



**PLANNING PROPOSAL TO INCREASE FSR
FOR MIXED USE DEVELOPMENT
TRAFFIC IMPACT ASSESSMENT**

171 – 189 Parramatta Road, Granville

Final Issue: A – 24th September



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**PLANNING PROPOSAL TO INCREASE FSR FOR
MIXED RESIDENTIAL & RETAIL
171 – 189 PARRAMATTA STREET, GRANVILLE
NSW 2142**

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TABLE OF CONTENTS

1	INTRODUCTION	1
1.1	STATE ENVIRONMENTAL PLANNING POLICY (INFRASTRUCTURE) 2007.....	1
2	EXISTING CONDITIONS.....	2
2.1	SITE DESCRIPTION	2
2.2	ROAD HIERARCHY.....	2
2.3	EXISTING TRAFFIC ENVIRONMENT	3
2.4	PUBLIC TRANSPORT ACCESSIBILITY.....	3
3	SCALE OF DEVELOPMENT.....	5
3.1	PROPOSED DEVELOPMENT	5
4	PARKING ASSESSMENT.....	6
4.1	COUNCIL PARKING REQUIREMENT	6
4.2	BICYCLE & MOTORCYCLE PARKING REQUIREMENTS.....	8
4.3	SERVICING & LOADING	8
4.4	DISABLED PARKING.....	8
4.5	CAR PARK DESIGN & COMPLIANCE	9
5	TRAFFIC ASSESSMENT	10
5.1	TRAFFIC GENERATION	10
5.2	TRAFFIC ASSIGNMENT	11
5.3	TRAFFIC IMPACT	12
6	CONCLUSION.....	13

1 INTRODUCTION

McLaren Traffic Engineering was commissioned by *Catylis Properties Pty Ltd* on behalf of *Janpec Pty Ltd* to provide traffic impact assessment of the proposed rezoning of Floor space Ratio for mixed use development at 171-189 Parramatta Road, Granville. The existing control is $FSR \leq 2:1$. For purposes of this analysis it will be assumed that the FSR has been increased to 6:1 and a mixed use development constructed on the site.

The assumed development includes 480 two bed apartments and 5,500m² of ground floor mixed retail, distributed between two towers on separate podiums. This is a broad scope analysis and a refined scale of development would be required prior to DA for the development. An example site plan for the assumed development is 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 or capacity under Clause 104 of the SEPP (Infrastructure) 2007. Accordingly, formal referral to the Roads and Maritime Services (RMS) is necessary in addition to Parramatta City Council.

2 EXISTING CONDITIONS

2.1 Site Description

The subject site is between Parramatta Road and Victoria Street, Granville, as shown in **Figures 1 & 2**. Currently the site is occupied by some detached dwellings and bulky goods retail, with a significant portion also being vacant land. The site is bounded by residential properties to the north, a railway line to the west and Motor Vehicle Dealers opposite the site to the South of Parramatta Road. The site fronts Victoria Street and Parramatta Road and will utilise a previously approved LEFT-IN/LEFT-OUT slip lane to enter the site from Parramatta Road, with a secondary entry/exit on Victoria Street.

2.2 Road Hierarchy

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

- Classified Motorway
- 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:

- Classified State Road
- 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

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

- Unclassified Local Road
- A meandering design with a minimum of 6m width and generally 12m width
- Unsignposted 50km/h carriageway
- Unrestricted kerbside parking on the 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 previously approved DA assessed the traffic environment in 2009, assuming similar conditions to surveys conducted in 2005. The proposed West Connex 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. West Connex has analysed Parramatta Road in relation to changes on the Western Motorway with previous surveys and current projections. Extracts from the West Connex EIS are reproduced in **Annexure C** for reference.

In 2005 the RMS surveyed the AADT of Parramatta Road at Duck River Bridge, approximately 1.4km east of the subject site, to be 58667. It is noted that Parramatta Road is currently at one of its lowest ever traffic volumes per day, reducing from the 2005 volumes of 58667 to 51800 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 59370 vehicles per day, or a 1% increase from 2005. In 2031, assuming the full West Connex project is completed and 1.5 million new residents of Sydney are settled, Parramatta Road is projected to carry 62490 vehicles per day, or a 6.5% increase from 2005.

Critical Intersections for the subject development have the following controls:

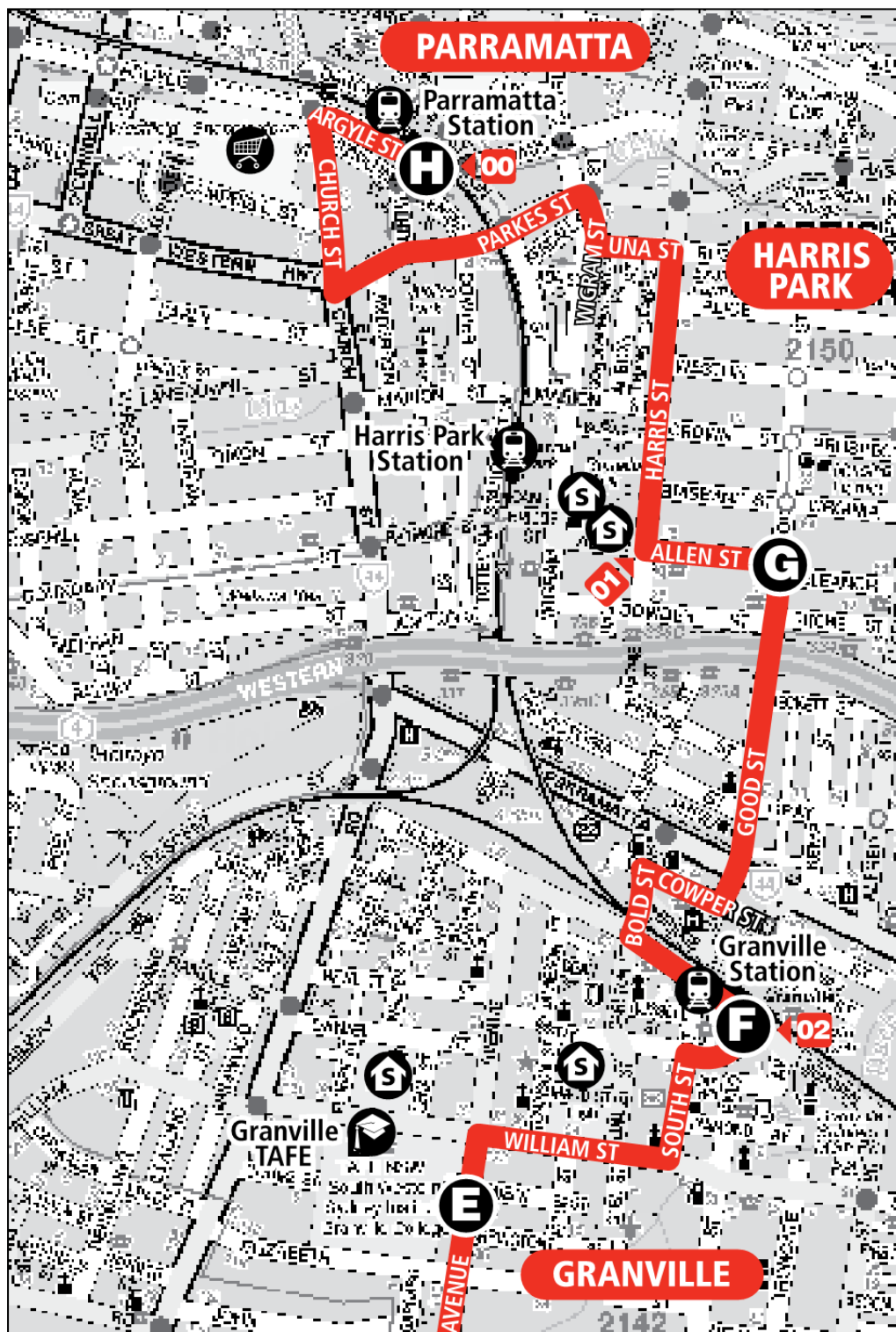
- Victoria Street/Albert Street – Give Way Signage
- Victoria Street/Good Street – T-Intersection Priority Controlled
- Good Street/Parramatta Road – Signals
- Bold Street/Parramatta Road – T-Intersection Signals

2.4 Public Transport Accessibility

The subject site has one bus stop within 400m, being the 906 bus route. 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.

500m walk from the site is Granville Railway Station. Granville station is on both the Western and Southern 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 Sydney CBD and other major transport interchanges.



3 SCALE OF DEVELOPMENT

3.1 *Proposed Development*

The proposed mixed use development, represented by the example site plan in **Annexure A**, is a modified version of the previously approved development (**Annexure B**) represented by the plans in. A scale and land use mix change is assumed according to conceptual advice provided. The analysed development has the following scale:

- 480 two bedroom apartments
- 5,500m² Retail GFA
- Basement Carparking for 650 cars

The basement car park is accessed via a slip lane and driveway on Parramatta Road, with separated entry and exit ramps, and a secondary two way access ramp from Victoria Street. Pedestrian and cycleway links will also be constructed surrounding the site, improving the conditions well beyond existing.

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 not within 400m of high frequency public transport, though within the Granville Town Centre precinct:

Residential Component of Mixed Use –

0.6 Spaces per Studio Unit

1 space per 1 Bedroom Unit

1.25 spaces per 2 Bedroom Unit

1.5 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	2 bedroom	480	1.25 spaces per dwelling	600
	Visitor	480	1 space per 4 dwellings	120 including up to 48 Dual Use
Retail	Shops	5500m ²	1 space per 60sqm minus 40% of Residential Visitor Parking	44 + 48 Dual Use
Total				764 including 48 Dual Use

As shown above, a strict application of the DCP requires a total of 764 parking spaces, and the provision of 650 spaces represents a shortfall of 114 spaces.

The public transport accessibility level (PTAL) referred to by the DCP is only minorly beyond the 400m arbitrary limit. Bus Route 906 is 300m walking distance to the site, with 30 min servicing in both directions to numerous transport interchanges including Parramatta Transport Interchange. Granville Railway Station is 500m walking

distances from the site, which services the Western and Southern Lines with AM peak period servicing of 15 minutes and 10 mins respectively in both directions. It is reasonable then to assume the development would not operate significantly different than if it were 100m closer by foot to Granville Railway Station. This reduces the 2 Bedroom parking requirement to 1 space per dwelling and dwelling parking total of 480 spaces.

The development was previously assessed for purposes of Development Application in 2005, when the parking rate applicable to the site was a MAXIMUM parking rate, compared to the current MINIMUM parking rate. The site previously provided residential and retail parking at a rate of 78% of the maximum (174 spaces of a maximum 223). The maximum rates were sourced from Sydney Regional Environmental Plan No. 28 and the Parramatta DCP 2011 parking rates have applied those MAXIMUM rates as MINIMUM rates. Considering the approval of the previous DA, with the approved parking plan shown in **Annexure A**, a similar procedure could provide a minimum baseline for the new DA.

Adjusted DCP Requirement = 480 RES + 72 VIS + 48 DUAL + 44 RETAIL
 = 644

Minimum Parking = 78% X (DCP Requirement)
 = 0.78 X (644)
 = 465 + 37 Dual Use
 = 502

The Minimum provision of parking is hence 502 parking spaces. The previously approved development also had duplex dwellings on part of the site which are now removed in place of podium and a residential tower. It is anticipated that approximately 200 spaces could be accommodated per basement. If four full basement levels were installed this would allow approximately 650 parking spaces including circulation and manoeuvring areas, satisfying the Adjusted DCP requirement of 644 spaces. An allocation would be in the order of 480 Residential + 150 dual use spaces for the residential visitors and retail customers + 40 spaces for retail staff. This is a reasonable provision and would satisfy the objectives of the DCP even if not strictly satisfying the numerical requirements. The allocation of 100% 2 bedroom apartments is for simple analysis only and there would certainly be a split between studio, 1 bed, 2 bed and 3 bed units. It is likely that a reasonable unit mix would generate a post adjustment parking requirement between 650 and 700 parking spaces for 480 units and 5500m².

Given the 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.

4.2 Bicycle & Motorcycle parking Requirements

The DCP specified bicycle parking requirements are:

Retail and Business - 1 bicycle space per 200sqm 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 development would require a total of 253 bicycle spaces. 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 at a rate of 1 per 5 dwellings (96 spaces) and the remaining requirement to be located within the dwellings' storage areas.

The DCP does not specify a parking rate for motorcycles and hence the development with no motorcycle parking is compliant. A rate of 1 motorcycle space per 50 parking spaces would be reasonable, equating to 11 spaces, however is not required as stated.

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 number of service bays to be checked for design and provision to be done 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 may be required on conversion of the Victoria Street driveway to accommodate larger delivery vehicles.

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.

While the Council DCP does state “*Development on arterial road is to seek access via a secondary street where possible*”. The previously DA achieved access to Parramatta Road in a safe and compliant way despite there also being a potential access from a secondary street. The design of the slip lane is approved and would be supportable for a new development on the subject site if similar design principles were used.

5 TRAFFIC ASSESSMENT

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 provided updated traffic generation rates for high density residential dwellings and these rates will be used where applicable. Considering the development is seeking to reduce the parking requirement slightly, the trips generated are likely to be lower, though no reduction will be applied as a means of sensitivity testing. The existing site would generate a level of traffic which has been considered. The rates and attributed vehicle trips are presented below.

TABLE 2: TRAFFIC GENERATION – WEEKDAY AM PEAK

Land Use	Scale	Rate			Nett Total
		Per Unit	Per space	Per Bed	
Future Residential	480	0.19	0.15	0.09	+ 91/83/86
Future Mixed Retail	5,500sqm	2.8 per 100sqm (50% of PM)			+ 154
Existing Residential	2-3 dwellings	1 per dwelling			- 2
Existing Bulky Goods Retail	3850sqm	1.25 per 100sqm (50% of PM)			- 48
Total					+ 195 (Maximum)

TABLE 3: TRAFFIC GENERATION – WEEKDAY PM PEAK

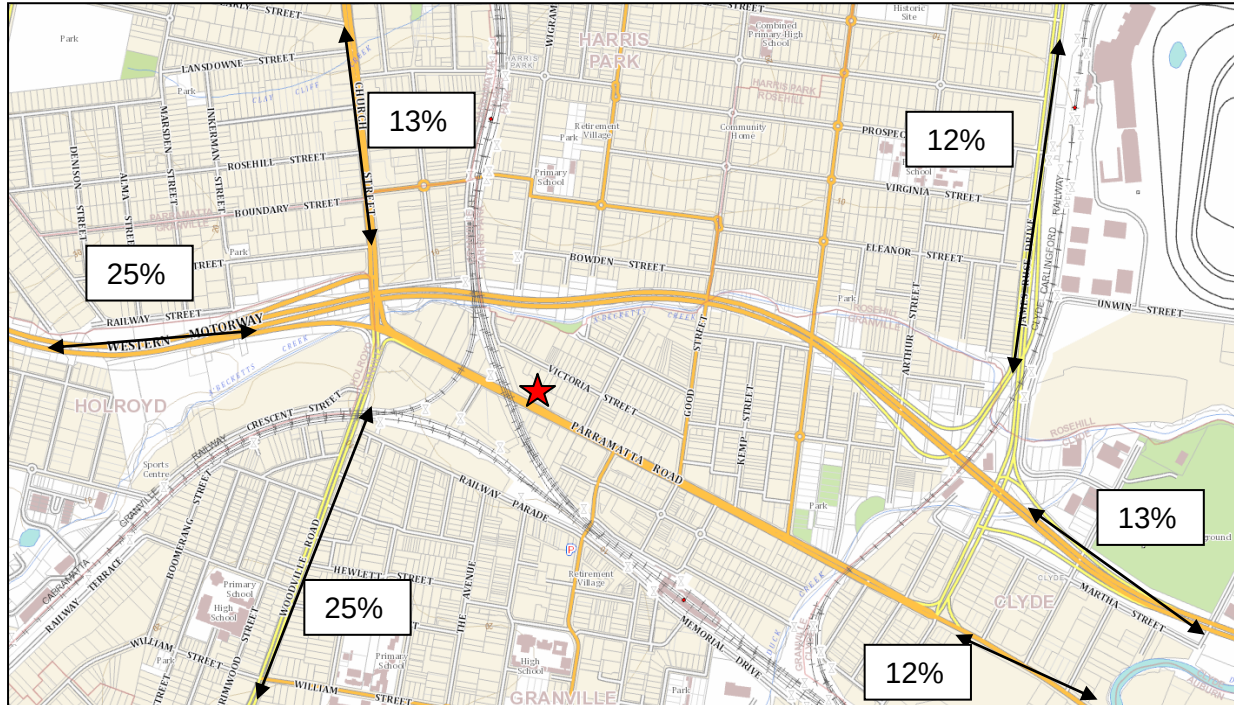
Land Use	Scale	Rate			Total
		Per Unit	Per space	Per Bed	
Residential	480	0.15	0.12	0.07	+ 72/66/67
Future Mixed Retail	5,500sqm	5.6 per 100sqm			+ 308
Existing Residential	2-3 dwellings	1 per dwelling			- 2
Existing Bulky Goods Retail	3850sqm	2.5 per 100sqm			- 96
Total					+ 282 (Maximum)

The maximum traffic generation hence occurs in the PM peak with a NETT CHANGE of 282 vehicle trips. It will be pertinent to also analyse the AM peak traffic generation as the two periods have different inbound and outbound distributions.

5.2 Traffic Assignment

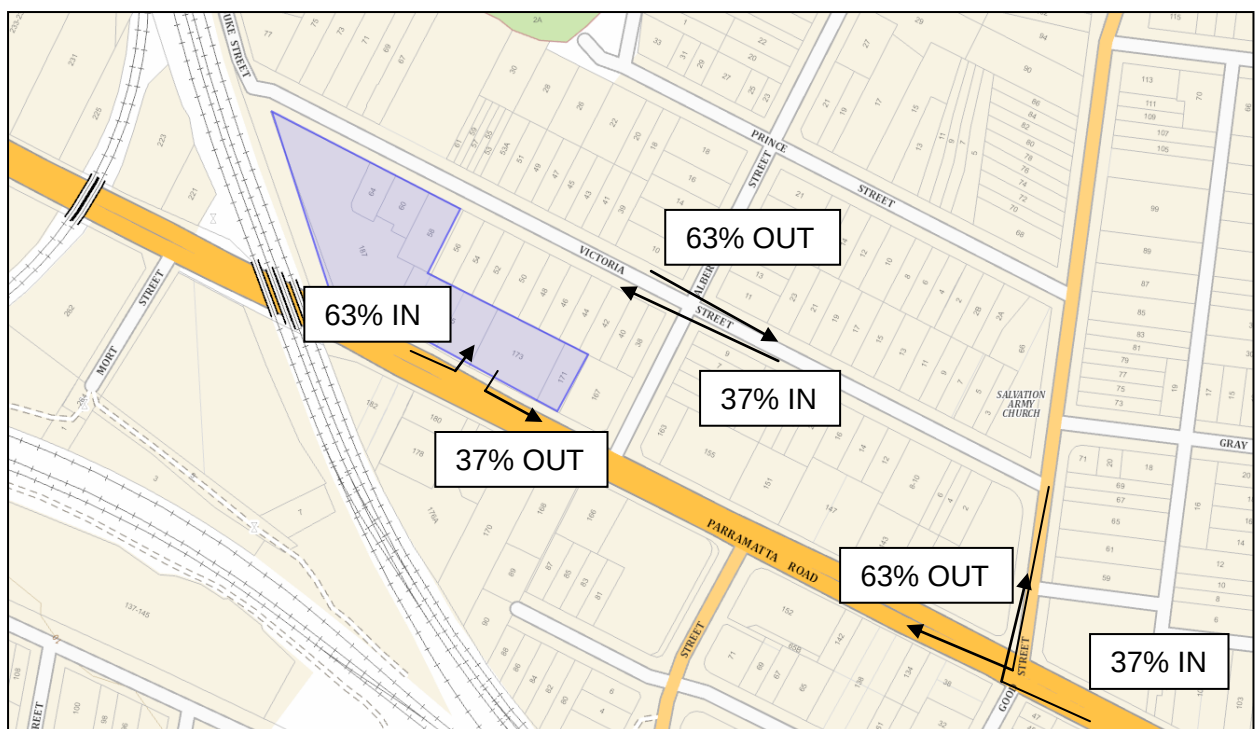
Considering the central nature of Granville, with numerous directions for employment, it is assumed that an even split of traffic will occur between the four cardinal directions. The following diagram shows the broad scale traffic assignment:

DIAGRAM 1: WIDE TRAFFIC ASSIGNMENT



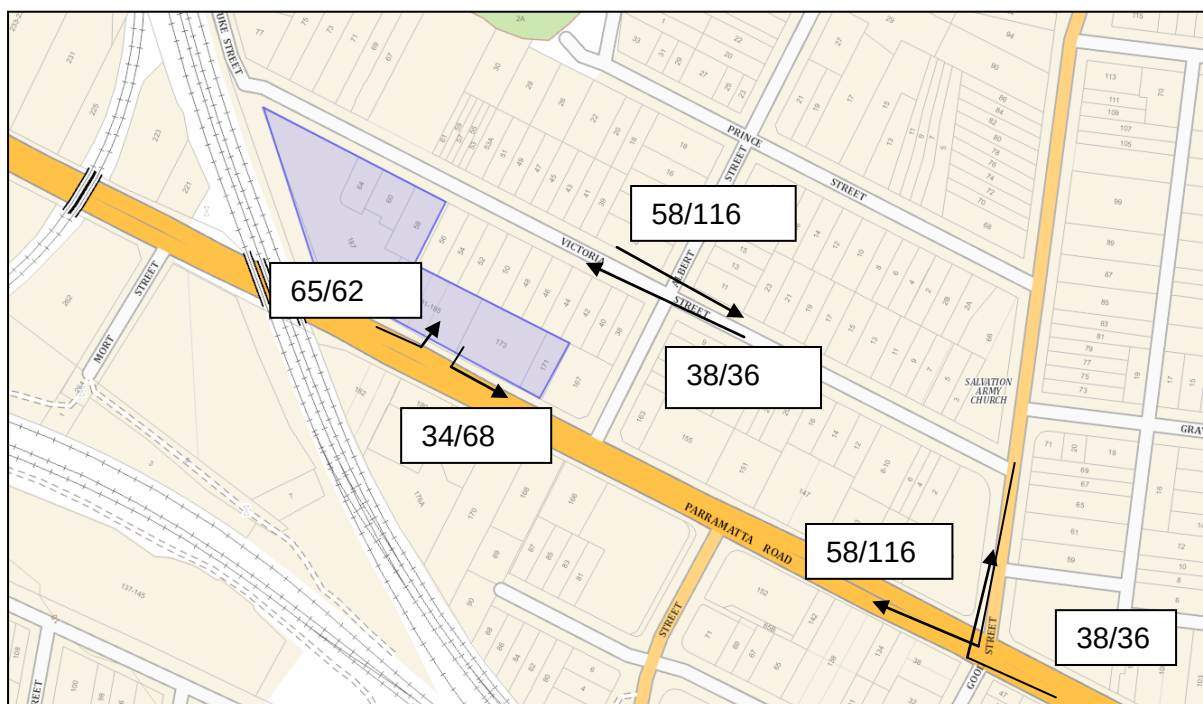
The local scale traffic assignment takes into account the above broad scale and is represented below:

DIAGRAM 2: LOCAL TRAFFIC ASSIGNMENT



The traffic assessment of the previously approved DA assumed residential trips as 100% outbound in the morning and retail trips as 100% inbound in the morning, with the converse for the afternoon. Previous experience on a variety of projects around Sydney has demonstrated residential and retail trips to be 80% in the dominant direction and 20% in the minor direction for a tidal flow. The development will hence have trips distributed locally according to the following diagram:

DIAGRAM 3: AM/PM TRIP GENERATION



5.3 Traffic Impact

The volumes of traffic generated by the site are not high, compared to existing volumes of Good Street or Parramatta Road, however represent a significant increase in trips on Victoria Street.

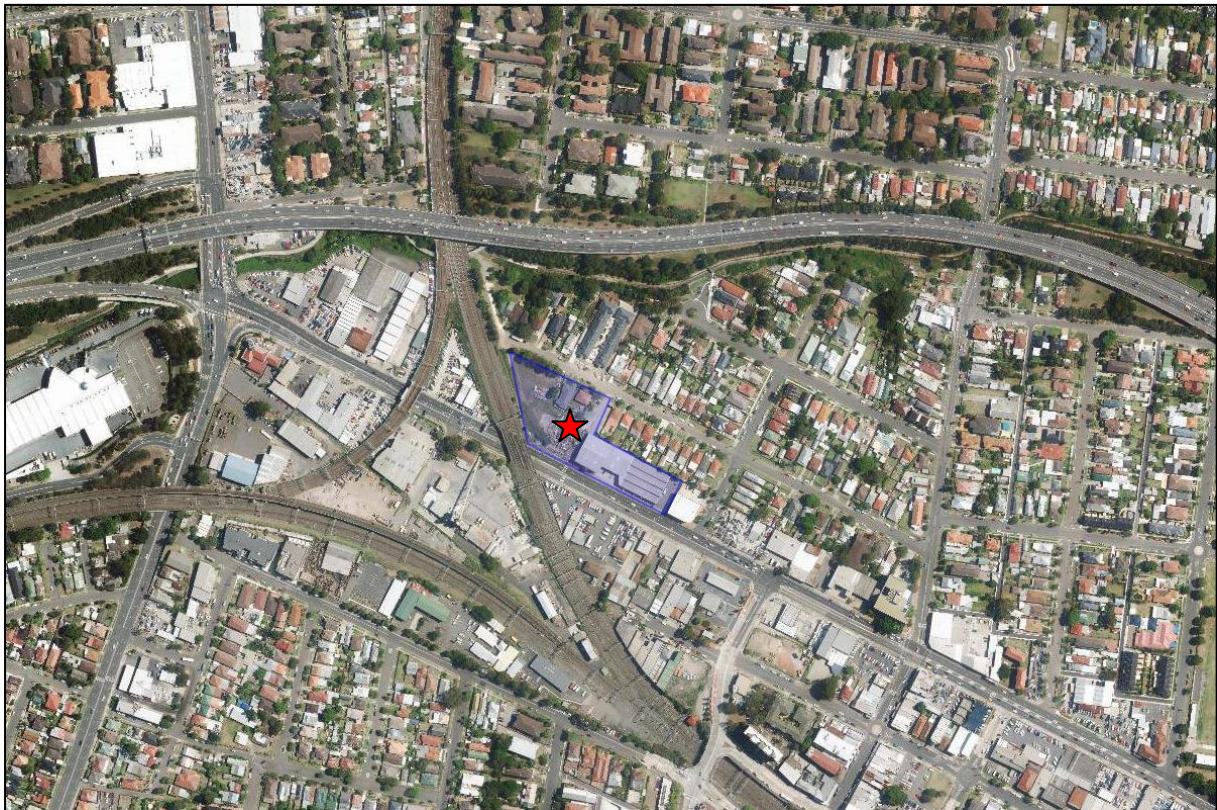
The addition of the site's traffic will increase the saturation of turning vehicles at the critical intersection of Good Street and Parramatta Road, though the junction may have sufficient capacity to accommodate this. It would be reasonable to perform detailed intersection analysis at DA preparation stage, incorporating the projected data from the West Connex 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 the subject site alone would not reduce amenity beyond the RMS capacity for a residential street of 300 trips in the PEAK hour for Victoria Street, and instead intersection capacity is likely to be the determining factor.

Further, it should be noted that the traffic generation rates used in **Tables 2 & 3** adopt a generic specialty shop outcome for the entire commercial / retail tenancy area which is significantly higher than a generic office component (2.0 vehicle trips per hour per 100m²), higher than generic bulky goods (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 subject proposal to increase the FSR to 6:1 is generally supportable on grounds of traffic and parking, subject to more detailed traffic and parking assessments at DA stage.

A large underground parking arrangement will be required, including a loading dock which is not currently shown on concept plans. 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.



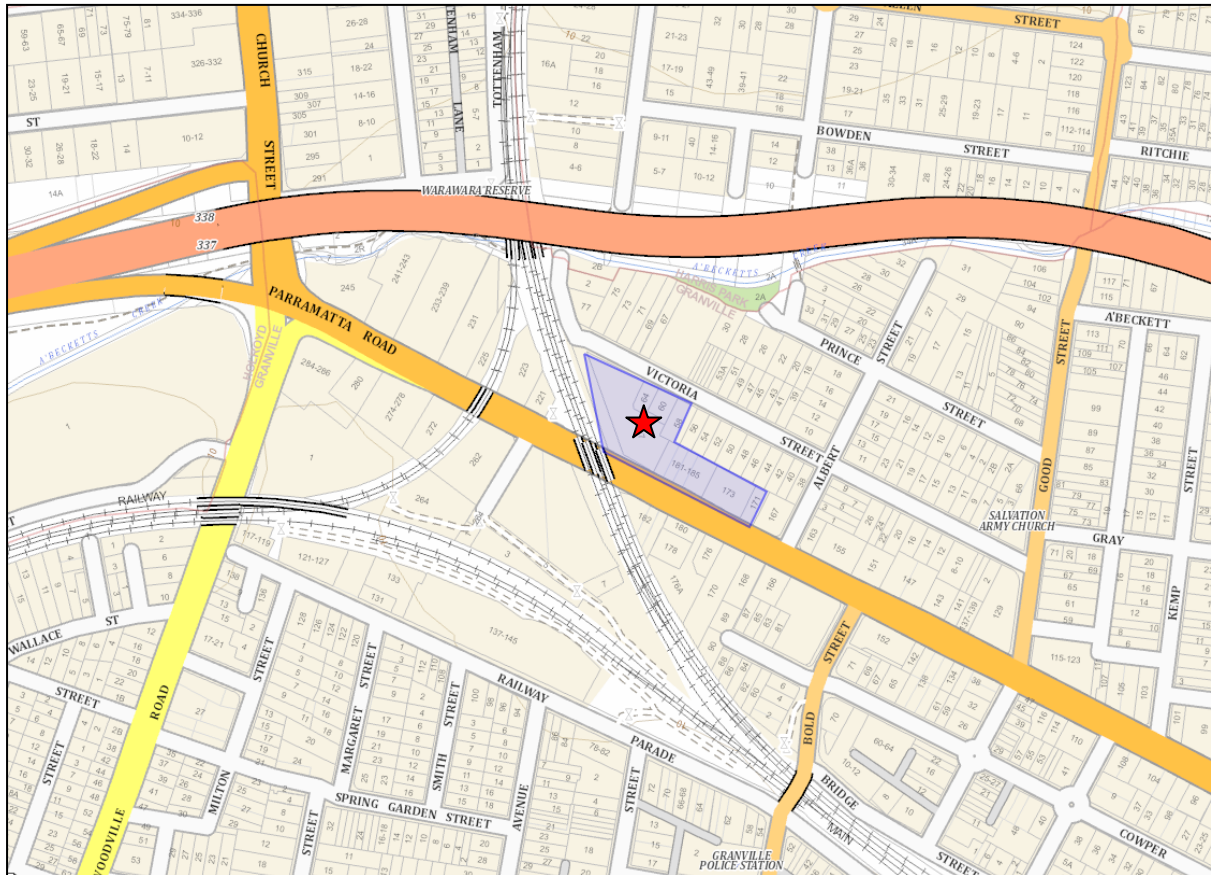
★ Site Location

MIXED RESIDENTIAL / RETAIL
PARRAMATTA ROAD AND VICTORIA
STREET, GRANVILLE



FIGURE 1:
AERIAL SITE LOCATION

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



★ Site Location

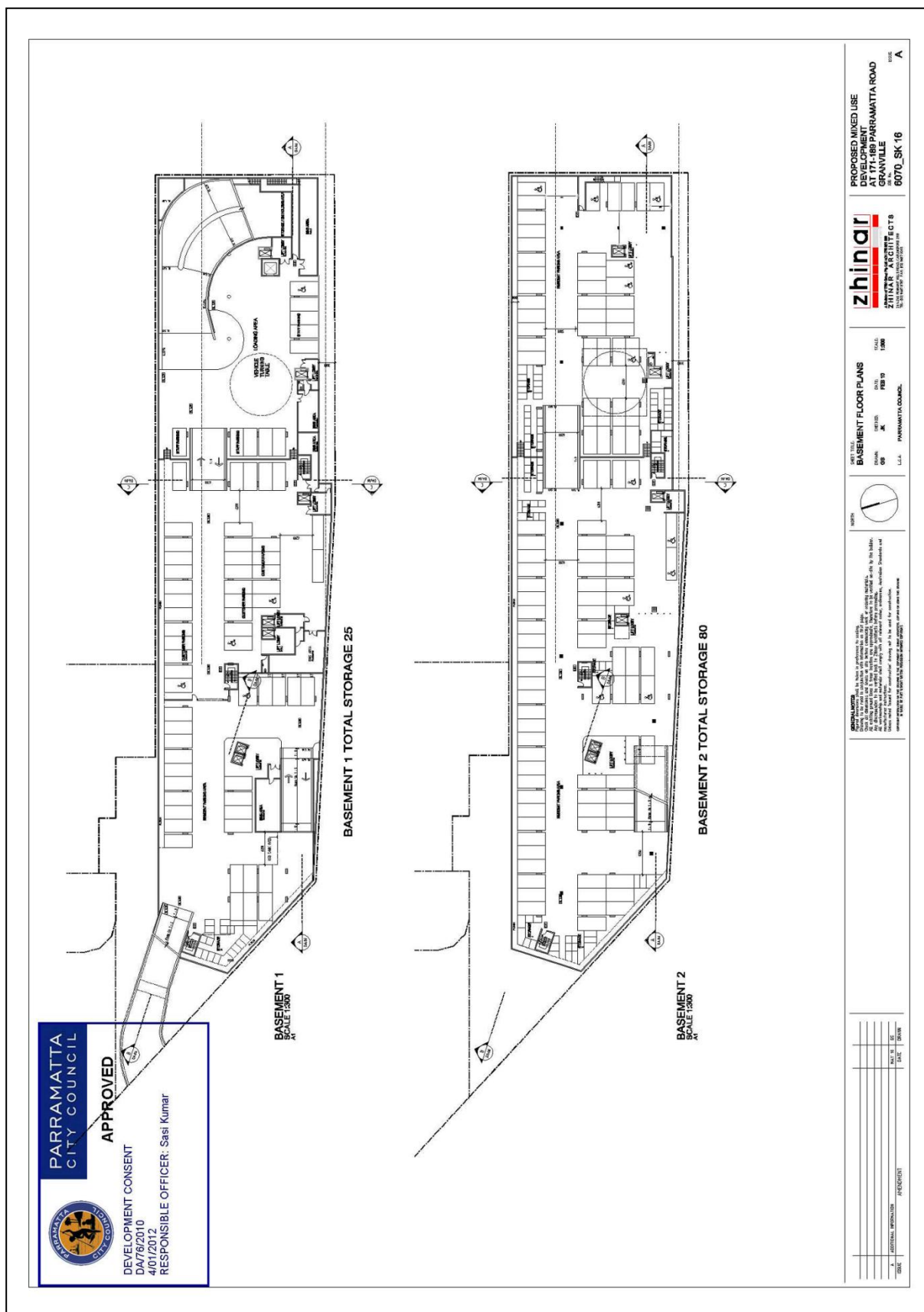
MIXED RESIDENTIAL / RETAIL
PARRAMATTA ROAD AND VICTORIA
STREET, GRANVILLE



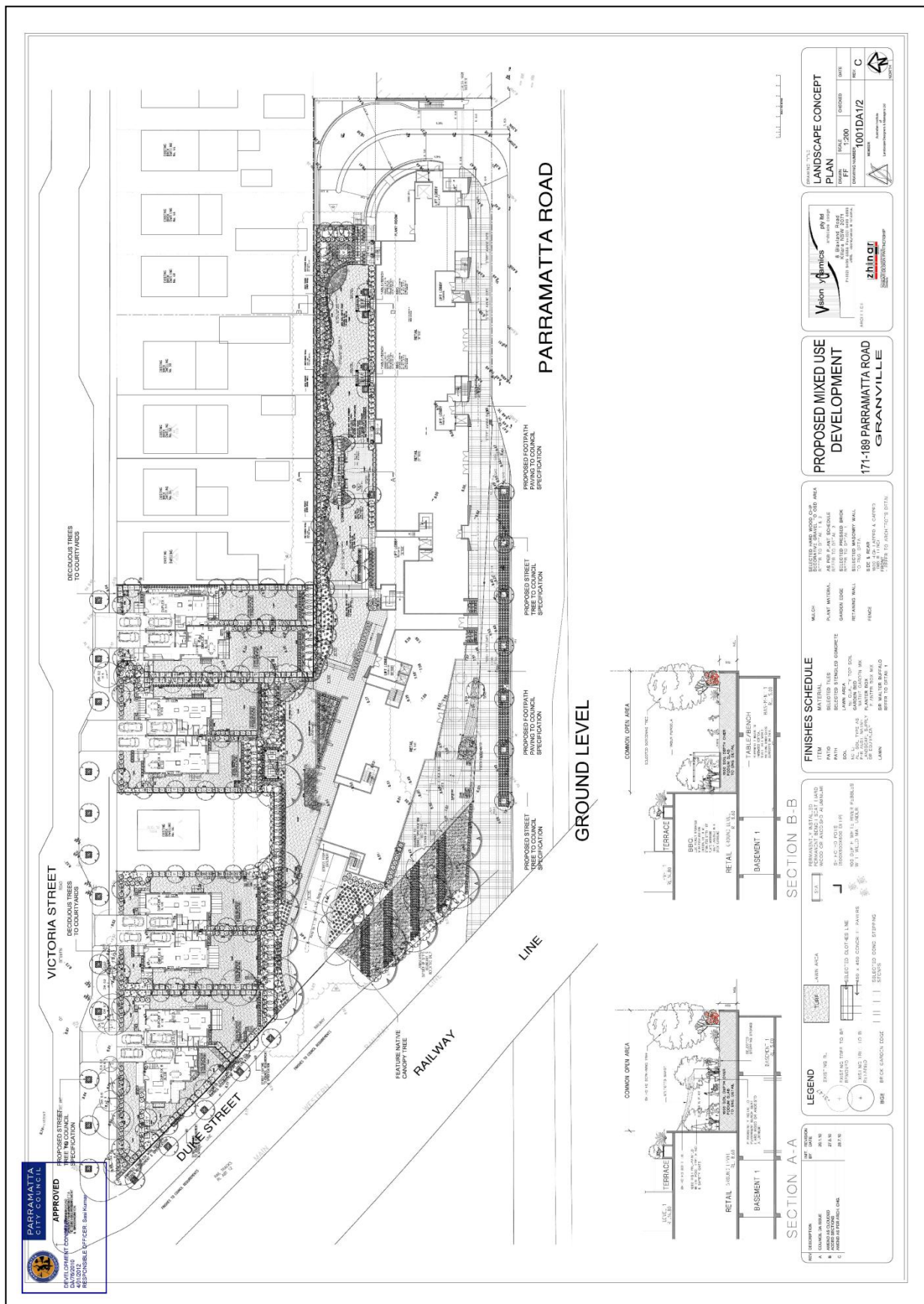
FIGURE 2:
MAP LOCATION

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

ANNEXURE B: PREVIOUSLY APPROVED PLANS (Sheet 1 of 2)



ANNEXURE B: PREVIOUSLY APPROVED PLANS (Sheet 1 of 2)



ANNEXURE C: WEST CONNECT 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 C: WEST CONNECT EIS EXTRACTS (2 OF 3)



ANNEXURE C: WEST CONNECT 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

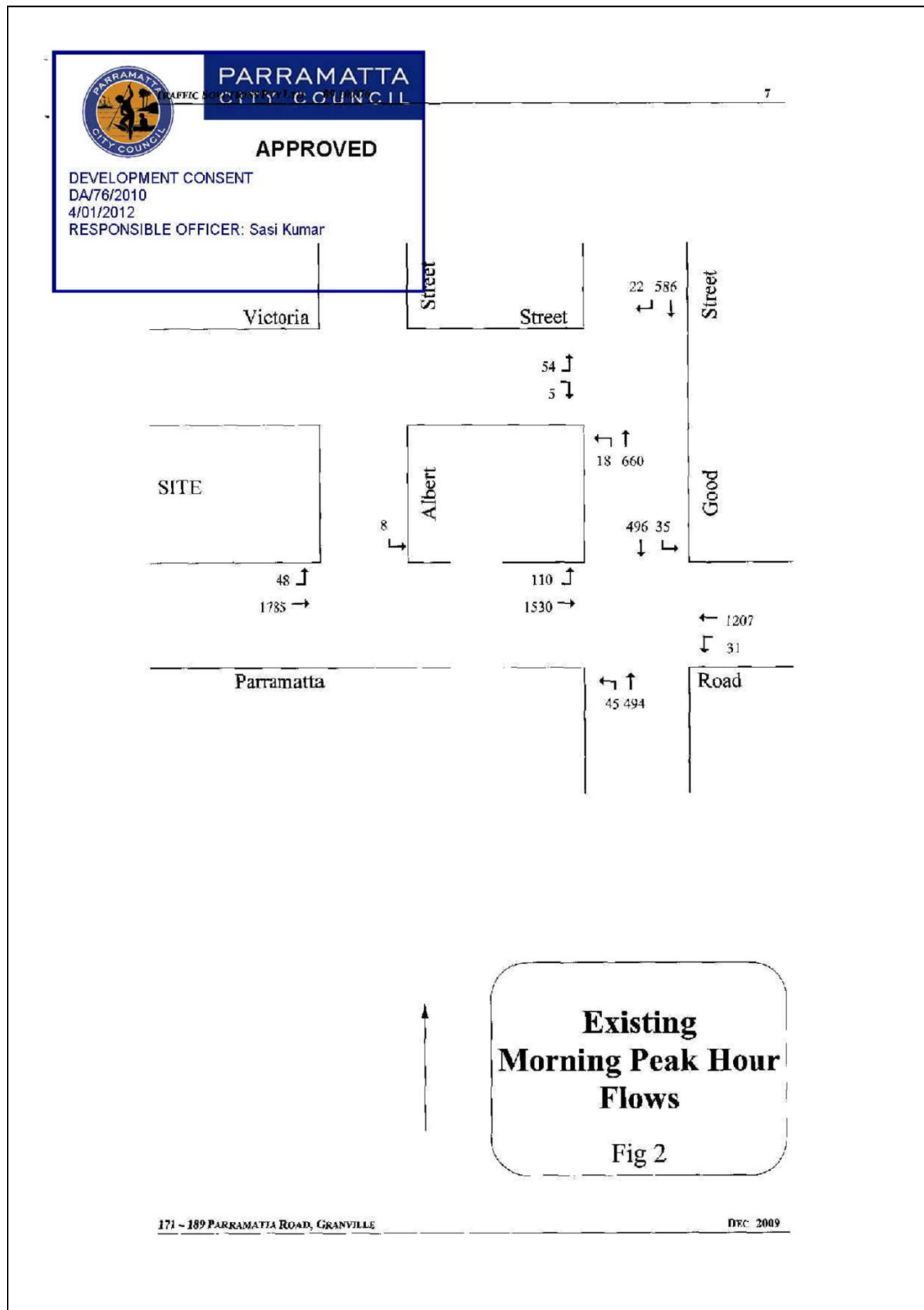
Source: Jacobs SKM, WestConnex Road Traffic Model, 2014

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

ANNEXURE D: TRAFFIC COUNTS (1 of 2)



ANNEXURE D: TRAFFIC COUNTS (1 of 2)

