# transport and traffic planning associates

Established 1994

Suite 604, Level 6, 10 Help Street Chatswood NSW 2067 T (02) 9411 5660 | F (02) 9904 6622 E info@ttpa.com.au | ttpa.com.au

## **Proposed Change of Use** 128 Milperra Road, Revesby

### **Traffic and Parking Assessment**

Ref: 20347 December 2024 Date: Issue: С

## **Table of Contents**

1.0		1
2.0	PROPOSED DEVELOP	MENT SCHEME 2
	<ul><li>2.1 Site, Context and E</li><li>2.2 Proposed Change of</li></ul>	xisting Circumstances2 of Use
3.0	ROAD NETWORK AND	TRAFFIC CONDITIONS 3
	<ul><li>3.1 Road Network</li><li>3.2 Traffic Controls</li><li>3.3 Traffic Conditions</li></ul>	
4.0	PARKING	
5.0	TRAFFIC	
6.0	ACCESS, INTERNAL CI	RCULATION AND SERVICING
7.0	CONCLUSION	9

### List of Figures

Location
Site
Road Network
Traffic Controls

### List of Appendices

Appendix A	Plan of Former Circumstances
Appendix B	Plan of Change of Use Circumstances

## 1.0 Introduction

This report has been prepared for Storhub to accompany a Development Application to Canterbury Bankstown Council for a proposed Change Of Use to the approved "internal carpark" element of the mixed industrial complex on the site of 128 Milperra Road, Revesby (Figure 1).

The main original development element (building supplies) changed with CDC approval from retail use to 'Self-Storage.'

The proposed 'Change Of Use' scheme involves the conversion of the existing internal car parking element to self-storage use.

The purpose of this report is to:

- describe the site, its context and the proposed change of use
- describe the road network serving the site and the prevailing traffic conditions
- assess the adequacy of the proposed parking provision
- assess the potential traffic implications
- assess the proposed vehicle access, internal circulation and servicing arrangements



## 2.0 Proposed Development Scheme

#### 2.1 Site, Context and Existing Circumstances

The site (Figure 2) is Lot 1 in DP 1294099 which occupies a generally rectangular shaped area 7,714m<sup>2</sup> with frontages to Milperra Road and Violet Street. The site is adjoined by warehouse/factory buildings to the east while open storage adjoins to the south and the large Bankstown Paceway is located on the opposite side of Milperra Road.

The site is occupied by self-storage and office uses as follows:

Self-Storage	7,583 m²
(Ground, Mez, 1 <sup>st</sup> & 2 <sup>nd</sup> levels)	
Office	249 m <sup>2</sup>
(2 levels)	

There are 27 external parking spaces and 27 internal parking spaces along with 2 loading docks with a combined ingress/egress driveway on the Violet Street frontage.

Details of the existing circumstances (i.e., prior to the recent conversion of the retail area to self-storage) are provided on the plan in Appendix A.

### 2.2 Proposed Change of Use

The proposal involves the conversion of the area provided for the existing 27 internal parking spaces to self-storage use (536 m<sup>2</sup>).

Details of the development with the proposed Change Of Use are provided on the plans prepared by SBA Architects which accompany the Development Application and are reproduced in part in Appendix B.



## 3.0 Road Network and Traffic Conditions

### 3.1 Road Network

The road network serving the site (Figure 3) comprises:

- M5 Motorway a State Road and arterial route connecting between Mascot and Prestons with access connection provided at The River Road interchange
- Milperra Road/Newbridge a State Road and arterial route connecting between Bankstown and Liverpool
- Henry Lawson Drive a State Road and sub-arterial route
- Bullecourt Avenue/Horsley Road/Beaconsfield Street a Regional Road and east-west collector route
- Queen Street/Edgor Street a Regional Road and north-south collector route
- Violet Street a local access road

Milperra Road, in the vicinity of the site, is relatively straight and level with three traffic lanes in each direction while Violet Street has one traffic and kerbside parking in each direction.

### 3.2 Traffic Controls

The existing traffic controls (Figure 4) on the road system in the vicinity of the site include:

- the traffic signal controlled intersections along Milperra Road including the Marigold Street and Queen Street/Edgor Street intersections
- the central median island along Milperra Road which restricts access at the Violet Street intersection to left turn IN/OUT only





#### Transport and Traffic Planning Associates

- the traffic signal and roundabout controlled intersections along the Beaconsfield Street/Horsley Road/Bullecourt Ave route
- the 50 kmph speed limit on the local road and collector system
- the bus stops along Milperra Road

The geometry and controls on the principal access intersections for the site are provided on the diagrams below.



### 3.3 Traffic Conditions

An indication of the traffic conditions in the vicinity of the site is provided by data published by the TfNSW and traffic surveys undertaken as part of this assessment. The data published by the TfNSW is expressed in terms of Annual Average Daily Traffic (AADT) and the latest available details are provided in the following:

	AADT
Milperra Road West of River Road	43,593

An indication of the operational performance of the access intersections is provided by the SIDRA assessment undertaken. The results of that assessment indicating satisfactory Levels of Service are summarised in the following while the criteria for interpreting SIDRA output is reproduced overleaf:

	AM		PM	
	LOS	AVD	LOS	AVD
Milperra/Marigold	В	19.1	В	20.1
Milperra/Violet	А	6.8	A	6.7
Milperra/Queen/Edgor	Е	67.7	E	62.9

The results indicate that the operational performance of the immediate access intersections is generally quite satisfactory.

#### **Criteria for Interpreting Results of SIDRA Analysis**

#### 1. Level of Service (LOS)

LOS	Traffic Signals and Roundabouts	Give Way and Stop Signs	
'A'	Good	Good	
'B'	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity	
'C'	Satisfactory	Satisfactory but accident study required	
'D'	Operating near capacity	Near capacity and Accident Study required	
'E'	At capacity; at signals incidents will cause excessive delays. Roundabouts require other control mode	At capacity and requires other control mode	
'F'	Unsatisfactory and requires additional capacity	Unsatisfactory and requires other control mode	

#### 2. Average Vehicle Delay (AVD)

The AVD provides a measure of the operational performance of an intersection as indicated on the table below, which relates AVD to LOS. The AVD's listed in the table should be taken as a guide only as longer delays could be tolerated in some locations (ie inner city conditions) and on some roads (ie minor side street intersecting with a major arterial route).

Level of Service	Average Delay per Vehicle (secs/veh)	Traffic Signals, Roundabouts	Give Way and Stop Signs	
А	Less than 14	Good operation	Good operation	
В	15 to 28	Good with acceptable delays and spare capacity	Acceptable delays and spare capacity	
С	29 to 42	Satisfactory	Satisfactory but accident study required	
D	43 to 56	Operating near capacity	Near capacity and accident study required	
E	57 to 70	At capacity; at signals incidents will cause excessive delays. Roundabouts require other control mode	At capacity and requires other control mode	

#### 3. Degree of Saturation (DS)

The DS is another measure of the operational performance of individual intersections.

For intersections controlled by **traffic signals** both queue length and delay increase rapidly as DS approaches 1, and it is usual to attempt to keep DS to less than 0.9. Values of DS in the order of 0.7 generally represent satisfactory intersection operation. When DS exceeds 0.9 queues can be anticipated.

For intersections controlled by a **roundabout or GIVE WAY or STOP signs**, satisfactory intersection operation is indicated by a DS of 0.8 or less.

## 4.0 Parking

Council's DCP for parking provision contains the following in relation to the proposed development subsequent to the Change Of Use:

Office	1 space per 40m <sup>2</sup> GFA
Self-Storage	Not Stated

The proposed Change Of Use will result in the following floorspace outcome:

Existing Self-Storage	7,583 m²
Proposed Self-Storage	536 m <sup>2</sup>
Tota	l 8,119 m <sup>2</sup>

The requirement for the office use of 249 m<sup>2</sup> is 6.2 spaces while a guide to the parking requirement for Self-Storage use is provided by the Self-Storage Association of Australia Parking and Parking Study (Stantec 2022/2023). The criteria in that document concludes that a Self-Storage facility of 6,000m<sup>2</sup>+ requires a parking provision of 7 spaces (see extract overleaf).

Thus, the assessed total required parking provision for the development on the central and northern part of the site is some 13 spaces and it is proposed to provide a total of 27 spaces including 1 accessible space in satisfaction of the requirements

It is apparent that the proposed parking provision will be quite adequate.

### **Summary and Recommendations**

The below Parking and Trip Generation provisions have been determined from the calculations contained within this document. Based on these calculations and in Stantec's expert opinion, it is considered appropriate for new self storage facilities to be designed utilising the below rates.

Members are encouraged to consider local market and operating conditions, their prospective customer base and desired amenity together with the surrounding built environment when determining parking and transport requirements for any new self storage facility.

The SSAA Self Storage Transport Design Guidelines may assist members further when considering parking and transport planning for a new self storage facility.

#### **Recommended Parking Rate Provision**

Facility Size	Number of Parking Spaces
Under 3,000 m <sup>2</sup>	5 spaces
3,000 to 6,000 m <sup>2</sup>	7 spaces
6,000 m² +	7 spaces

#### **Recommended Trip Generation Rates**

	Weekday		Weekend	
Facility	Peak	Daily	Peak	Daily
Under 3,000 m <sup>2</sup>	6.6	63	5.5	47.2
3,000 to 6,000 m <sup>2</sup>	8.9	95.9	8.7	82.5
6,000 m² +	11.4	108.6	10.2	85.6



## 5.0 Traffic

Assessment of the potential traffic generation as a result of the proposed Change Of Use is as follows:

Self-Storage	6,000m <sup>2</sup> + (see details preceding)
	AM Peak 12 vtph
	PM Peak 11 vtph

It was previously assessed that the former retail use of 1,093 m<sup>2</sup> would generate some 33 vtph. Therefore, the projected change of generated vehicle trips will be less than that of the previous development circumstances.

### **Trip Generation**

#### Processing

For each 15-minute interval, the entries deemed to be arrivals and the entities deemed to be departures are totaled. The maximum of the entries and departures is multiplied by 2 and this value is deemed to be the number of trip ends generated by the site for that 15-minute interval.

A rolling hour is summed over the day to produce an estimate of the hourly trip generation for each 15-minute interval. The maximum of these numbers is the peak hourly generation rate. Summing each 15-minute estimate over the full day produces the daily trip generation estimate.

#### Weekdays

During the week there is a peak around 9:30 AM for sites under 6,000 MLA and the 6,000 + MLA peak is at 11:15 AM. The rest of the of day is mostly stable at a rate just under the peak until 4:00 PM for all size categories. The trip rates then drop rapidly to low values in the late after-hours periods. The under 3,000 MLA has a small stable area between 4:30 PM and 5:30 PM before resuming the reduction in trip generation.

From the data provided, the following weekday trip rates have been calculated for each facility:

### >3,000 MLA: 6.6 trips (max.) per peak hour and a daily rate of 63.0 trips (max.).

3,000 and 6,000 MLA: 8.9 trips (max.) per peak hour and a daily rate of 95.9 trips (max).

> 6,000 MLA: 11.4 trips (max.) per peak hour and a daily rate of 108.6 trips (max).



Weekend Trip generation vs Time of Day



#### Weekends

On the weekend, the peak period occurs in the middle of the day. It then decreases until 4:30 PM before reducing for across the rest of the day.

From the data provided, the following weekend trip rates have been calculated for each facility:

>3,000 MLA: 5.5 trips (max.) per peak hour and a daily rate of 47.2 trips (max.).

3,000 and 6,000 MLA: 8.7 trips (max.) per peak hour and a daily rate of 82.5 trips (max).

> 6,000 MLA: 10.2 trips (max.) per peak hour and a daily rate of 85.6 trips (max).

### **Parking Generation**

#### Processing

The method chosen to calculate the parking requirements for this study uses Queuing Theory. In particular, the M/M/k queues. The assumptions required for this method are:

- One car per trip.
- The number of arrivals in an hour can be modelled using a Poisson distribution. Thus, the distribution of inter-arrival times is an exponential distribution. For the most part, this is true as individual customers are not expected to coordinate their trips with random strangers. Notwithstanding, this may differ pending local traffic conditions.
- The duration of stay for each stay can be modelled with an exponential distribution.
  Again, true for the most part, as customers are not expected to be using these sites as meeting locations.
- If the car parking is outside the keypads that the time to and from the vehicle to the keypad is insignificant compared to the duration of the stay.

#### Methodology

As only 44 sites provided data that allowed for duration calculations out of the 66 sites, Stantec has chosen to use a method that has predictive power over all 66 sites should it be warranted.

The methodology assumes that customers are arriving and waiting to be "served" and the "server" is a carpark. The service time is the duration of the clients stay on site, and then when the customer is finished, they leave and free up the carpark to "serve" the next customer.

The theory has a formula that calculates the probability that an arbitrary customer will have to "wait" for a carpark given the arrival rate of customers, the length of duration and the number of carparks. Then for a generic "site" for each 15-minute period, using the estimates of the "current" arrival rate and duration of stay for that 15-minute period for that site, the formula is calculated for the number of carparks currently being tested.

This is repeated for the next higher number of carparks until the percentage is under an acceptable percentage of time. The number of carparks can be increased until the percentage of time that an arrival will need to wait for a carpark is zero. Once this number is reached, adding extra carparks has no mathematical justification.

The 95%ile and 99.9%ile demand calculations are provided in the following tables.

It is important to highlight that the 95%ile of parking is commonly adopted when calculating car parking demands and therefore is considered appropriate as a provision.

Notwithstanding, the 99.5%ile parking provision can be adopted if a more conservative approach is sought.

#### **Weekday Parking Requirements**

MLA	95% ESTIMATED PARKING SPACES	95% ESTIMATED TIME WAITING FOR A SPACE	99.9% ESTIMATED PARKING SPACES	99.9% ESTIMATED TIME WAITING FOR SPACE
Under 3,000 m <sup>2</sup>	5 spaces	9.0 minutes	8 spaces	4.8 minutes
3,000 to 6,000 m <sup>2</sup>	7 spaces	9.1 minutes	10 spaces	5.3 minutes
6,000 m² +	7 spaces	8.1 minutes	11 spaces	4.1 minutes

#### **Weekend Parking Requirements**

MLA	95% ESTIMATED PARKING SPACES	95% ESTIMATED TIME WAITING FOR A SPACE	99.9% ESTIMATED PARKING SPACES	99.9% ESTIMATED TIME WAITING FOR SPACE
Under 3,000 m <sup>2</sup>	5 spaces	9.8 minutes	7 spaces	6.3 minutes
3,000 to 6,000 m <sup>2</sup>	6 spaces	8.3 minutes	9 spaces	4.7 minutes
6,000 m² +	6 spaces	7.9 minutes	9 spaces	4.3 minutes

## 6.0 Access, Internal Circulation and Servicing

### Access

The vehicle access arrangements will retain the existing 8.5m wide combined ingress/egress driveway on Violet Street. This driveway complies with the requirements of AS2890.2 and there are good site distances available on the straight and level section of Violet Street.

### **Internal Circulation**

The design of the internal circulation arrangements complies with the requirements of AS2890.1, 2 & 6.

### Servicing

The Self-Storage use will have 2 loading docks plus use of the parking spaces for small vehicles and it is considered that this provision will be more than adequate for the Self-Storage needs.

## 7.0 Conclusion

The assessment documented in this report concludes that the proposed Change Of Use will:

- provide appropriate vehicle access and will not present any adverse traffic implications
- provide suitable on-site parking, internal circulation and provision for service vehicles.

Transport and Traffic Planning Associates

## Appendix A

## Plan of Former Circumstances





T BOUNDARY	
_ · · · · EXISTING GROUND LEVELS TO EXTENT INDICATED	
BOUNDA	UNDAR
SITE	LOT BC
01 GA-230	
EXISTING TREE NO. 30	LOT BOUNDARY
	/

# FOR CDC APPROVAL

	PROJECT <b>128 MILPERRA ROAD, REVESBY</b> 128 MILPERRA ROAD, REVESBY	DATE	01.04.2022	PROJECT No.	
		SCALE	1:200 @A1	22131	
		DRAWN	GJC		
	TITLE	CHECKED		DWG No.	ISSUE
NORTH	SITE & GROUND FLOOR PLANS	APPROVED		GA 200	P15

Transport and Traffic Planning Associates

## Appendix **B**

## Plans of Change Of Use Circumstances

![](_page_21_Picture_3.jpeg)

![](_page_22_Figure_0.jpeg)

![](_page_22_Picture_1.jpeg)

![](_page_22_Picture_2.jpeg)

REVISIONS			
REV	DESCRIPTION	DATE	
A	Issued for DA	21/11/2024	

AREA SCHEDULE			
TOTAL SITE AREA:	7,712 SM		
EXITING DEVELOPMENT			
TOTAL GROUND FLOOR AREA (GFA):	1,522 SM		
EXISTING STORAGE	1,406 SM		
EXISTING OFFICE	116 SM		
MEZZANINE FLOOR AREA (GFA):			
EXSITING OFFICE	133 SM		
FIRST FLOOR AREA (GFA):			
EXISTING SELF STORAGE	2,973 SM		
SECOND FLOOR AREA (GFA):			
EXISTING SELF STORAGE	3,071 SM		
EXISTING TOTAL FLOOR AREA (GFA):	7,699 SM		
NEW DEVELOPMENT			
NEW STORAGE (GROUND FLOOR)	536 SM		
TOTAL FLOOR AREA (GFA):	8,235 SM		

#### **ISSUED FOR DA**

#### Ground Floor Plan

\_

Date 21.11.2024 Scale 1:200 @A1

Project No 20255 **DA100 A** 

![](_page_23_Figure_0.jpeg)

![](_page_23_Figure_1.jpeg)

![](_page_23_Picture_2.jpeg)

![](_page_23_Picture_4.jpeg)

![](_page_23_Picture_5.jpeg)

![](_page_23_Picture_6.jpeg)

0m 2 4 8m

Sections

— Date 21/11/2024 Scale 1:200 @A1

Project No 20255 DA101 A