



PLANNING PROPOSAL FOR GRAN CENTRAL MIXED-USE DEVELOPMENT

TRAFFIC & PARKING IMPACT ASSESSMENT

Parramatta Road / Cowper Street / Good Street, Granville

FINAL Issue: 16th December 2014



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PLANNING PROPOSAL
MIXED-USE RESIDENTIAL / RETAIL / COMMERCIAL
PARRAMATTA ST / COWPER ST / GOOD ST, GRANVILLE
NSW 2142

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1 INTRODUCTION

McLaren Traffic Engineering was commissioned by *Airbosi Pty Ltd* to provide a traffic and parking impact assessment of a planning proposal for the proposed Gran Central mixed use development on the site bounded by Parramatta Road, Cowper Street and Good Street in Granville NSW. As part of the proposal, a total of fifteen (15) lots on the proposed site will be amalgamated to accommodate the development. The site is located within the B2 – Local Centre, B4 – Mixed Use and B6 – Enterprise Corridor zones with existing maximum FSR's of 2.0, 3.0 and 6.0 respectively which will increase to approximately 7.0 as part of the proposal.

The proposal will include a 38-storey residential tower above a commercial/retail podium, plus an additional 4-storey building with ground floor retail and 3 residential levels on the eastern side of the site fronting Good Street. The proposal will include the following:

- 396 residential apartments
 - 35 x studio
 - 36 x 1 bedroom
 - 320 x 2 bedroom
 - 5 x 3 bedroom
- 3,000m² Commercial GFA fronting Parramatta Road
- 1,600m² Retail GFA fronting Good Street and new pedestrian laneway
- Four basement car parking levels for 560 cars

This is a broad scope analysis and a refined scale of development would be required prior to DA for the development. Conceptual plans of the proposal are reproduced in **Annexure A**.

1.1 State Environmental Planning Policy (Infrastructure) 2007

The proposed development does qualify as a traffic generating development with relevant size and/or capacity under Clause 104 of the SEPP (Infrastructure) 2007. Accordingly, formal referral to the Roads and Maritime Services (RMS) is necessary.

The site is located within the jurisdiction of Parramatta City Council.

2 EXISTING CONDITIONS

2.1 Site Description

The subject site in Granville fronts Parramatta Road on its southern side and is also bounded by Cowper Street to the east and Good Street on its southern boundary, as shown in **Figures 1 & 2**. The development proposal will include the amalgamation of fifteen lots currently existing on the site with a number of detached dwellings and commercial developments to be demolished to accommodate the proposal. A Caltex service station and a proposed development are located adjacent to the site along its western boundary and are also bounded by Parramatta Road and Cowper Street. The site fronts Parramatta Road, Cowper Street and Good Street with current vehicle access from Parramatta Road and Cowper Street to existing developments on the site.

The existing fifteen (15) lots on the site can be broken up into 7 areas by their land use as follows:

- Area 1 – Car Yard, 330m² land size
- Area 2 – Office Furniture Store, bulky goods, approx. 1,900m² GFA
- Area 3 – Car Yard, 1,200m² land size
- Area 4 – Retail / Office, approx. 520m² GFA
- Area 5 – Retail (Butcher / Hairdresser), approx. 480m² GFA
- Area 6 – Residential house, assume 3 bed, 310m² land size
- Area 7 – Demolished Residential house, assume 3 bed, 310m² land size

2.2 Road Hierarchy

Western Motorway (M4) has the following characteristics within close proximity to the site:

- RMS Classified MOTORWAY (Road No. 6004)
- Approximately 22m in width facilitating 3 traffic lanes in both directions
- Signposted variable speed limit, generally 90km/h carriageway

Parramatta Road has the following characteristics within close proximity to the site:

- RMS Classified STATE Road (Road No. 5)
- Approximately 18m in width facilitating 2 traffic lanes in both directions, divided by median
- Signposted 60km/h carriageway
- Generally 'No Parking' on both sides of the road with some 'No Stopping' zones also

Cowper Street has the following characteristics within close proximity to the site:

- Unclassified Local Road
- Approximately 12m in width facilitating one traffic lane in both directions
- 50km/h speed limit applies
- Multiple kerbside parking restrictions along both sides of the road

Good Street has the following characteristics within close proximity to the site:

- Unclassified Arterial Road
- Approximately 13m in width facilitating four lanes, varying between 4 traffic lanes and 2 traffic lanes with 2 parking lanes
- Signposted 50km/h carriageway
- 'No Stopping' signs installed near intersections and timed 'No Parking' for approximately 150m from the intersection with Parramatta Road

2.3 Existing Traffic Environment

The proposed WestConnex infrastructure upgrade package is a staged increase in capacity to the Western Motorway (M4) with works scheduled to be completed in 2021. The re-introduction of a toll on M4 would cause a number of road users to divert onto alternate routes to avoid paying the toll. Since Parramatta Road runs parallel to M4, this is the most likely diverted trip route. WestConnex has analysed Parramatta Road in relation to changes on the Western Motorway with previous surveys and current projections. Extracts from the WestConnex EIS are reproduced in **Annexure B** for reference.

In 2005 the RMS surveyed the AADT of Parramatta Road at Duck River Bridge, approximately 400m east of the subject site, to be 58,667. It is noted that Parramatta Road is currently at one of its lowest ever traffic volumes per day, reducing from the 2005 volumes of 58,667 to 51,800 in 2012. In essence, the projected traffic on Parramatta Road will revert back to the volume of 2005 when completed in 2021. Traffic volume changes prior to this point are due to network capacity, public transport, tolling scenarios and population increase. In 2021, the same point is projected to carry 59,370 vehicles per day, or a 1% increase from 2005. In 2031, assuming the entire WestConnex project is completed and 1.5 million new residents of Sydney are settled, Parramatta Road is projected to carry 62,490 vehicles per day, or a 6.5% increase from 2005.

Critical Intersections for the subject development have the following controls:

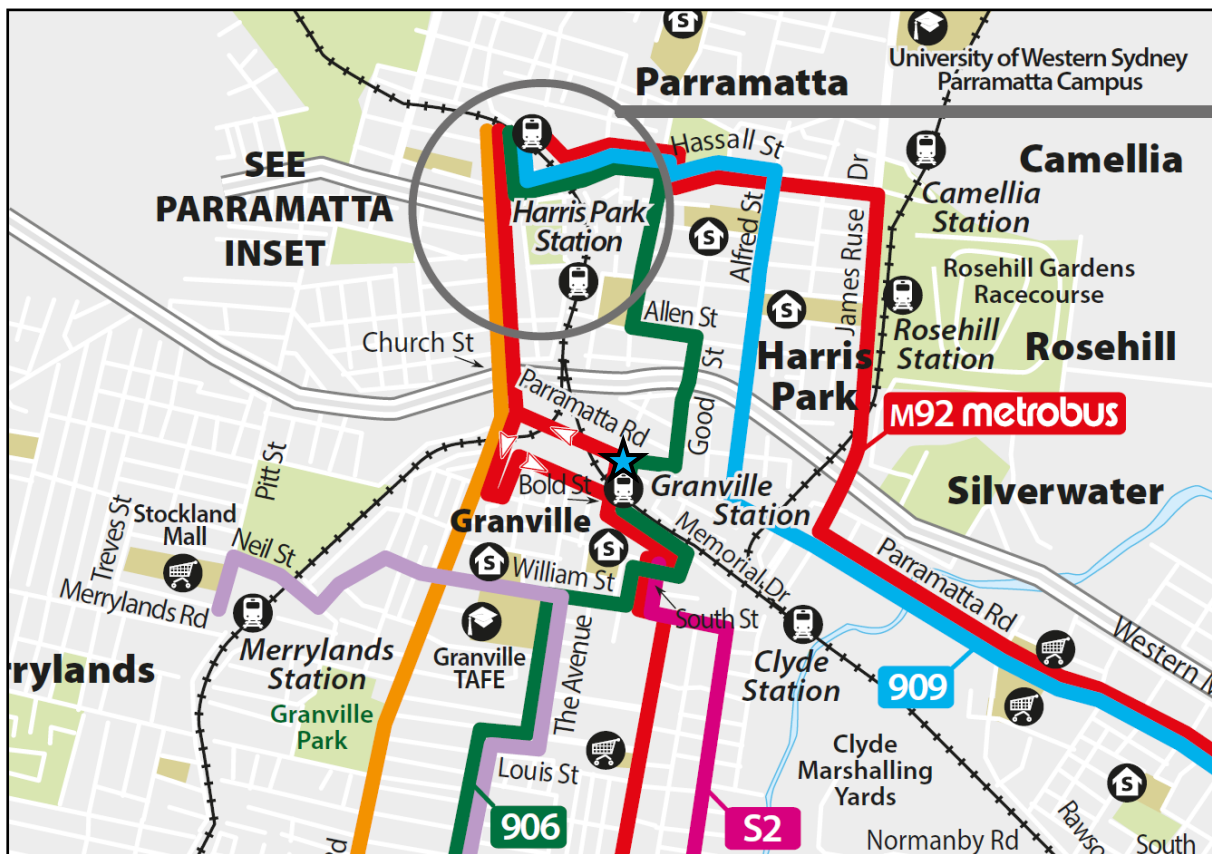
- Parramatta Road / Cowper Street – Signals
- Cowper Street / Good Street – Roundabout

- Parramatta Road / Bold Street – T-Intersection Signals
- Cowper Street / Bold Street – Give-way sign controlled T-Intersection

2.4 Public Transport Accessibility

The subject site is located adjacent to two bus stops on Good Street and Cowper Street respectively in which bus route 906 services. Route 906 is a suburban service connecting town centres and transport interchanges with residential areas. It has a frequency of 30mins during the AM and PM peaks and hourly servicing outside of peak times.

The site is only an approx. 200m walk from Granville Railway Station to the southeast. Granville Station is on both the Western and Southern railway lines with servicing in peak times of 15 minutes and 10 minutes respectively in each direction. This a very good level of service for railway access as the lines directly connect Granville to employment centres such as Parramatta CBD, Sydney CBD and other major transport interchanges.



★ Site Location

3 SCALE OF DEVELOPMENT

3.1 Proposed Development

The proposed mixed use development, represented by the conceptual plans in **Annexure A**, will include the construction of a 38-storey residential tower above a commercial/retail podium plus an additional 4-storey building with ground floor retail and 3 residential levels on the eastern side of the site fronting Good Street. A new pedestrian laneway will be constructed between the main tower and the eastern building, providing connectivity between Parramatta Road and Cowper Street with an arcade proposed between Good Street and the new laneway. The proposal will have the following scale:

- 396 residential apartments
 - 35 x studio
 - 36 x 1 bedroom
 - 320 x 2 bedroom
 - 5 x 3 bedroom
- 3,000m² Commercial GFA fronting Parramatta Road
- 1,600m² Retail GFA fronting Good Street and new pedestrian laneway
- Four basement car parking levels for 560 cars

The basement parking levels will be accessed via a two-way driveway and associated ramp from Cowper Street with a loading facility at the rear of the commercial podium accessed via the existing service lane from Bold Street to the west which will be linked to the proposed development during construction.

4 PARKING ASSESSMENT

4.1 Council Parking Requirement

Reference is made to *Parramatta DCP 2011 – Part 3: Development Principles* which designates the following MINIMUM parking rates for developments within 400m of high frequency public transport and within the Granville Town Centre precinct:

Residential Component of Mixed Use –

1 space per 1 or 2 Bedroom Unit

1.2 spaces per 3 Bedroom Unit

2 spaces per 4 Bedroom Unit

Plus 0.25 spaces per dwelling for visitor parking & a car wash bay which may also be a visitor space

Business and Retail Premises –

1 space per 60m² of GFA

Where there is a combination of land uses, a maximum of 40% of resident visitor parking can be used in the calculations for retail parking provided that these areas are shared

Table 1 below summarises Council's above car parking requirement

TABLE 1: DCP PARKING RATES

Land Use	Type	Scale	Rate	Spaces Required
Residential	1 bedroom	71	1 space per unit	71
	2 bedroom	320	1 space per unit	320
	3 bedroom	5	1.2 spaces per unit	6
	Visitor	396	1 space per 4 dwellings	99 including up to 40 dual-use
Retail	Shops	1,600m ²	1 space per 60m ² minus 40% of Residential Visitor Parking	27 (Can be dual-use)
Business	Commercial	3,000m ²	1 space per 60m ²	50
Total				546 including 27 dual-use

As shown above, a strict application of the DCP requires a total of 546 car parking spaces, and the provision of 560 spaces represents a surplus of 14 spaces.

A minimum requirement of 573 spaces is calculated without exercising Council's dual-use parking, representing a numeric shortfall of 13 spaces.

Given the close proximity of the development to Granville train station, the DCP requires a minimum of 1 car share space to be provided in lieu of 3 parking spaces. It is presumed that a reasonable volume of studio and 1 bedroom apartments at the site would not have parking spaces allocated and so 1-3 car share vehicles could be utilised to significantly benefit the site's attractiveness to purchasers and reduce its overall vehicular traffic generation.

Considering Parramatta City Council accepts the dual-use of visitor / retail parking, it is recommended that the proposed development provides these dual-use spaces on the plans submitted with the D.A and the provision of 560 spaces fully satisfies Council's off-street parking requirements.

4.2 Bicycle & Motorcycle parking Requirements

The DCP specified bicycle parking requirements are:

Retail and Business - 1 bicycle space per 200m² of floor space

Residential Flat Buildings – 1 bicycle space per 2 dwellings

All spaces to comply with Class as defined by AS2890.3 and may be located in storage areas if good access is provided

The above rates result in a total requirement of 221 bicycle spaces (198 for residents + 23 for the retail/commercial component). It is recommended that the retail component will provide the bicycle storage at ground level in a sheltered location and some as part of storage within the tenancies. The residential component should provide sheltered bicycle racks within the first basement level as well as sufficient space within each of the dwellings' storage areas for resident's bicycles.

The DCP does not specify a parking rate for motorcycles and hence the development is compliant without providing motorcycle parking.

4.3 Servicing & Loading

Council's DCP only generally controls the provision for service and delivery vehicles, stating "*Parking and service/delivery areas and vehicular access points are to be located to minimise conflict between pedestrians and vehicles and to minimise impact on residential amenity*". It is reasonable then for access points and the number of service bays to be checked for design and provision at the time of DA preparation.

The scale of mixed commercial/retail would require a loading dock provision with the simultaneous number of trucks determined by number of retail tenancies and the largest design vehicle determined by the type of tenancy. A supermarket would require either of an HRV (12.5m) rigid or AV (14m or 19m) articulated vehicle. Small shops would only require VAN or MRV (8.8m) access and hence could be accommodated by a smaller dock. It is anticipated that a third vehicular site entry will be constructed linking the site to Bold Street via the existing service lane on Bold Street.

4.4 Disabled Parking

Disabled parking should be checked at the time of DA preparation against volume of adaptable dwellings and Council's DCP which refers to the BCA for number of accessible visitor spaces.

4.5 Car Park Design & Compliance

Compliance of vehicle access and parking would be required prior to DA and requires a detailed set of plans. It is assumed that any parking and access would achieve compliant design according to AS2890.1, AS2890.2 and AS2890.6 or better.

5 TRAFFIC ASSESSMENT

The impact of the expected traffic generation levels associated with the subject proposal is discussed in the following sub-sections.

5.1 Traffic Generation

For the purposes of traffic generation, the RMS 'Guide to Traffic Generating Developments' (2002) suggests rates for projecting future developments. In 2013 the RMS publicised updated traffic generation rates for high density residential dwellings (RMS Technical Direction TDT 2013/04) and these rates will be used where applicable. The rates and attributed vehicle trips are presented below with existing traffic generation of the site taken into consideration.

The existing traffic generation of the entire fifteen-lot site is summarised in **Table 2** below.

TABLE 2: ESTIMATED TRAFFIC GENERATION

Use	Scale	Peak Hour Rate	Peak Hour Generation	Peak Hour Split	
				AM	PM
PROPOSED FUTURE TRAFFIC					
Residential	396 units	0.19 per unit ⁽¹⁾	75	15 in 60 out	60 in 15 out
Retail	1,600m ² GFA	5.6 per 100m ²⁽⁴⁾	90	45 in 45 out	45 in 45 out
Office	3,000m ² GFA	2 per 100m ²⁽⁵⁾	60	48 in 12 out	12 in 48 out
Total	-	-	225	108 in 117 out	117 in 108 out
LESS: EXISTING TRAFFIC					
Residential Dwelling	2 dwellings	0.85 per unit ⁽¹⁾	-2	0 in 2 out	2 in 0 out
Car Yard	1,530m ² site area	0.7 per 100m ²⁽²⁾	-11	6 in 5 out	5 in 6 out
Bulky Goods	1,900m ² GFA	2.5 per 100m ²⁽³⁾	-48	24 in 24 out	24 in 24 out
Retail	1,000m ² GFA	5.6 per 100m ²⁽⁴⁾	-56	28 in 28 out	28 in 28 out
Total	-	-	-117	58 in 59 out	59 in 58 out
NET TOTAL	-	-	+108	50 in 58 out	58 in 50 out

Notes: (1) Assumes 20% inbound & 80% outbound during AM peak: Vice versa for PM.

(2) Assumes 50% inbound & 50% outbound during AM peak: Vice versa for PM.

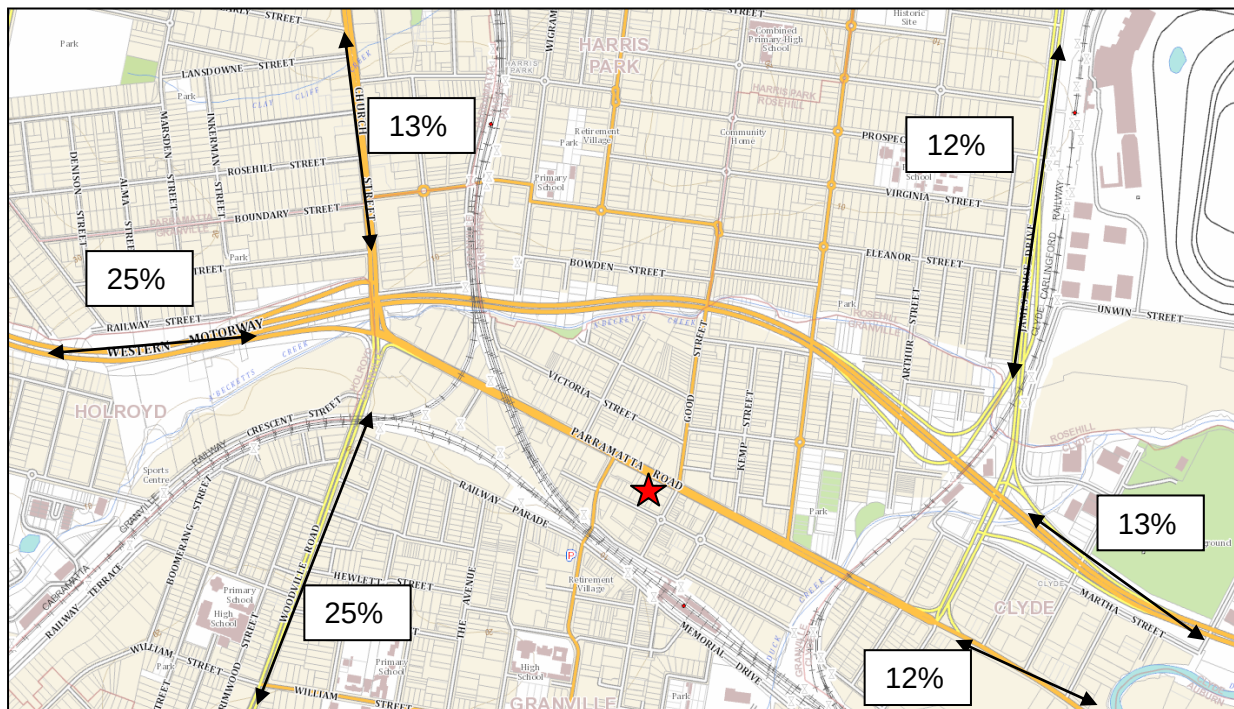
- (3) Assumes 50% inbound & 50% outbound during PM peak. AM is not the peak trade for bulky goods retail however has been assumed to be the same as the AM period.
- (4) Assumes 50% inbound & 50% outbound during PM peak. AM is not the peak trade for retail however has been assumed to be the same as the AM period. Rate utilised from shopping centre specialty store which is a worst case scenario for the small retail premises.
- (5) Assumes 80% inbound & 20% outbound during AM peak: Vice versa for PM.

As shown above, the maximum traffic generation associated with the proposed development is in the order of 108 vehicle trips above the existing traffic generation for the site.

5.2 Traffic Assignment

Considering the central nature of Granville, with numerous directions for employment, it is assumed that an even split of traffic will occur between the four cardinal directions. The following diagram shows the broad scale traffic assignment:

DIAGRAM 1: WIDE TRAFFIC ASSIGNMENT



The local scale traffic assignment takes into account the above broad scale and is represented below:

DIAGRAM 2: LOCAL TRAFFIC ASSIGNMENT (INGRESS)

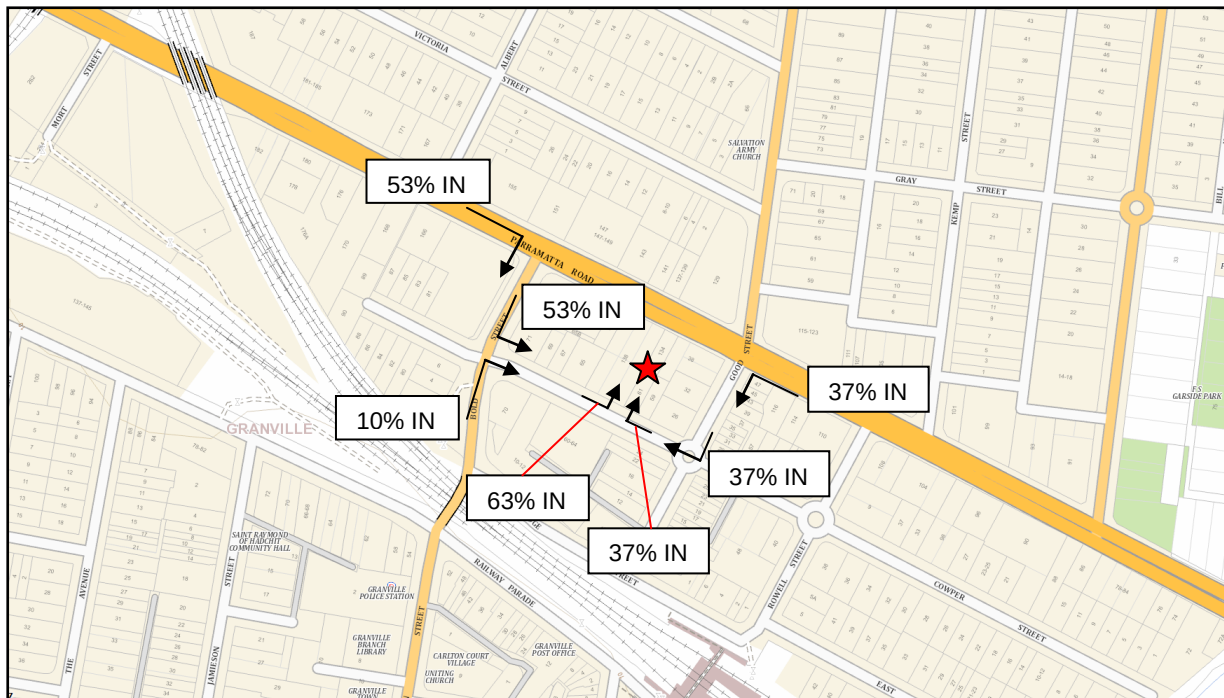
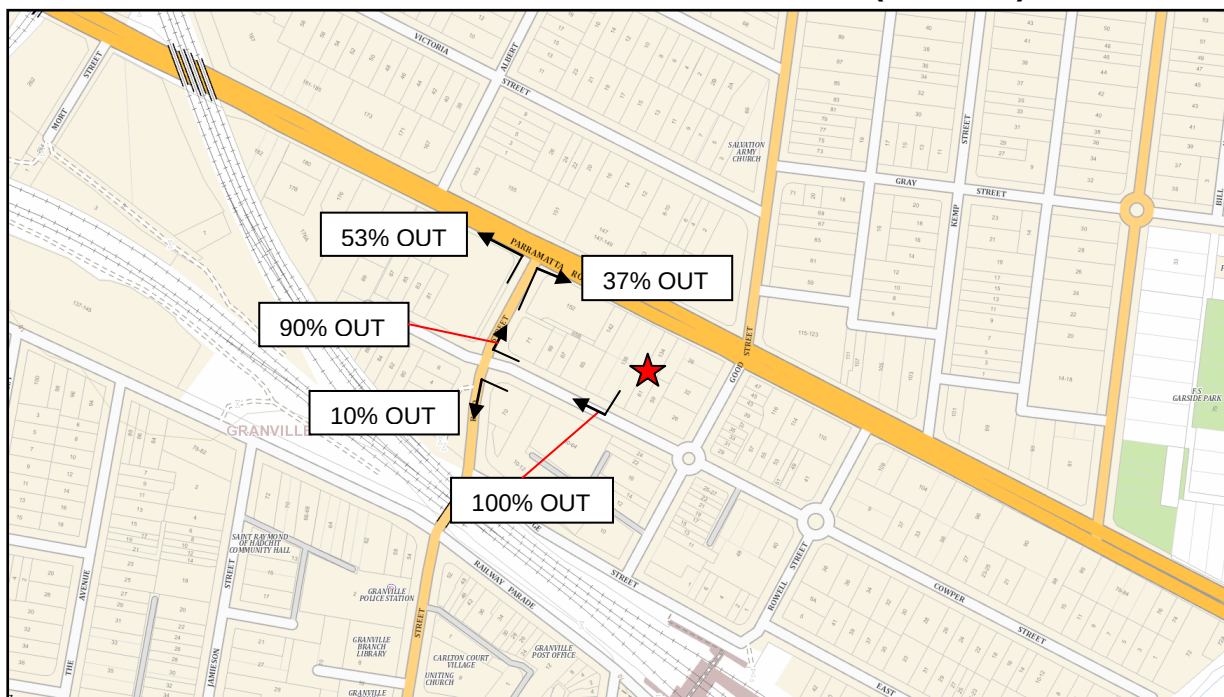


DIAGRAM 3: LOCAL TRAFFIC ASSIGNMENT (EGRESS)



Using the generating vehicle trips presented in **Table 2**, the development will hence have trips distributed locally according to the following diagram:

DIAGRAM 4: AM/PM TRIP GENERATION (INGRESS)

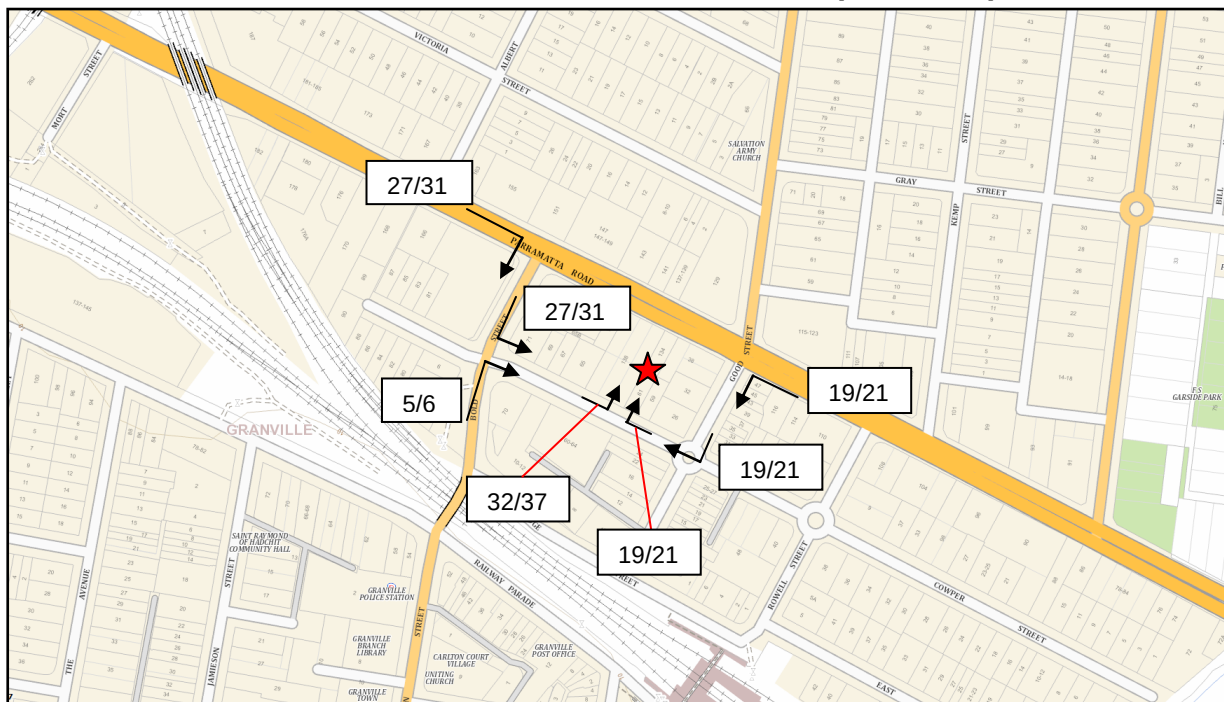
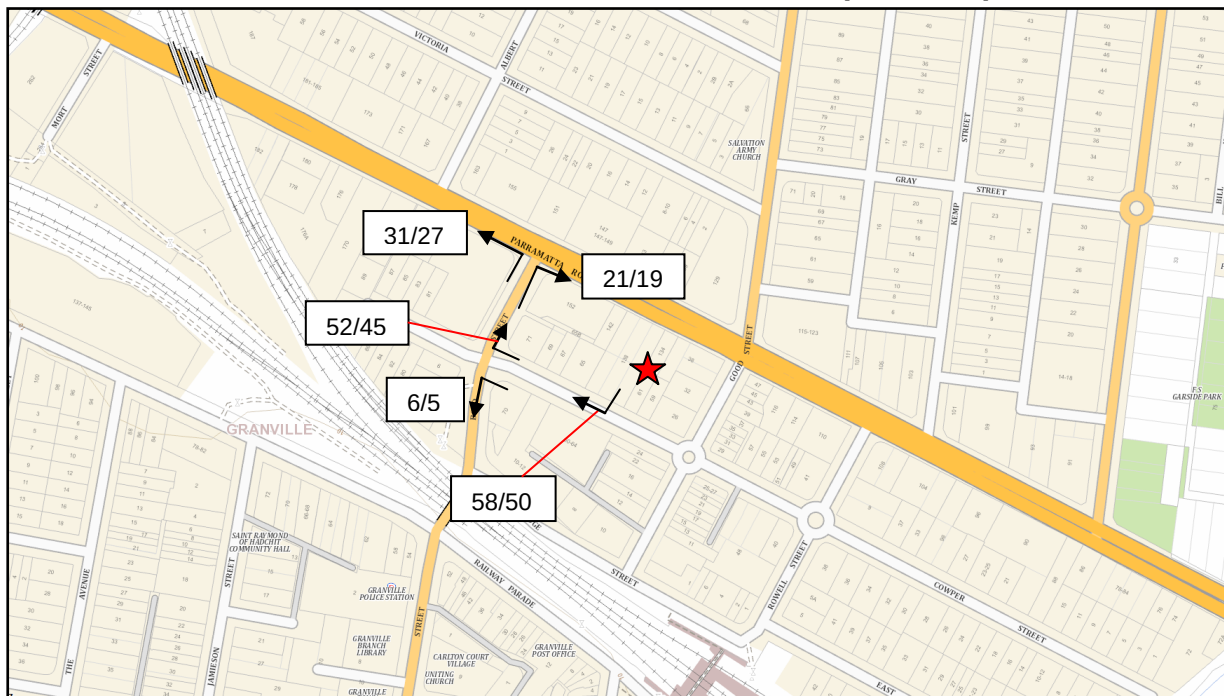


DIAGRAM 5: AM/PM TRIP GENERATION (EGRESS)



5.3 Traffic Impact

The volumes of traffic generated by the site are not high and as such are not deemed excessive considering existing volumes of the surrounding network, especially Parramatta Road.

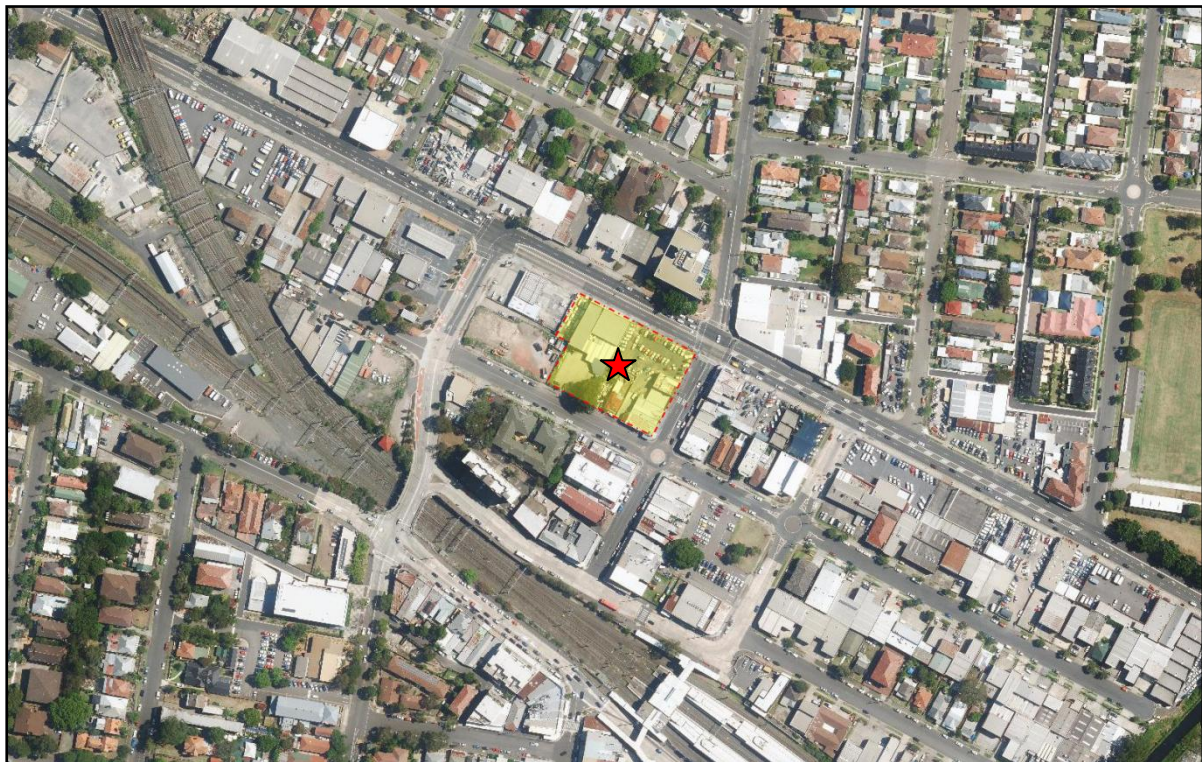
The addition of the site's traffic will increase the saturation of turning vehicles at the critical intersection of Bold Street and Parramatta Road, though the junction may have sufficient capacity to accommodate this. It would be reasonable to perform detailed intersection analysis at DA preparation stage, incorporating the projected data from the WestConnex EIS, and refining the directions of vehicular access arrangement to allow best absorption of new trips onto the existing road network. If the re-zoning was to be extended beyond the site, to the point of the general area between Parramatta Road and Western Motorway being given higher building heights and FSR, then a network modelling exercise would be required. In any case it is likely that intersection capacity is expected to be the determining factor in terms of traffic impacts for the proposal.

Further, it should be noted that the traffic generation rates used in **Tables 2** adopt a generic specialty shop outcome for the entire retail tenancy area which is significantly higher than a generic bulky goods component (1.0 trips vehicle trips per hour per 100m²) but less than a supermarket component outcome (13.8 trips vehicle trips per hour per 100m²).

6 CONCLUSION

In view of the foregoing, the mixed use subject proposal for 396 residential units, 3000m² commercial office GFA and 1,600m² retail GFA is generally supportable on grounds of traffic and parking, subject to more detailed traffic and parking assessments at DA stage.

Intersection capacity analysis will be required for any DA of the scale referred to and network modelling will be required if zoning changes allow a wider area to increase GFA density and hence traffic generation.



★ Site Location

MIXED USE

PARRAMATTA ROAD, COWPER STREET &
GOOD STREET, GRANVILLE

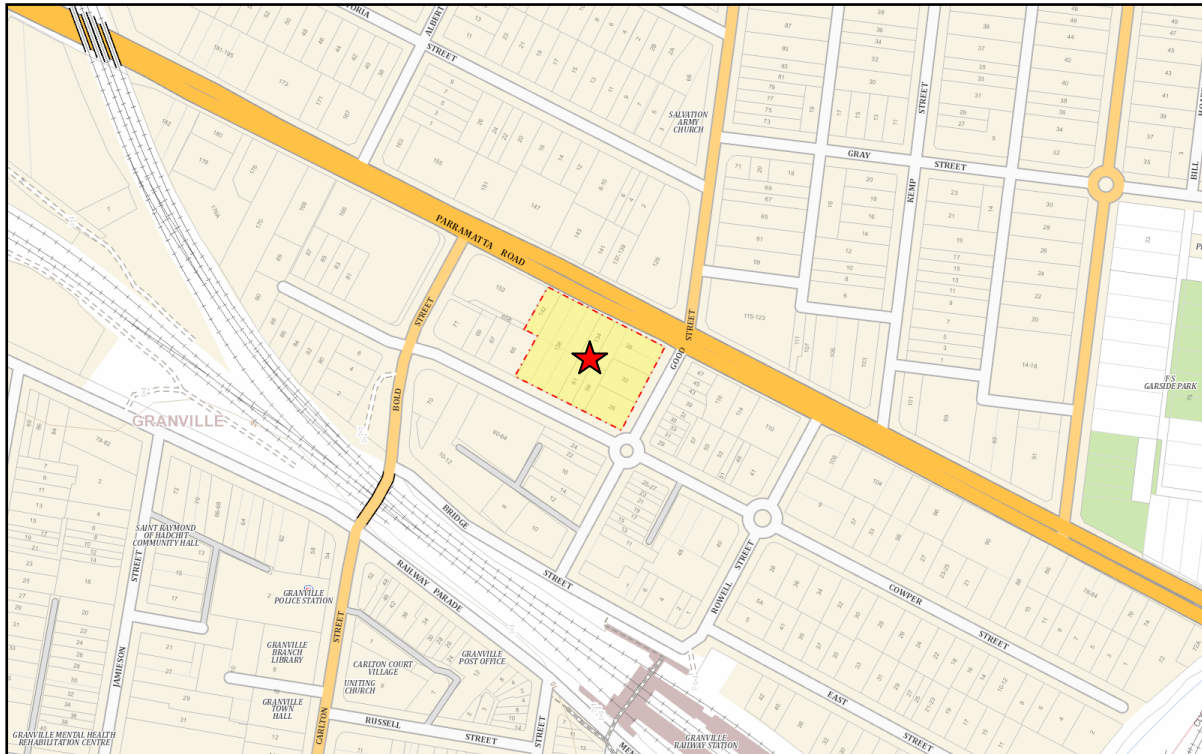


FIGURE 1:

AERIAL SITE LOCATION

PREPARED FOR: AIRBOSI PTY LTD

BY: M^CLAREN TRAFFIC ENGINEERING



★ Site Location

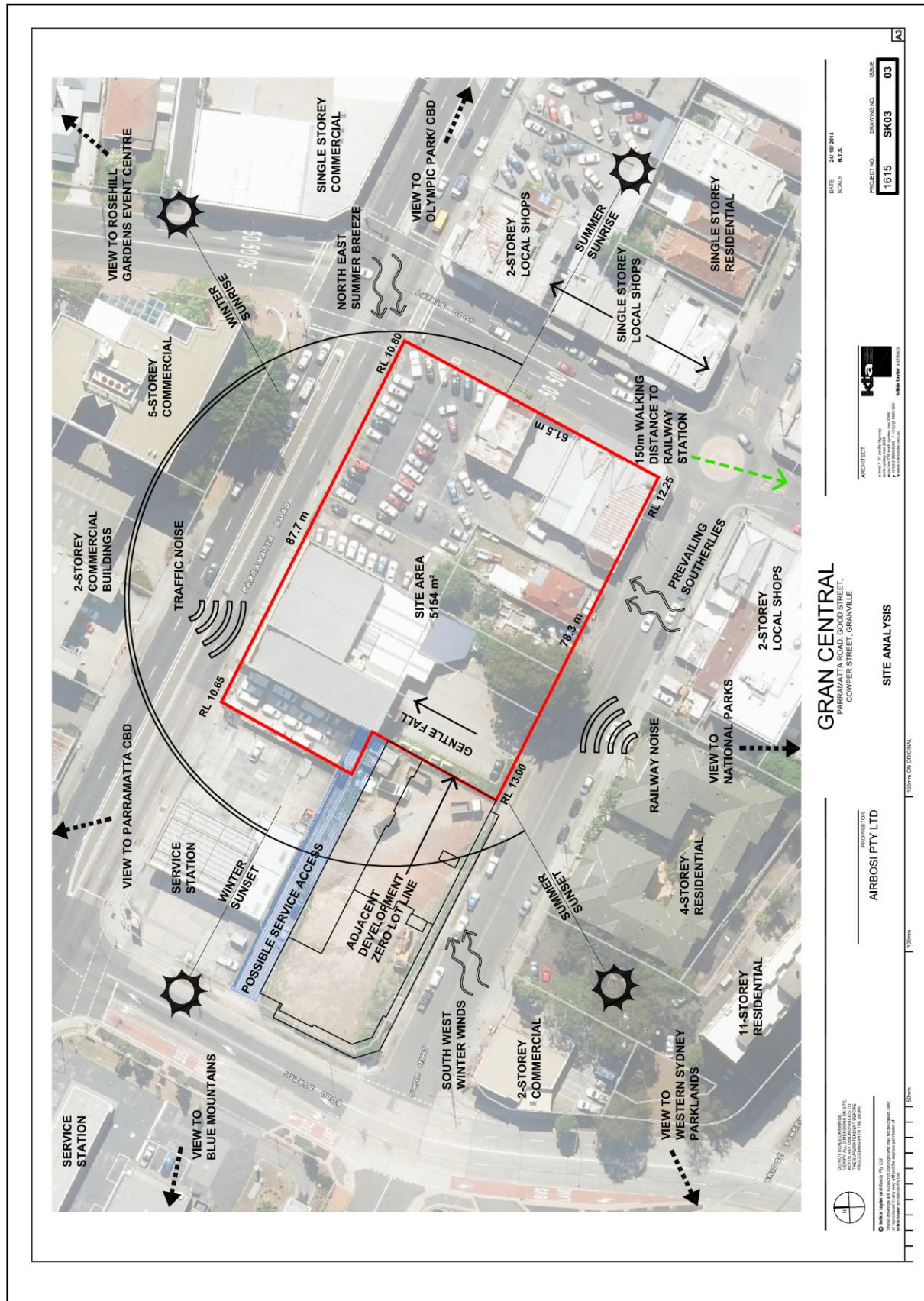
MIXED USE
PARRAMATTA ROAD, COWPER STREET &
GOOD STREET, GRANVILLE



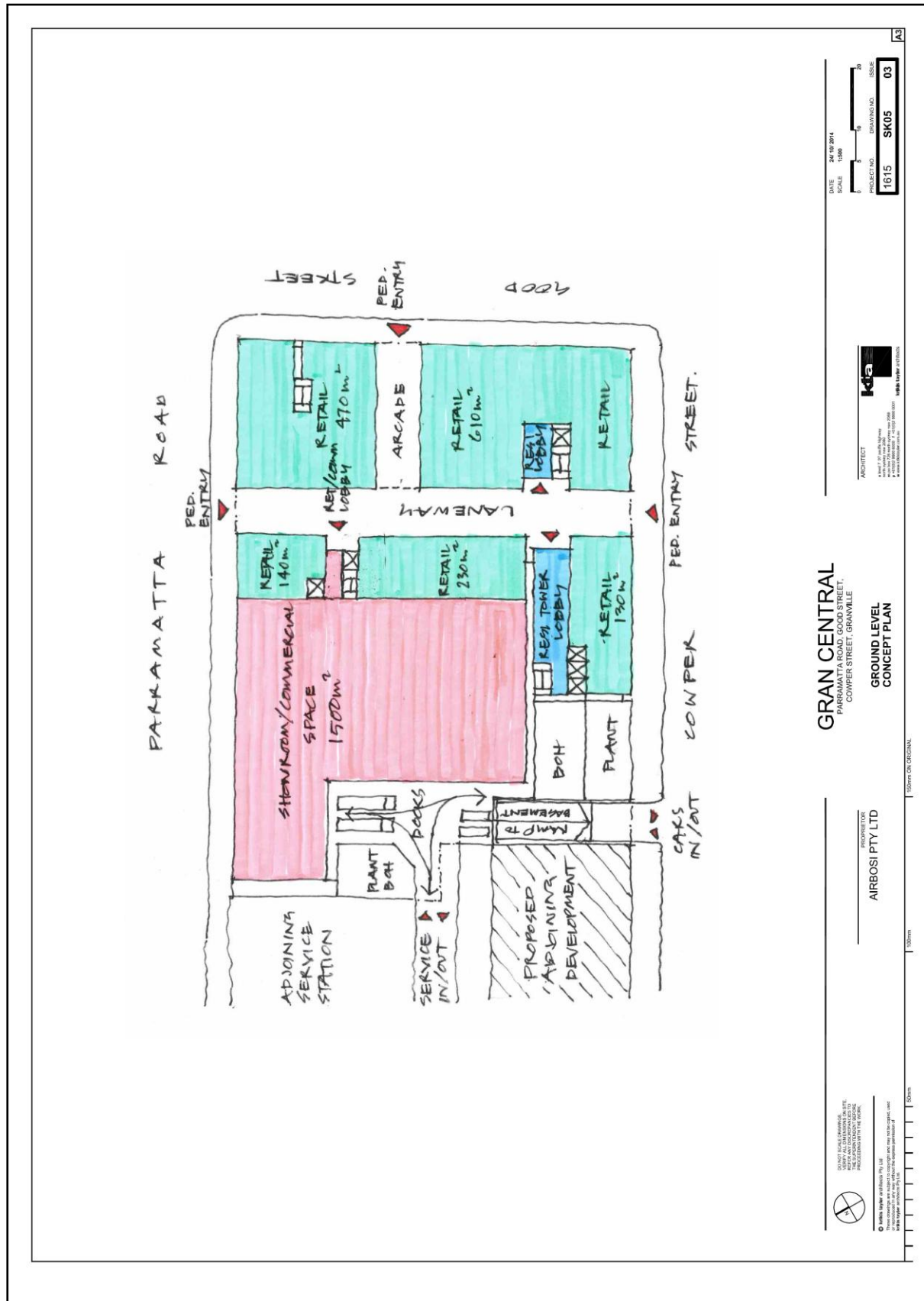
FIGURE 2:
MAP LOCATION

PREPARED FOR: AIRBOSI PTY LTD
BY: M^CLAREN TRAFFIC ENGINEERING

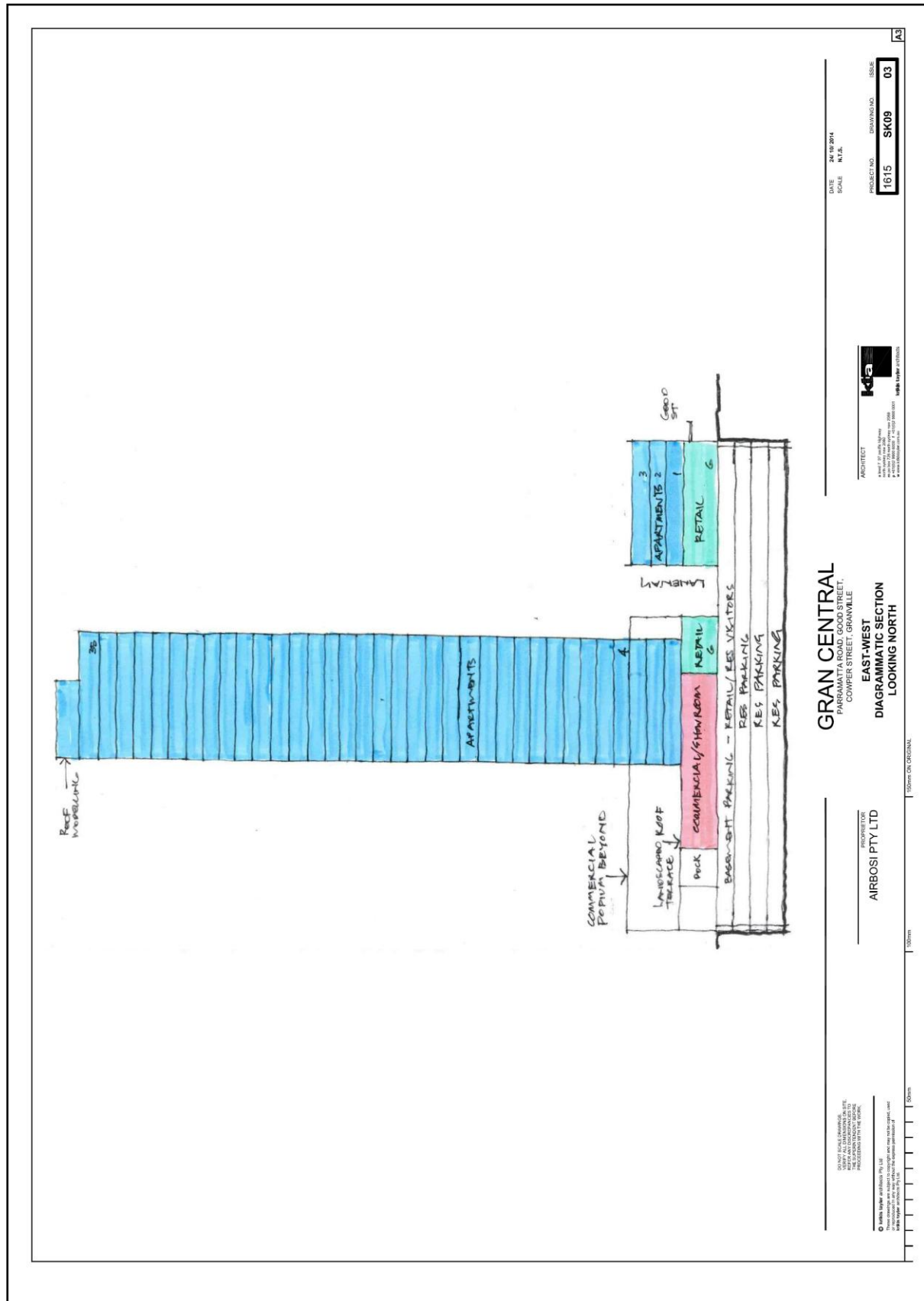
ANNEXURE A: CONCEPT PLANS (Sheet 1 of 3)



ANNEXURE A: CONCEPT PLANS (Sheet 2 of 3)



ANNEXURE A: CONCEPT PLANS (Sheet 3 of 3)



ANNEXURE B: WESTCONNEX EIS EXTRACTS (1 OF 3)

Chapter 4: Existing road network performance



Figure 4-13: Intersections that have been assessed in Granville

Source: AUSIMAGE, 2011

Table 4-5 shows the results of the interchange and intersection analysis. The analysis was based on traffic volumes obtained from a combination of intersection turning volume surveys and counts obtained from detectors at traffic signals.

The Parramatta Road/Good Street intersection operates satisfactorily in the morning peak and both the Parramatta Road/Bold Street and Parramatta Road/Good Street intersections operate satisfactorily in the evening peak. The longest queue during the morning and evening peaks occurs on the southern Woodville Road approach to the Church Street/Parramatta Road/Woodville Road/M4 Motorway westbound on-ramp intersection.

Table 4-5: Existing interchange and intersection operation, 2013

Intersection	Morning peak hour		Evening peak hour	
	Level of service	Average delay per vehicle (seconds)	Level of service	Average delay per vehicle (seconds)
Church Street/M4 Motorway eastbound off-ramp	D	43	D	51
Church Street/Parramatta Road/Woodville Road/M4 Motorway westbound on-ramp	D	43	E	63
Parramatta Road/Bold Street	D	56	C	38
Parramatta Road/Good Street	C	31	C	42

ANNEXURE B: WESTCONNEX EIS EXTRACTS (2 OF 3)



ANNEXURE B: WESTCONNEX EIS EXTRACTS (3 OF 3)

Table 7-2: Screenline volumes, Base 'do minimum' and M4 Widening

Road	Number of weekday vehicles		
	Without M4 Widening (Base 'do minimum') (2021)	M4 Widening (2021)	Difference
M4 Motorway	179,620	114,890	-64,730
Parramatta Road	43,990	59,370	15,380
M2 Motorway	118,050	123,940	5,890
Victoria Road	60,440	70,250	9,810

Source: Jacobs SKM, WestConnex Road Traffic Model, 2014

Table 7-3: Screenline volumes, Future 'do minimum' and Full WestConnex scheme

Road	Number of weekday vehicles		
	Without WestConnex (Future 'do minimum') (2031)	Full WestConnex (2031)	Difference
M4 Motorway	194,180	168,760	-25,420
Parramatta Road	52,030	62,490	10,460
M2 Motorway	140,430	140,840	410
Victoria Road	68,250	75,770	7,520

Source: Jacobs SKM, WestConnex Road Traffic Model, 2014