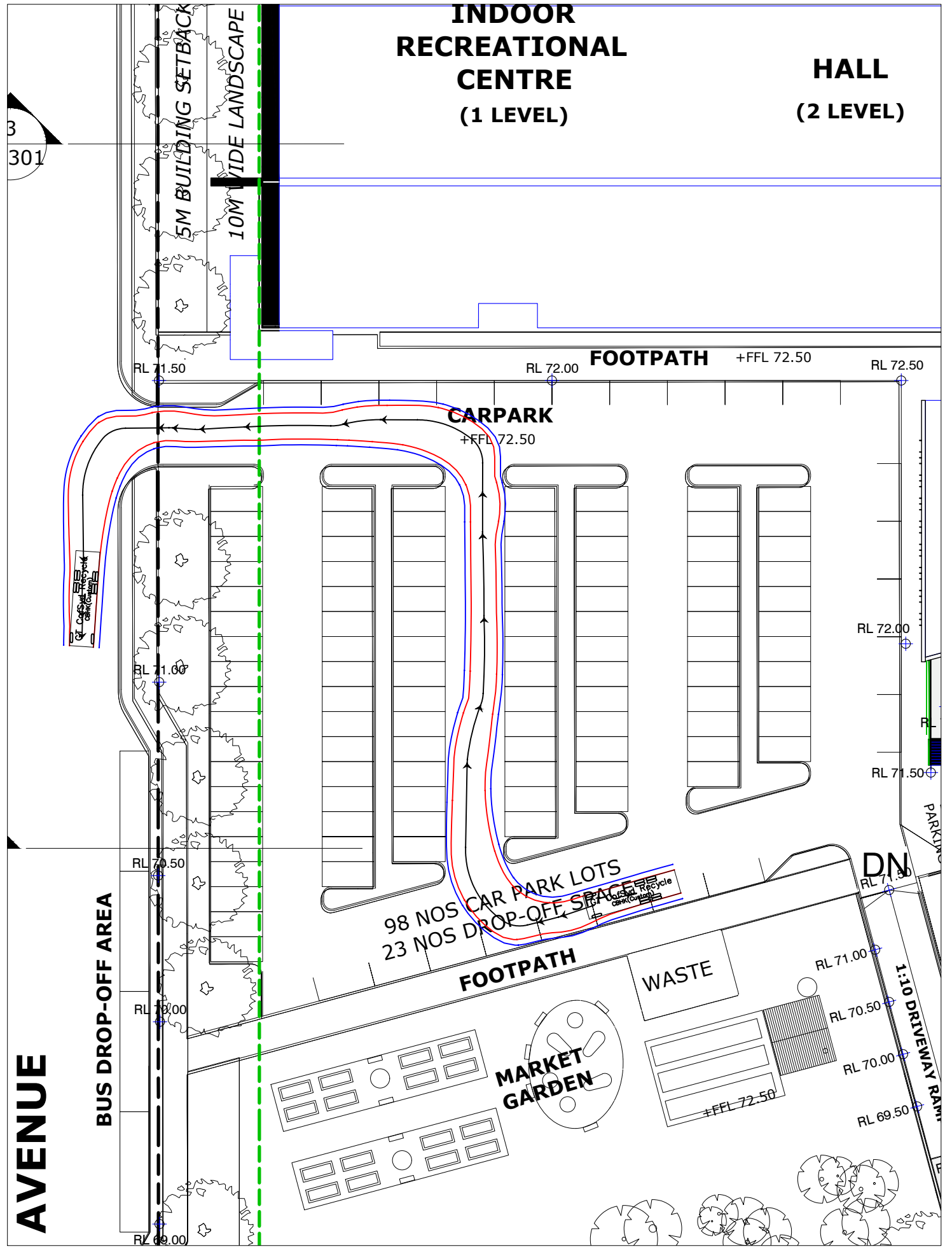
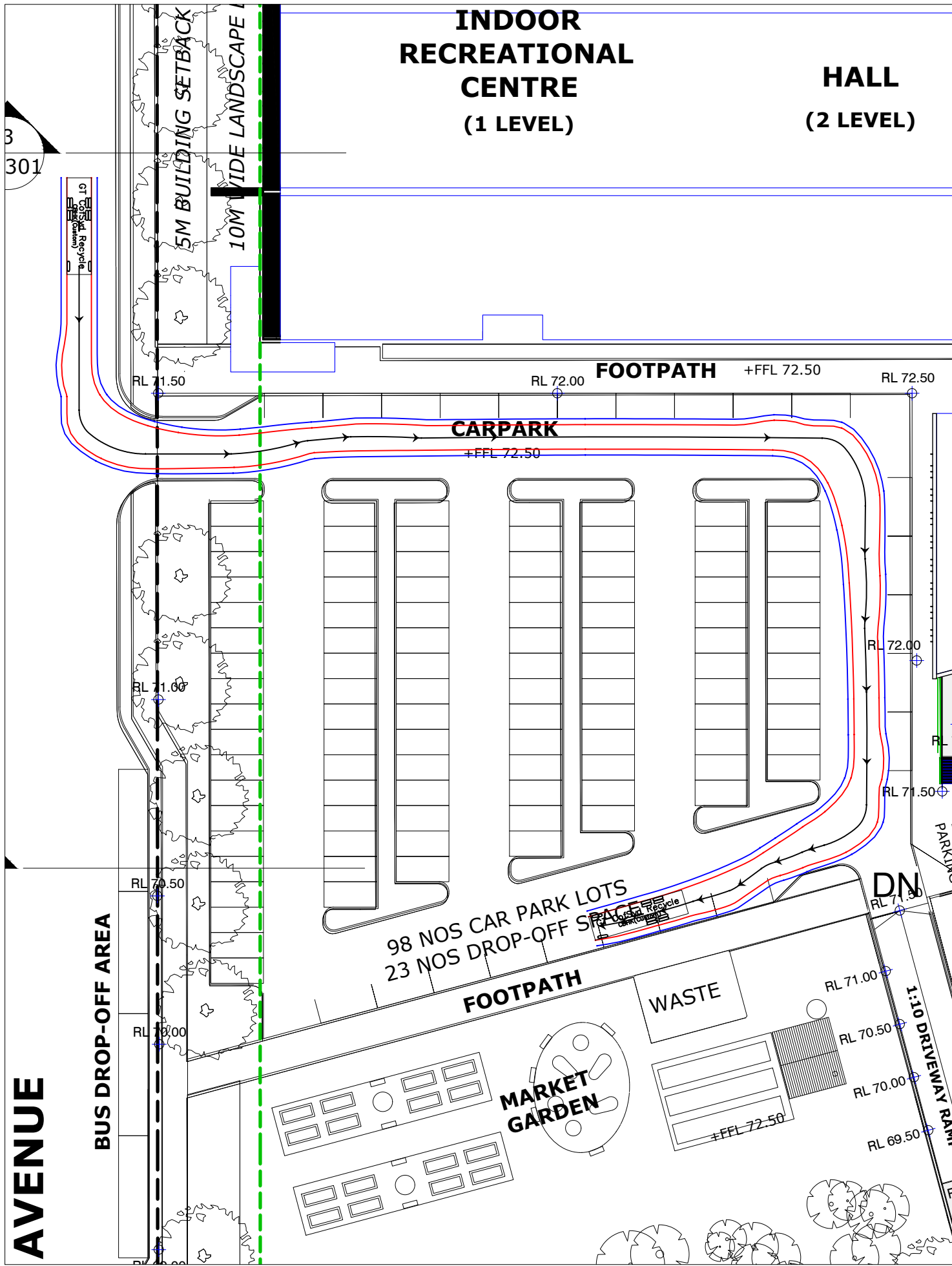
3.88 In summary, the main points relating to the transport and accessibility implications of the proposed school development are as follows:

- i) the proposed development would provide for a school of some 2,480 students plus a church and future educational development. Stage I of the development would provide the school facilities;

- ii) significant previous planning has been undertaken for the precinct, including road and transport upgrades to accommodate future development in the South West Priority Growth Area;
 - iii) appropriate provision for public transport is proposed at the site, including significant provision for buses, pedestrians and cyclists;
 - iv) appropriate on-site parking is proposed;
 - v) vehicular access, internal circulation and servicing arrangements will be provided in accordance with AS 2890.1:2004 and AS 2890.2 – 2002;
 - vi) initially, the intersection of Fourth Avenue and Eleventh Avenue is proposed to be signalized, with widening of Eleventh Avenue along the site frontage;
 - vii) other works will be required to cater for future development stages, including:
 - widening of Fourth, Tenth and Eleventh Avenues along the site frontages to provide four travel lanes, indented bus bays and turning bays;
 - traffic signals at the intersections of Fourth Avenue with Tenth and Eleventh Avenues to cater for traffic flows and pedestrian connectivity (instead of the roundabouts previously identified); and
 - traffic signals at the intersection of Edmondson Avenue with Eleventh Avenue.
 - viii) with these works, the road network will be able to cater for the proposed development, and other development in the precinct; and
 - ix) matters raised in the SEARs are addressed in paragraphs 3.67 to 3.87.
-



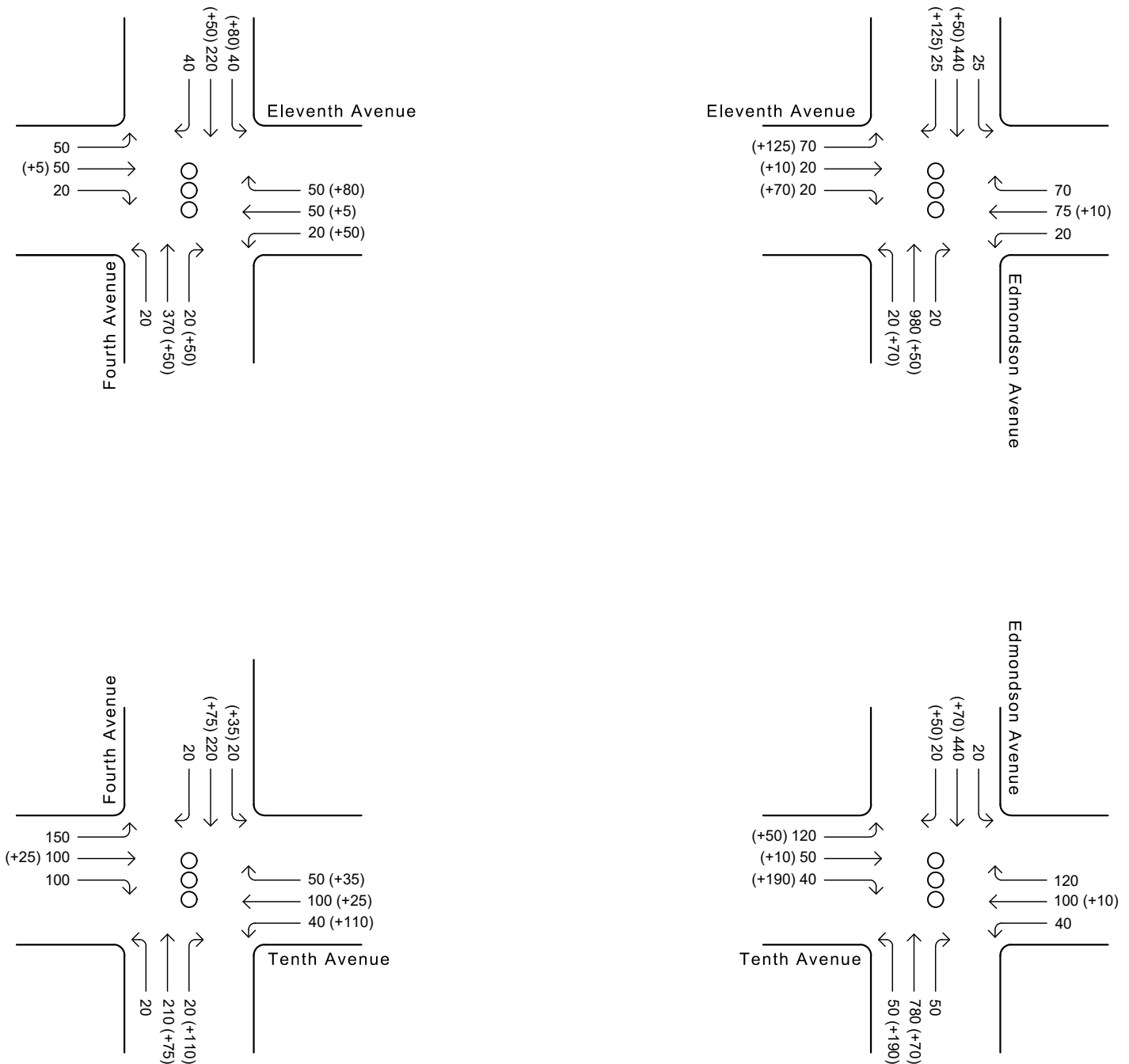
Location Plan



NOTE:
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UTILITIES, KERBLINES & DIMENSIONS ARE SUBJECT TO
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PROPOSED IN THIS PLAN ARE CONCEPT ONLY AND
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— Swept Path of Vehicle Body
— Swept Path of Clearance to Vehicle Body

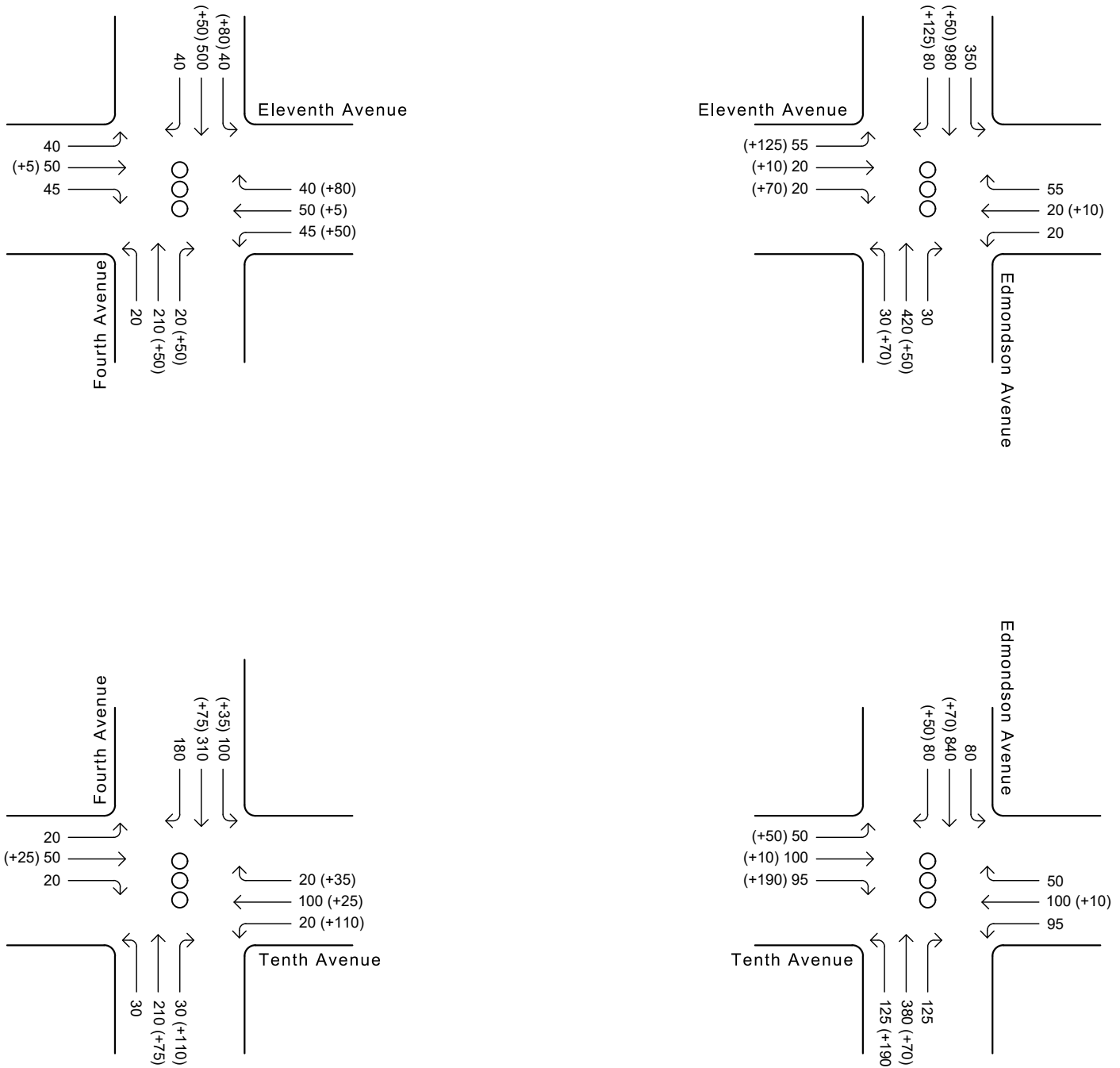
**9.9m GARBAGE TRUCK
SWEPT PATHS**



LEGEND

- 100 - Existing Peak Hour Traffic Flows
- (+10) - Additional Development Traffic
- ⊗ - Traffic Signals

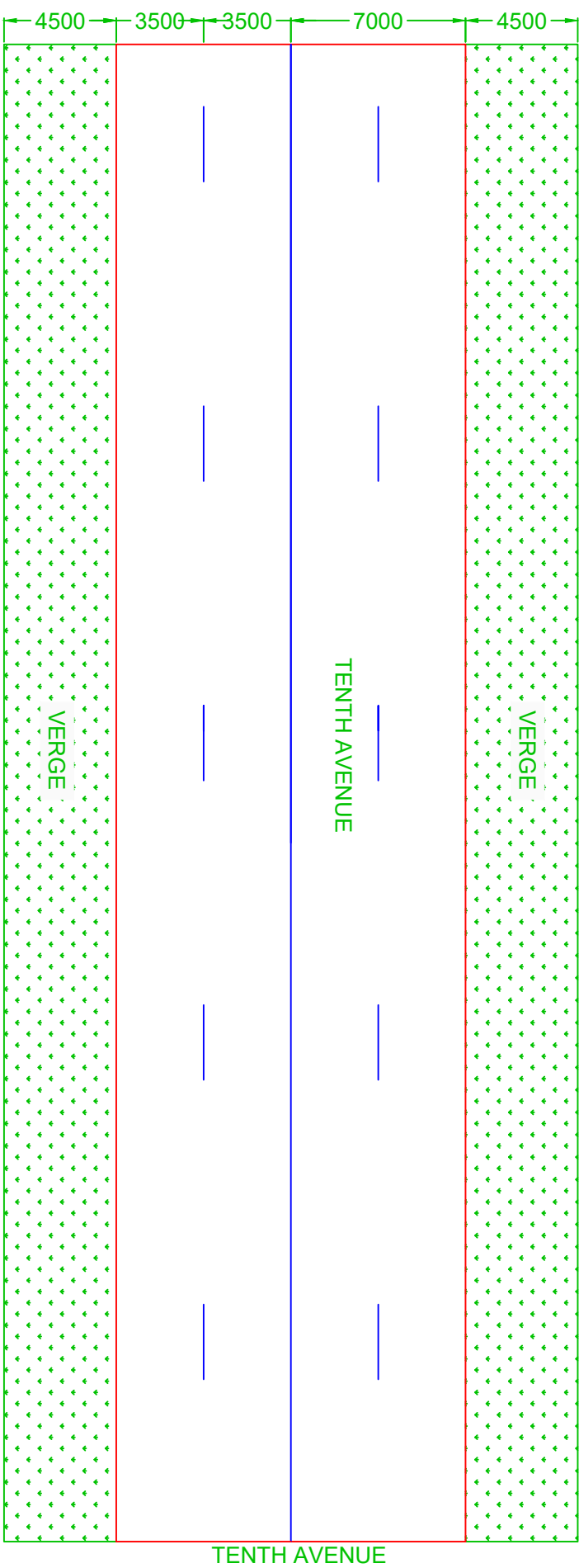
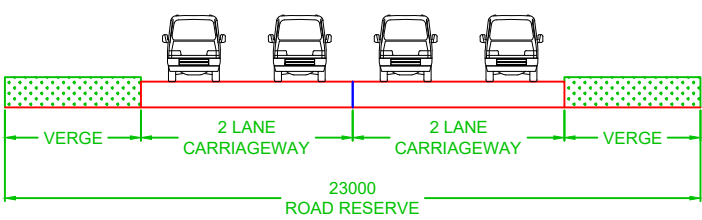
**2036 weekday morning peak hour
traffic flows plus development traffic**



LEGEND

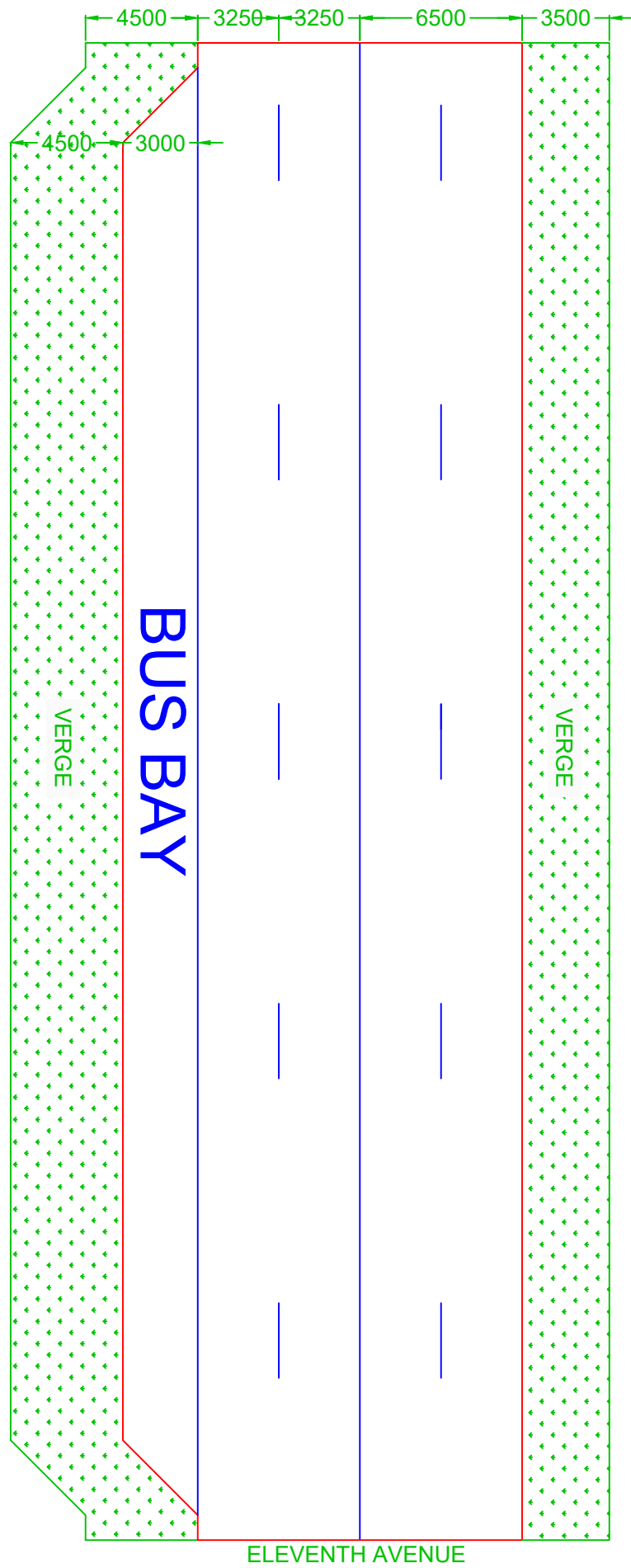
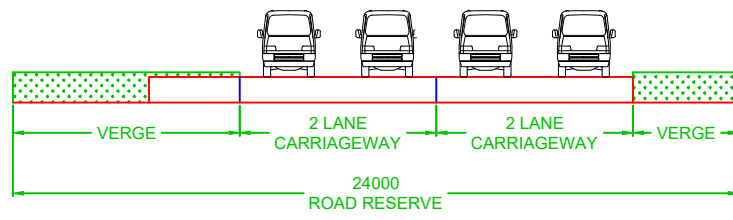
- 100 - Existing Peak Hour Traffic Flows
- (+10) - Additional Development Traffic
- ⊗ - Traffic Signals

**2036 weekday afternoon peak hour
traffic flows plus development traffic**



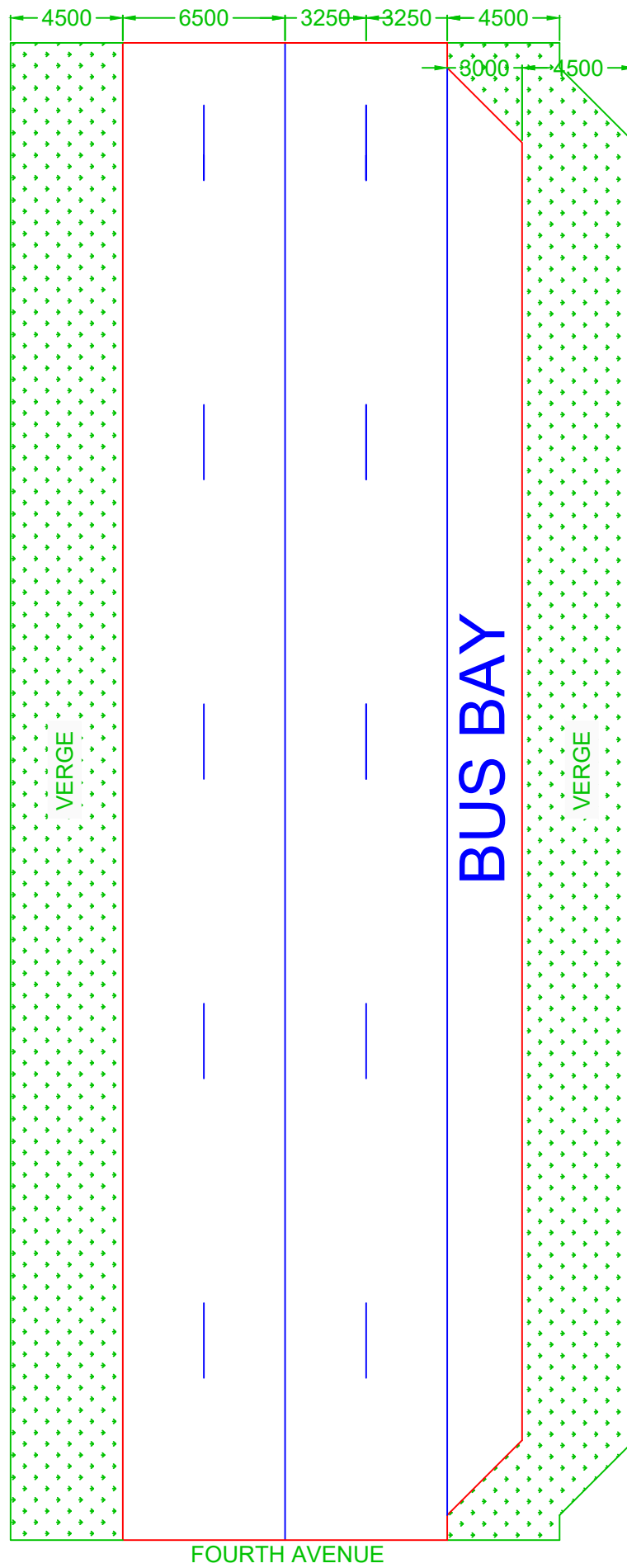
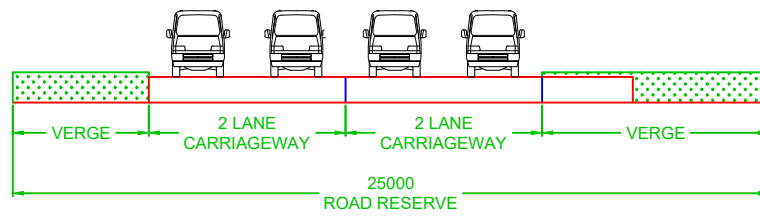
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**TENTH AVENUE CROSS
 SECTION**



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ELEVENTH AVENUE CROSS SECTION



FOURTH AVENUE

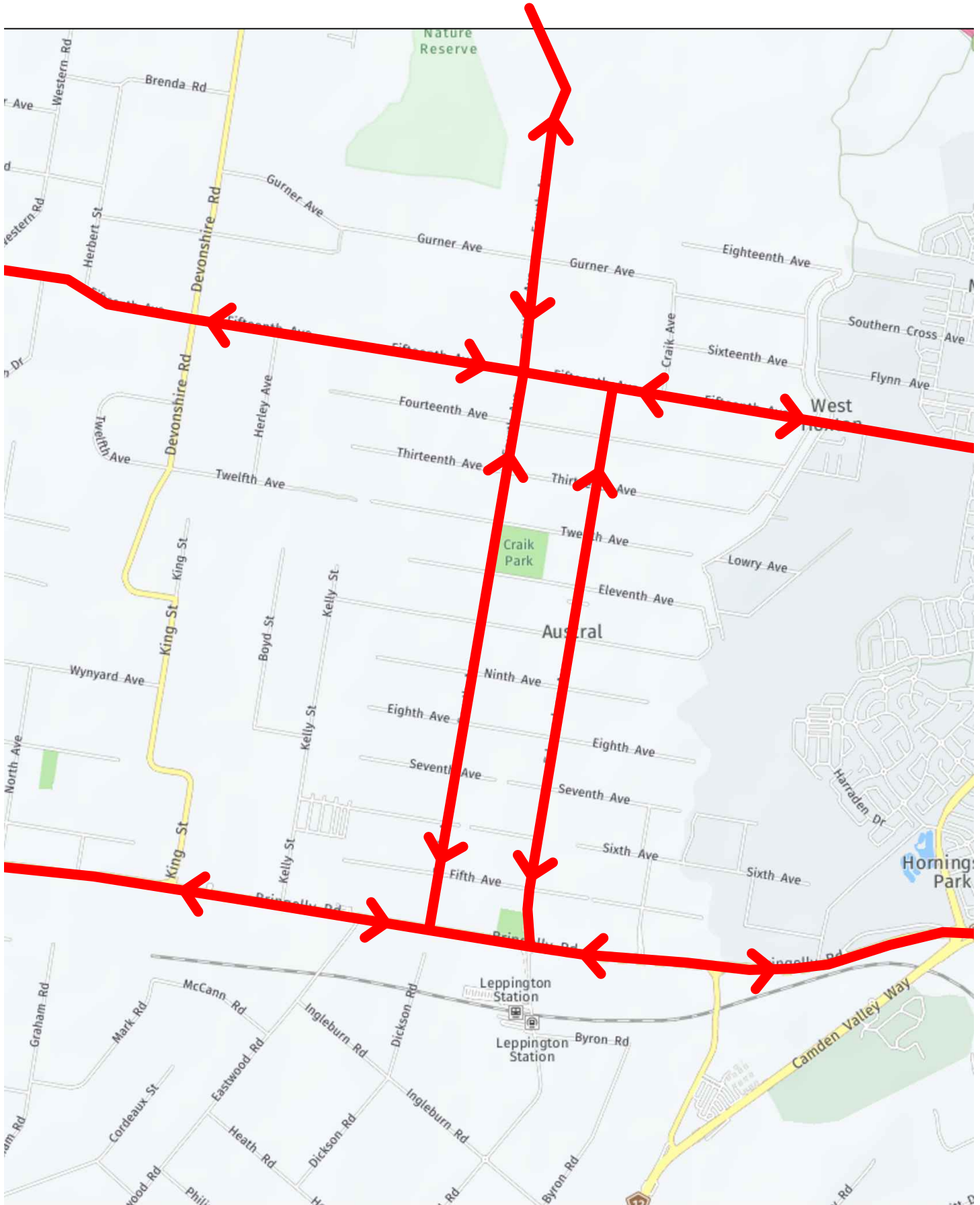
BUS BAY

VERGE

VERGE

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FOURTH AVENUE CROSS SECTION



Construction Truck Routes

APPENDIX
AUTHORITY CORRESPONDENCE

Rhys Hazell

From: Ho, Ken <Ken.Ho@transport.nsw.gov.au>
Sent: Monday, 5 March 2018 1:28 PM
To: Rhys Hazell
Cc: COMAN Malgy
Subject: RE: SSD 8865 Austral Catholic School - request for meeting

Hi Rhys,

In terms of the assessment:

- Agree that assumptions would be required when modelling the immediate intersections surrounding the site given that Austral remains relatively undeveloped. Conservative assumptions should be adopted.
- Trip generation assessment should also be compared against the peak hour trips generated by the land uses that were planned for the site area (low/med density residential). This will assist in understanding the magnitude of impact the proposal will have on the strategic assessments undertaken to date. This may require input from the project town planner to have an idea of the likely development yield on the site.
- Ensure that the report includes details of the timing of each stage of works incl. expected student capacity at each stage (and other demand characteristics associated with uses outside school hours).
- Details of catchment area.
- Assess expected student/staff demand on regular public bus services (and methods to capture expected demand throughout life of development to assist with service planning – via ongoing operation of Green Travel Plan). The expected demands should be assessed against the existing service through Austral (believe it is currently only the 855 service operating along Edmondson Ave). From my personal view, it is unlikely that the route along Edmondson Avenue would be augmented to stop directly in front of the site and therefore the walking route from the bus stop should be assessed.
- Details of any proposed school courtesy bus service (as a travel demand management measure).
- Details of how infrastructure is delivered on the surrounding roads – via S94 contributions or WIK.

It is emphasised that the comments provided above are informal and of a Pre-DA nature. They are not to be interpreted as binding and may change following formal assessment of a submitted development application from the appropriate consent authority.

Happy to discuss any further aspects of the assessment, if required.

Regards,

Ken Ho
Transport Planner
Freight, Strategy & Planning
Transport for NSW

L4 241 O'Riordan Street, Mascot NSW 2020



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for NSW

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From: Rhys Hazell [mailto:Rhys.Hazell@cbrk.com.au]
Sent: Friday, 2 March 2018 4:21 PM
To: Ho, Ken
Cc: COMAN Malgy
Subject: RE: SSD 8865 Austral Catholic School - request for meeting
Importance: High

Hi Ken,

Could you please provide any comments you may have as it relates to the email trail below.

Malgy also called me and mentioned that RMS doesn't necessarily need to meet and your thoughts on the TfNSW approach to the preferred consultation on this project would be great. If a meeting is necessary, then I would like to arrange for next week and if not, any additional comments you may have are appreciated.

The most important question is regarding traffic and the extent of modelling completed by Aecom for the Department of Planning and Infrastructure as part of the Austral and Leppington North Precincts transport assessment back in 2012. We have their reports (and addendum) in which the north-south midblock volumes are shown, however no turning movements are included so without more detailed information, we will need to make some assumptions when modelling the immediate intersections surrounding the site.

Happy to discuss anytime.

Regards

Rhys Hazell
Associate Director
Colston Budd Rogers & Kafes Pty Ltd
02 9411 2411 | 0431 426 532
Suite 1801, Zenith Centre Tower A, 821 Pacific Hwy, Chatswood NSW 2067
PO Box 5186, West Chatswood, NSW 1515
rhys.hazell@cbrk.com.au

From: COMAN Malgy [<mailto:Malgy.COMAN@rms.nsw.gov.au>]
Sent: Tuesday, 27 February 2018 2:38 PM
To: Rhys Hazell <Rhys.Hazell@cbrk.com.au>
Cc: Ho, Ken <Ken.Ho@transport.nsw.gov.au>
Subject: RE: SSD 8865 Austral Catholic School - request for meeting

Hi Rhys,

I am happy to organise a meeting to discuss this school development. But can you please provide me with more information regarding the proposed staff and student numbers, the likely trip generation rates and trip distribution for the surrounding road network, and where the pedestrian access points/new school speed zones are likely to be located on the road network. Also are you proposing any new traffic signals or pedestrian crossing facilities?

Ken do you require any additional information regarding bus services and active transport facilities for this development before I organise a meeting with Rhys?

Regards,

Malgy

From: Rhys Hazell [<mailto:Rhys.Hazell@cbrk.com.au>]
Sent: Friday, 23 February 2018 12:37 PM
To: Ho, Ken; Development Sydney; COMAN Malgy
Cc: CUMMING Rachel; Ozinga, Mark; Stan Kafes; Tim Rogers
Subject: SSD 8865 Austral Catholic School - request for meeting

Hi Ken, Malgy,

I am writing with respect to St Anthony of Padua Catholic School (Concept DA and Stage 1) located at 126-165 Tenth Avenue and 140-170 Eleventh Avenue, Austral (SSD 8865). Both RMS and TfNSW formally responded in mid-December 2017 as part of the SEARs. I have attached the SEARs for your reference.

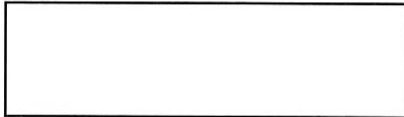
We are assisting the applicant with respect to all traffic, transport, parking, pedestrian etc. matters and would like to arrange a meeting with both TfNSW and RMS to allow us to move forward with the application. Your thoughts and preferences etc. in this regard is obviously important.

Like most projects, the timelines are tight and we would appreciate the opportunity to meet in the next 1-2 weeks (preferably by Friday 9/3/18).

Please don't hesitate to contact me should you prefer to discuss.

Regards

Rhys Hazell
Associate Director
Colston Budd Rogers & Kafes Pty Ltd
02 9411 2411 | 0431 426 532
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PO Box 5186, West Chatswood, NSW 1515
rhys.hazell@cbrk.com.au



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Rhys Hazell

From: Rhys Hazell
Sent: Tuesday, 20 March 2018 5:42 PM
To: 'qus@liverpool.nsw.gov.au'
Cc: 'wiafec@liverpool.nsw.gov.au'
Subject: SSD 8865 Austral Catholic School - transport and access RFI
Attachments: 20171220 SSD 8865 SEARs.pdf

Hi Stella,

Thanks for the discussion in relation to the transport and access matters with respect to St Anthony of Padua Catholic School (Concept DA and Stage 1) located at 126-165 Tenth Avenue and 140-170 Eleventh Avenue, Austral (SSD 8865). Liverpool City Council (and RMS and TfNSW) formally responded in mid-December 2017 as part of the SEARs. I have attached the SEARs for your reference.

We are assisting the applicant with respect to traffic, transport, parking, pedestrian etc. matters and seek any further comments that Council may have given the extent of development in the area and changes from the precinct plan. We have recently discussed similar matters with TfNSW (Ken Ho) and RMS (Malgy Coman) who each felt no firm need for a meeting while reiterating their respective earlier responses. Ken also provided the following comments:

- Agree that assumptions would be required when modelling the immediate intersections surrounding the site given that Austral remains relatively undeveloped. Conservative assumptions should be adopted.
- Trip generation assessment should also be compared against the peak hour trips generated by the land uses that were planned for the site area (low/med density residential). This will assist in understanding the magnitude of impact the proposal will have on the strategic assessments undertaken to date. This may require input from the project town planner to have an idea of the likely development yield on the site.
- Ensure that the report includes details of the timing of each stage of works incl. expected student capacity at each stage (and other demand characteristics associated with uses outside school hours).
- Details of catchment area.
- Assess expected student/staff demand on regular public bus services (and methods to capture expected demand throughout life of development to assist with service planning – via ongoing operation of Green Travel Plan). The expected demands should be assessed against the existing service through Austral (believe it is currently only the 855 service operating along Edmondson Ave). From my personal view, it is unlikely that the route along Edmondson Avenue would be augmented to stop directly in front of the site and therefore the walking route from the bus stop should be assessed.
- Details of any proposed school courtesy bus service (as a travel demand management measure).
- Details of how infrastructure is delivered on the surrounding roads – via S94 contributions or WIK.

It is emphasised that the comments provided above are informal and of a Pre-DA nature. They are not to be interpreted as binding and may change following formal assessment of a submitted development application from the appropriate consent authority.

The most important question is regarding traffic and the extent of modelling completed by Aecom for the Department of Planning and Infrastructure as part of the Austral and Leppington North Precincts transport assessment back in 2012. We have their reports (and addendum) in which the north-south midblock volumes are shown, however no turning movements are included so without more detailed information, we will need to make assumptions when modelling the immediate intersections. This is consistent with Ken's comments above.

As discussed, please provide any such available traffic volume data/land use assumptions/zonings/densities etc. that may need to be incorporated into our assessment. We also understand that submitted DA's may include additional traffic over and above those included in the precinct plan. We will obviously consider the increase in traffic relative to the approved land uses (low and medium residential). Any further context on Edmondson Avenue and Fourth Avenue layouts (cross-sections, road reserves etc.) would also be of benefit (and any LCC application for widening the Fourth Avenue road reserve).

I look forward to hearing from you and happy to discuss further if required.

Regards

Rhys Hazell
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