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Prepared for  
Candoo Australia Pty Ltd

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12 September 2016

**Proposed Commercial  
Development**

945-945a Station Street,  
Box Hill North

traffic:impact

Version	Date	Reason for Issue	Prepared By	Checked By
1.0	12/09/16	Draft	Luke Richardson	Tina Webb
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Appendices:

## **Appendix A      Parking Survey Results**

# 1 Introduction:

Ratio Consultants Pty Ltd were commissioned by Candoo Australia Pty Ltd to assess the traffic and parking implications of the proposed commercial development at 945-945a Station Street, Box Hill North.

The proposed development involves the construction of a two storey building, including:

- An extension to the two existing ground floor shop tenancies;
- Two office tenancies above; and
- Five car spaces within an undercroft car park, with vehicle access provided to St. Philips Place.

This report has been prepared to address the traffic and parking considerations of the proposed development, and is based on surveys and observations in the vicinity of the site and on previous studies of other similar developments in Melbourne.

## 2.1 Location and Environment

The subject site is centrally located within a neighbourhood strip shopping centre which is situated on the northwest corner of the Station Street / Woodhouse Grove intersection, as shown in Figure 2.1. An aerial view of the subject site, the strip shopping centre and surrounds is provided in Figure 2.2.

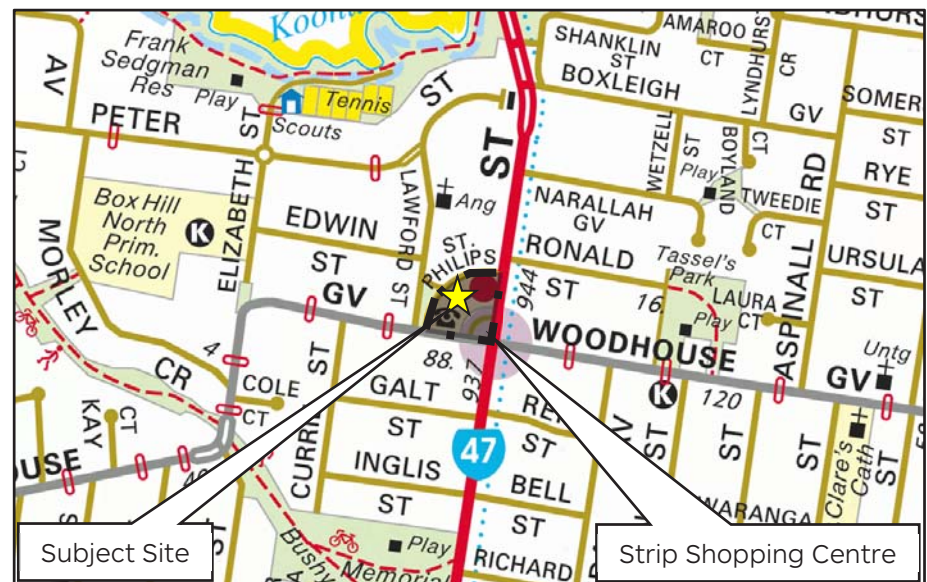
The site is trapezoidal in shape, with a frontage to the strip shopping centre car park of 6 metres, a rear frontage to St. Philips Place of 13 metres and an area of approximately 350 square metres. A single storey building occupies the front portion of the site, with the balance at the rear being vacant.

The subject site comprises two lots, with a single shop tenancy located on each lot and a total building floor area of 129 square metres across the two lots. Informal parking is available at the rear of each shop tenancy with access provided via a single shared crossover to St. Philips Place, centrally located between the two lots.

The strip shopping centre comprises a variety of retail and commercial uses. The majority of tenancies have informal parking opportunities provided at the rear, with access via St. Philips Place. A shared car park comprising 18 spaces is located at the front of the strip shopping centre, with fully directional access provided to Woodhouse Grove and exit only access provided to Station Street. The shared car park is primarily intended for shopper use, with short term time restrictions encouraging turnover of parking.

Surrounding land uses include a Corporate Centre located on the southwest corner of the Station Street / Woodhouse Grove intersection. Beyond this, surrounding land use is primarily residential.

**Figure 2.1: Site Location**



Source: Melways Edition 39

**Figure 2.2: Aerial View of the Site and Surrounds**



Source: [www.nearmap.com](http://www.nearmap.com)

## 2.2 Road Network

**Station Street** is a Declared Main Road which extends generally in a north-south direction from the Eastern Freeway in Doncaster to Highbury Road in Burwood. North of the Eastern Freeway, Station Street continues as Tram Road.

In the vicinity of the site, Station Street generally operates with two through traffic lanes in each direction, with additional short right turn lanes provided at the Station Street / Woodhouse Grove signalled intersection. Parallel parking is generally permitted in the kerbside lanes outside peak traffic periods and constructed footpaths are provided along both sides of the road.

**Woodhouse Grove** is a local road which extends generally in an east-west direction from Dorking Road to Elgar Road.

In the vicinity of the site, Woodhouse Grove provides for a single lane of traffic in each direction. Parallel parking is generally permitted along both kerbs clear of traffic, albeit 'No Stopping' restrictions apply on the south kerb between 7:00am-9:00am and 3:00pm-6:00pm Monday-Friday. Constructed footpaths are provided along both sides of the road.

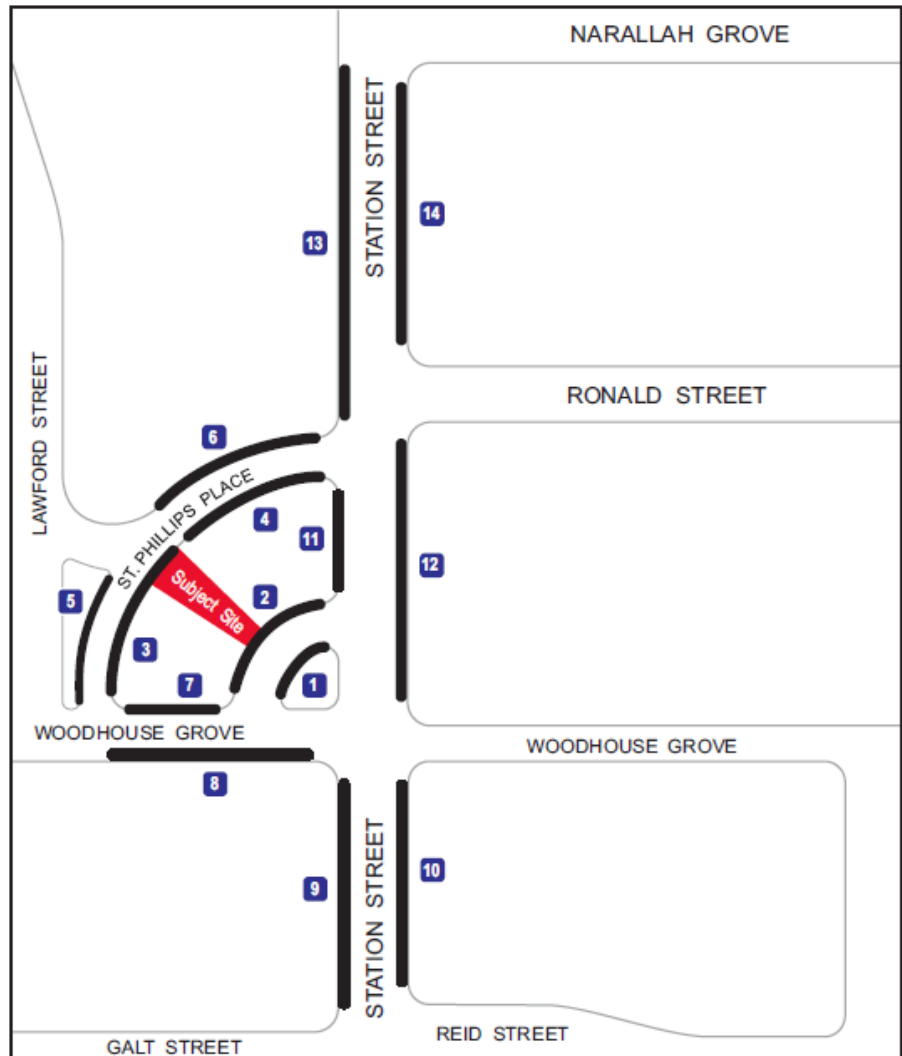
**St. Philips Place** is a local road which extends generally in a northeast-southwest direction from Station Street to Woodhouse Grove.

In the vicinity of the site, St. Philips Place provides for a single lane of traffic in each direction, with parallel parking permitted along both kerbs. Constructed footpaths are provided along both sides of the road.

## 2.3 Parking Conditions

Ratio Consultants commissioned car park occupancy surveys on Saturday 3 September 2016 between 10:00am-3:00pm and on Tuesday 6 September 2016 between 8:00am-5:00pm. The surveys were undertaken at hourly intervals and on-street parking within an approximate 200 metre walk of the subject site was included in the survey. The extent of the survey area is shown in Figure 2.3 and detailed survey results are presented in Appendix A.

**Figure 2.3: Car Parking Survey Area**



Parking in the survey area is generally a mixture of unrestricted and time restricted (1/4P, 1/2P, 2P and 3P) parking.

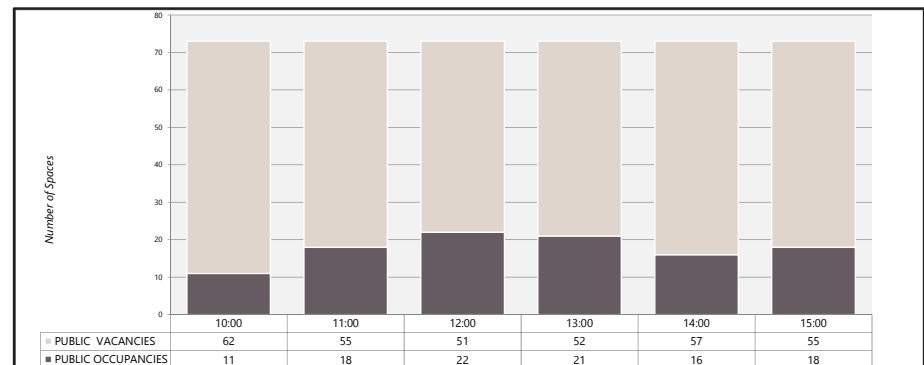
In summary, the survey results showed:

### Saturday 3 September 2016

- There was a supply of 73 car spaces within the survey area across the survey period.
- The peak occupancy occurred at 12:00 noon when 22 out of 73 spaces were occupied (30% occupancy). At this time, 51 spaces remained vacant.
- The surveys identified a supply of 18 car spaces within the shared car park for the strip shopping centre (Ratio map zones 1 and 2).
- The peak occupancy for the shared car park occurred at 12:00 noon, when 15 out of 18 spaces were occupied (83% occupancy). At this time, 3 spaces within the shared car park remained vacant.
- The surveys also identified a supply of 67 unrestricted spaces.
- The peak occupancy for the unrestricted spaces occurred at 12:00 noon, 1:00pm and 3:00pm, when 18 out of 67 unrestricted spaces were occupied (27% occupancy). At this time, 49 unrestricted spaces remained vacant.

Figure 2.4 provides a graphical representation of the Saturday parking demands.

**Figure 2.4: Parking Demand Survey Results – Saturday 3 September 2016**



### Tuesday 6 September 2016

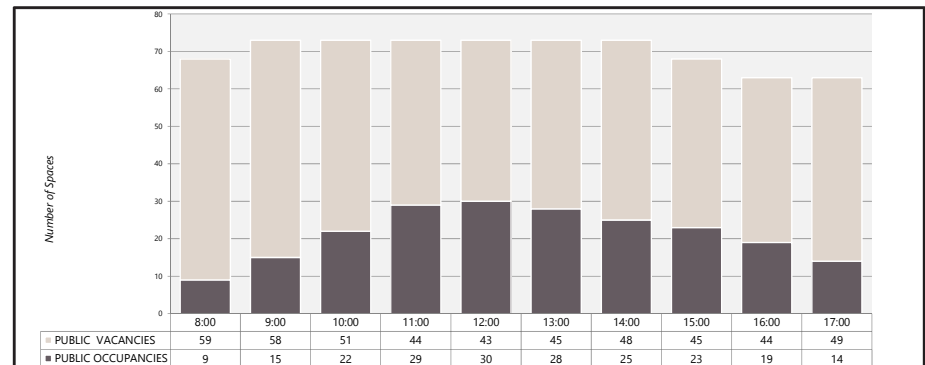
- There was a supply of 63-73 car spaces within the survey area across the survey period, with the variation in supply a result of 'No Stopping' restrictions which are in effect during commuter peak periods.
- The peak occupancy occurred at 12:00 noon when 30 out of 73 spaces were occupied (41% occupancy). At this time, 43 spaces remained vacant.
- The surveys identified a supply of 18 car spaces within the shared car park for the strip shopping centre (Ratio map zones 1 and 2).
- The peak occupancy for the shared car park occurred at 2:00pm, when 17 out of 18 spaces were occupied (94% occupancy). At this time, 1 space within the shared car park remained vacant.



- The surveys also identified a varying supply of 42-52 unrestricted spaces.
- The time when the least number of unrestricted spaces was available occurred at 4:00pm, when 6 out of 42 unrestricted spaces were occupied (14% occupancy). At this time, 36 unrestricted spaces remained vacant.

Figure 2.5 provides a graphical representation of the Tuesday parking demands.

**Figure 2.5: Parking Demand Survey Results – Tuesday 6 September 2016**



## 2.4 Public Transport

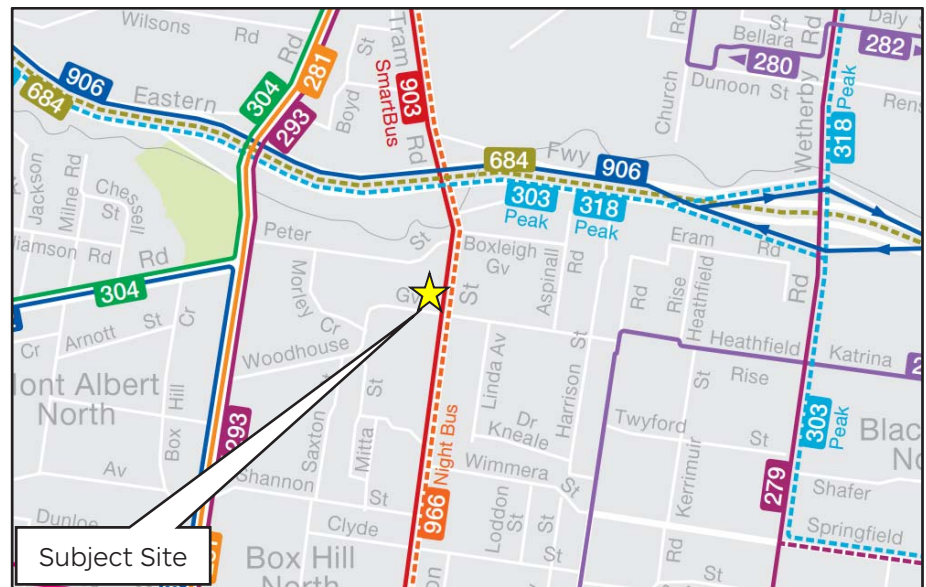
Public Transport in the immediate vicinity of the site is limited to bus route 903 which operates along Station Street, as detailed in Table 2.1 and illustrated in Figure 2.6.

Train, tram and additional bus services are available at Box Hill Shopping Centre and are accessible via bus route 903.

**Table 2.1: Public Transport Services**

Service	Route No's	Route	Nearest Stop	Approximate Walking Distance
Bus	903	Altona – Mordialloc (SMARTBUS Service)	St. Philips Pl / Station St	50m

**Figure 2.6: Public Transport Map**



## 2.5 Bicycle Network

The site is proximate to the Koonung Creek Trail, which provides opportunities for commuter cyclists.

The Koonung Creek Trail is located approximately 400 metres to the north of the site and is accessible via the local road network. The Koonung Creek Trail follows the Eastern Freeway from Springvale Road to Burke Road, where it connects with the Main Yarra Trail.

### 3 The Proposal:

It is proposed to construct a two storey commercial building on the site, with the existing ground floor shop tenancies to be extended and office to be provided above. More specifically, the development comprises the following:

- Two refurbished shop tenancies with a total floor area of 274 square metres, which is an increase of 145 square metres compared with existing conditions.
- Two office tenancies with a total floor area of 183 square metres; and
- Five car spaces within an under croft car park.

The car park is proposed to be accessed directly from St. Philips Place, via a widened crossover.

Primary pedestrian access is proposed from the strip shopping centre car park, with secondary access available from the under croft car park.

Bin storage is proposed within the under croft car park. Waste is proposed to be collected by a private contractor from St. Philips Place, with bins transferred to the kerb on collection day. Ratio Consultants has prepared a Waste Management Plan which addresses the proposed waste collection arrangements in more detail.

## 4.1 Clause 52.06 – Parking Assessment

Parking requirements for residential developments are set out under Clause 52.06 of the Victoria Planning Scheme, which was last updated on 1 July 2014 through the incorporation of Amendment VC116. The purpose of the Clause, among other things, is:

- To ensure that car parking is provided in accordance with the State Planning Policy Framework and Local Planning Policy Framework.
- To ensure the provision of an appropriate number of car parking spaces having regard to the demand likely to be generated, the activities on the land and the nature of the locality.
- To support sustainable transport alternatives to the motor car.
- To promote the efficient use of car parking spaces through the consolidation of car parking facilities.
- To ensure that car parking does not affect the amenity of the locality.
- To ensure that the design and location of car parking is of a high standard, creates a safe environment for users and enables easy and efficient use.

The number of car parking spaces required for a number of uses is listed under Table 1 of Clause 52.06-5. The application of the relevant rates is detailed in Table 4.1 below.

**Table 4.1: Car Parking Requirements – Clause 52.06-5**

Use	Rate	Number	Requirement*
Shop	4 spaces to each 100sqm of leasable floor area	274sqm	10 spaces
Office	3.5 spaces to each 100sqm of net floor area	183sqm	6 spaces
<b>Total</b>			<b>16 spaces</b>

\*Rounded down to the nearest whole number in accordance with Clause 52.06-5

Based on the foregoing, the proposal has a requirement to provide 16 car spaces. A total of 5 car spaces are proposed within the on-site car park and therefore a reduction of 11 spaces to the statutory requirements is sought.

It is proposed to allocate 3 of the proposed car spaces to office staff and 2 of the proposed car spaces to shop staff (1 space per tenancy).

Clause 52.06-6 states that an application to reduce the number of car parking spaces required under Clause 52.06-5 must be accompanied by a Car Parking Demand Assessment which must address the following matters:

- The likelihood of multi-purpose trips within the locality which are likely to be combined with a trip to the land in connection with the proposed use.
- The variation of car parking demand likely to be generated by the proposed use over time.
- The short-stay and long-stay car parking demand likely to be generated by the proposed use.
- The availability of public transport in the locality of the land.
- The convenience of pedestrian and cyclist access to the land.
- The provision of bicycle parking and end of trip facilities for cyclists in the locality of the land.

- The anticipated car ownership rates of likely or proposed visitors to or occupants (residents or employees) of the land.
- Any empirical assessment or case study.

Clause 52.06-6 also states that before granting a permit to reduce the number of car spaces, the responsible authority must consider a number of guidelines, including the following relevant to the proposal:

- The Car Parking Demand Assessment.
- The availability of alternative car parking in the locality of the land, including:
  - Efficiencies gained from the consolidation of shared car parking spaces.
  - Public car parks intended to serve the land.
  - On street parking in non residential zones.
  - Streets in residential zones specifically managed for non-residential parking.
- The practicality of providing car parking on the site, particularly for lots of less than 300 square metres.
- Any car parking deficiency associated with the existing use of the land.
- Access to or provision of alternative transport modes to and from the land.

## 4.2 Car Parking Demand Assessment

### Shop

Being located within a strip shopping centre, it is expected that there will be a level of multi-purpose trips, with people visiting other shops within the strip shopping centre also visiting the proposed shops.

Notwithstanding, for the purposes of this assessment, the statutory shop parking requirement of 10 spaces will be adopted as the anticipated shop parking demand.

Shop parking will comprise both staff and shopper parking demands. Shopper parking can generally be accommodated by short term/time restricted parking, whilst staff parking would generally require long term/all day parking.

It is expected that staff parking demands will be in the order of 1 space per tenancy, equating to an expected demand for 2 staff spaces.

The remaining demand of 8 spaces is expected to be associated with shoppers.

### Office

For the purposes of this assessment, the statutory office parking requirement of 6 spaces will be adopted as the anticipated office parking demand. Office staff would generally require long term/all day parking.

Parking demands associated with the office are expected to generally occur during business hours on weekdays.

### Summary

A summary of the expected long term and short term parking demands during business hours and outside of business hours is provided in Table 4.2.

**Table 4.2: Expected Parking Demands**

Use	Weekday Business Hours		Outside of Weekday Business Hours	
	Long Term (Staff)	Short Term (Shoppers)	Long Term (Staff)	Short Term (Shoppers)
Shop	2 spaces	8 spaces	2 spaces	8 spaces
Office	6 spaces	-	-	-
<b>Total</b>	<b>8 spaces</b>	<b>8 spaces</b>	<b>2 spaces</b>	<b>8 spaces</b>

As discussed in Section 4.1, it is proposed to allocate 3 spaces to office staff and 2 spaces to shop staff. On this basis, the expected reliance on off-site parking is detailed in Table 4.3.

**Table 4.3: Expected Reliance on Off-Site Parking**

Use	Weekday Business Hours		Outside of Weekday Business Hours	
	Long Term (Staff)	Short Term (Shoppers)	Long Term (Staff)	Short Term (Shoppers)
Shop	0 spaces	8 spaces	0 spaces	8 spaces
Office	3 spaces	-	-	-
<b>Total</b>	<b>3 spaces</b>	<b>8 spaces</b>	<b>0 spaces</b>	<b>8 spaces</b>

## 4.3 Review of Parking Dispensation Sought

### Car Parking Demand Assessment

The car parking demand assessment indicates the following in relation to anticipated parking demands:

- An anticipated long term staff parking demand for 8 spaces during weekday business hours, with a reliance on 3 long term off-site spaces.
- An anticipated long term staff parking demand for 2 spaces outside of weekday business hours, all of which can be accommodated on-site (i.e. no reliance of off-site parking).
- An anticipated short term shopper parking demand for 8 spaces both during weekday business hours and outside of weekday business hours. All shopper parking is proposed to be accommodated off-site.

### Availability of Alternative Car Parking

The site forms part of a strip shopping centre which has a shared car park comprising 18 car spaces. As per the current shop tenancies, the public shared car parking supply will continue to meet the short term shopper demands of the refurbished shop tenancies, with parking surveys indicating no less than 43 vacant spaces at all times surveyed.

In relation to the expected reliance on 3 long term off-site spaces for staff, the parking surveys indicate sufficient availability of parking to accommodate this demand, with no less than 36 unrestricted spaces available during the survey period on the Tuesday.

### **Practicality of Providing On-Site Parking**

The Clause 52.06-6 guidelines recognizes the challenges of providing car parking on small lots (of less than 300 square metres). The subject site at approximately 350 square metres is subject to these design impediments. The narrow width and trapezoidal shape of the site also impact on the ability to provide on-site parking.

As a result, there are limited options in relation to potential car park layouts and the ultimate provision of on-site parking which is achieved.

### **Existing Car Parking Deficiency**

As discussed in Section 2.1, there is currently a single shop tenancy located on each lot with a total floor area of 129 square metres.

Based on the adopted rate for shop use of 4 spaces to each 100 square metres, the existing site has an expected parking demand of 5 spaces.

Assuming there is a demand for 1 staff space per tenancy, the expected demand is anticipated to comprise 2 long term staff spaces and 3 short term shopper spaces.

It is expected that the staff demand of 2 spaces would be accommodated within the informal parking area to the rear, with the shopper demand of 3 spaces expected to be accommodated within the shared car park or on-street.

Based on the foregoing, it is considered that the site has a credit for 3 shopper spaces.

### **Discussion**

Whilst a minor increase in floor area is proposed, the shop extensions can effectively be considered as replacing the existing shops on the site. Expected shop staff parking demands will be accommodated on-site, with expected shopper demands anticipated to generally be consistent with the existing shop tenancies. In any case, the surveys identify sufficient availability of parking to accommodate the expected shopper demands.

In relation to the office, there is likely to be a minor overflow of up to 3 staff spaces on-street. Parking surveys indicate sufficient availability of unrestricted parking to accommodate this demand.

Overall, this is considered to be an acceptable outcome.

## 5.1 Clause 52.06-8 Design Standard Assessment

### Design Standard 1 – Accessways

Design Standard 1 of Clause 52.06-8 relates to the design of accessways. The requirements of Design Standard 1 are assessed against the proposal in Table 5.1.

**Table 5.1: Design Standard 1 Assessment - Accessways**

Requirement	Comments
Must be at least 3m wide.	The accessway varies in width from approximately 5.2 metres to 7.2 metres, in excess of this requirement.
Have an internal radius of at least 4m at changes of direction or intersection or be at least 4.2m wide.	There are no changes of direction and as such, this requirement is not applicable.
Allow vehicles parked in the last space of a dead-end accessway in public car parks to exit in a forward direction with one manoeuvre.	The proposed car park is not a public car park and this requirement is therefore not applicable.
Provide at least 2.1m headroom beneath overhead obstructions, calculated for a vehicle with a wheel base of 2.8m.	A headroom of at least 2.2 metres will be provided beneath overhead obstructions, in accordance with Clause 5.3.1 of AS/NZS 2890.1:2004 and in excess of this requirement.
If the accessway serves four or more car spaces or connects to a road in a Road Zone, the accessway must be designed so that cars can exit the site in a forward direction.	Cars are able to exit the site in a forward direction, in accordance with this requirement.
Provide a passing area at the entrance at least 5m wide and 7m long if the accessway serves ten or more car parking spaces and is either more than 50m long or connects to a road in a Road Zone.	The accessway is less than 50 metres long and does not connect to a road in a Road Zone. This requirement is therefore not applicable.
Have a corner splay or area at least 50% clear of visual obstructions extending at least 2m along the frontage road from the edge of an exit lane and 2.5m along the exit lane from the frontage, to provide a clear view of pedestrians on the footpath of the frontage road. The area clear of visual obstructions may include an adjacent entry or exit lane where more than one lane is provided, or adjacent landscaped areas, provided the landscaping in those areas is less than 900mm in height.	The centrally located car parking aisle will provide sight lines to pedestrians on the footpath, which meets the intent of this requirement.
If an accessway to four or more car parking spaces is from land in a Road Zone, the access to the car spaces must be at least 6m from the road carriageway.	The accessway is not from land in a Road Zone and as such, this requirement is not applicable.
If entry to the car space is from a road, the width of the accessway may include the road.	Entry to the car spaces is not from a road. This is therefore not applicable.



## Design Standard 2 – Car Parking Spaces

Design Standard 2 of Clause 52.06-8 relates to the design of car parking spaces. The requirements of Design Standard 2 are assessed against the proposal in Table 5.2.

**Table 5.2: Design Standard 2 Assessment – Car Parking Spaces**

Requirement	Comments
Car parking spaces and accessways must have the minimum dimensions as outlined in Table 2 of Design Standard 2.	Car spaces are dimensioned in accordance with Table 2 of Design Standard 2. Specifically, where the access is at least 6.4 metres, car spaces are dimensioned with a width of 2.6 metres and a length of 4.9 metres. Where the access width is reduced below 6.4 metres in width, the car spaces have been widened in accordance with Table 2.
<p>A wall, fence, column, tree, tree guard or any other structure that abuts a car space must not encroach into the area marked 'clearance required' on Diagram 1 of Design Standard 2, other than:</p> <ul style="list-style-type: none"> <li>- A column, tree or tree guard, which may project into a space if it is within the area marked 'tree or column permitted' on Diagram 1.</li> <li>- A structure, which may project into the space if it is at least 2.1m above the space.</li> </ul>	Columns adjacent to car spaces are located in accordance with this requirement.
Car spaces in garages or carports must be at least 6m long and 3.5m wide for a single space and 5.5m wide for a double space measured inside the garage or carport.	There are no garages or carports proposed and as such, this requirement is not applicable.
Where parking spaces are provided in tandem (one space behind the other) an additional 500mm in length must be provided between each space.	There are no tandem spaces proposed and as such, this requirement is not applicable.
Where two or more car parking spaces are provided for a dwelling, at least one space must be under cover.	There are no dwellings proposed and as such, this requirement is not applicable.
Disabled car parking spaces must be designed in accordance with Australian Standard AS2890.6-2009 (disabled) and the Building Code of Australia. Disabled car parking spaces may encroach into an accessway width specified in Table 2 of Design Standard 2 by 500mm.	There is no disabled car space proposed.

### Design Standard 3 – Gradients

Design Standard 3 of Clause 52.06-8 relates to the design of gradients.

The plans currently show the car park retaining the existing natural grade. The natural grade varies, however at its steepest, is estimated to be in the order of 1:9.

It is recommended that the car park is re-graded to be no steeper than 1:16 into the car park to comply with Clause 2.4.6.1 of the Australian Standard for Off-street Car Parking (AS/NZS 2890.1:2004) for gradients within a parking module.

The requirements of Design Standard 3 are assessed against the proposal in Table 5.3.

**Table 5.3: Design Standard 3 Assessment - Gradients**

Requirement	Comments
Accessway grades must not be steeper than 1:10 (10%) within 5m of the frontage to ensure safety for pedestrians and vehicles. The design must have regard to the wheelbase of the vehicle being designed for; pedestrian and vehicular traffic volumes; the nature of the car park; and the slope and configuration of the vehicle crossover at the site frontage. This does not apply to accessways serving three dwellings or less.	The existing natural grade of up to 1:9 exceeds this requirement.  However, adopting the above recommendation to regrade the car park no steeper than 1:16 would comply with this requirement.
Ramps (except within 5 metres of the frontage) must have the maximum grades as outlined in Table 3 of Design Standard 3 and be designed for vehicles travelling in a forward direction.	Both the existing natural grade of up to 1:9 and above recommendation to regrade the car park no steeper than 1:16 are in accordance with Table 3 of Design Standard 3.
Where the difference in grade between two sections of ramp or floor is greater than 1:8 (12.5%) for a summit grade change, or greater than 1:6.7 (15%) for a sag grade change, the ramp must include a transition section of at least 2 metres to prevent vehicles scraping or bottoming.  Plans must include an assessment of grade changes of greater than 1:5.6 (18%) or less than 3 metres apart for clearances, to the satisfaction of the responsible authority.	There would be appropriate transition sections for both the existing natural grade of up to 1:9 and above recommendation to regrade the car park no steeper than 1:16, in accordance with this requirement.

## 6 Bicycle Parking:

### 6.1 Bicycle Parking Requirements – Clause 52.34-3

The bicycle parking requirements for a number of uses are listed within Clause 52.34-3 of the Whitehorse Planning Scheme.

For both 'office' and 'shop' use, Clause 52.34-3 only requires that bicycle parking be provided where the floor area exceeds 1,000 square metres. As both the proposed shops and offices are less than 1,000 square metres, there is no requirement for bicycle parking to be provided.

## 7 Loading Facilities:

The provisions set out under Clause 52.07 (Loading and Unloading of Vehicles) of the Whitehorse Planning Scheme states that no building or works may be constructed for the manufacture, servicing, storage or sale of goods or materials unless space is provided on the land for loading and unloading vehicles.

The proposed shop component of the proposal generates a requirement for a loading bay. The requirements associated with the proposal are summarised in Table 7.1.

**Table 7.1: Loading Requirements - Clause 52.07**

Floor Area of Building	Minimum Loading Bay Dimensions	
2,600sqm or less in single occupation	Area	27.4sqm
	Length	7.6m
	Width	3.6m
	Height Clearance	4.0m

Clause 52.07 states that a permit may be granted to reduce or waive these requirements if either:

- The land area is insufficient.
- Adequate provision is made for loading and unloading vehicles to the satisfaction of the responsible authority.

Given the small size of the proposed shop tenancies, it is considered to be impractical to provide an on-site loading bay. Loading is likely to be undertaken by vans and small trucks which can undertake loading within an on-street car space or within the shared car park. This is expected to be consistent with the existing shop use at the site and other shop tenancies within the strip shopping centre.

It is therefore considered appropriate for loading associated with the shop to be undertaken on-street or within the shared car park.

## 8.1 Traffic Generation

### Shop

Traffic generation associated with the shop use during the on-road peak hours is expected to be limited to the arrival of staff in the morning and departure of staff in the evening.

As discussed in Section 4.2, there is an expected parking demand for 2 staff spaces associated with the proposed shops. This is expected to be consistent with the parking demand for the existing shops.

As such, there is not expected to be any additional traffic generation associated with the shop.

### Office

As discussed in Section 4.2, there is an expected parking demand for 6 staff spaces associated with the proposed offices.

Assuming that 50% of the car spaces associated with office staff turnover in the peak hours, including 90% in the peak direction and 10% in the counter peak direction, equates to 3 inbound movements in the AM peak and 3 outbound movements in the PM peak.

### Total

Based on the foregoing, the expected additional peak hour traffic generation associated with the proposal is summarised in Table 8.1.

**Table 8.1: Expected Additional Peak Hour Traffic Generation**

Component	AM Peak			PM Peak		
	Inbound	Outbound	Total	Inbound	Outbound	Total
Shop	-	-	-	-	-	-
Office	3 veh/h	-	3 veh/h	-	3 veh/h	3 veh/h
<b>Total</b>	<b>3 veh/h</b>	<b>-</b>	<b>3 veh/h</b>	<b>-</b>	<b>3 veh/h</b>	<b>3 veh/h</b>

## 8.2 Traffic Impact

The development is anticipated to generate in the order of 3 peak hour additional vehicle movements, which is the equivalent of 1 vehicle movement every 20 minutes on average.

This level of traffic is low in traffic engineering terms and is expected to be comfortably accommodated by the surrounding road network.

## 9 Conclusions:

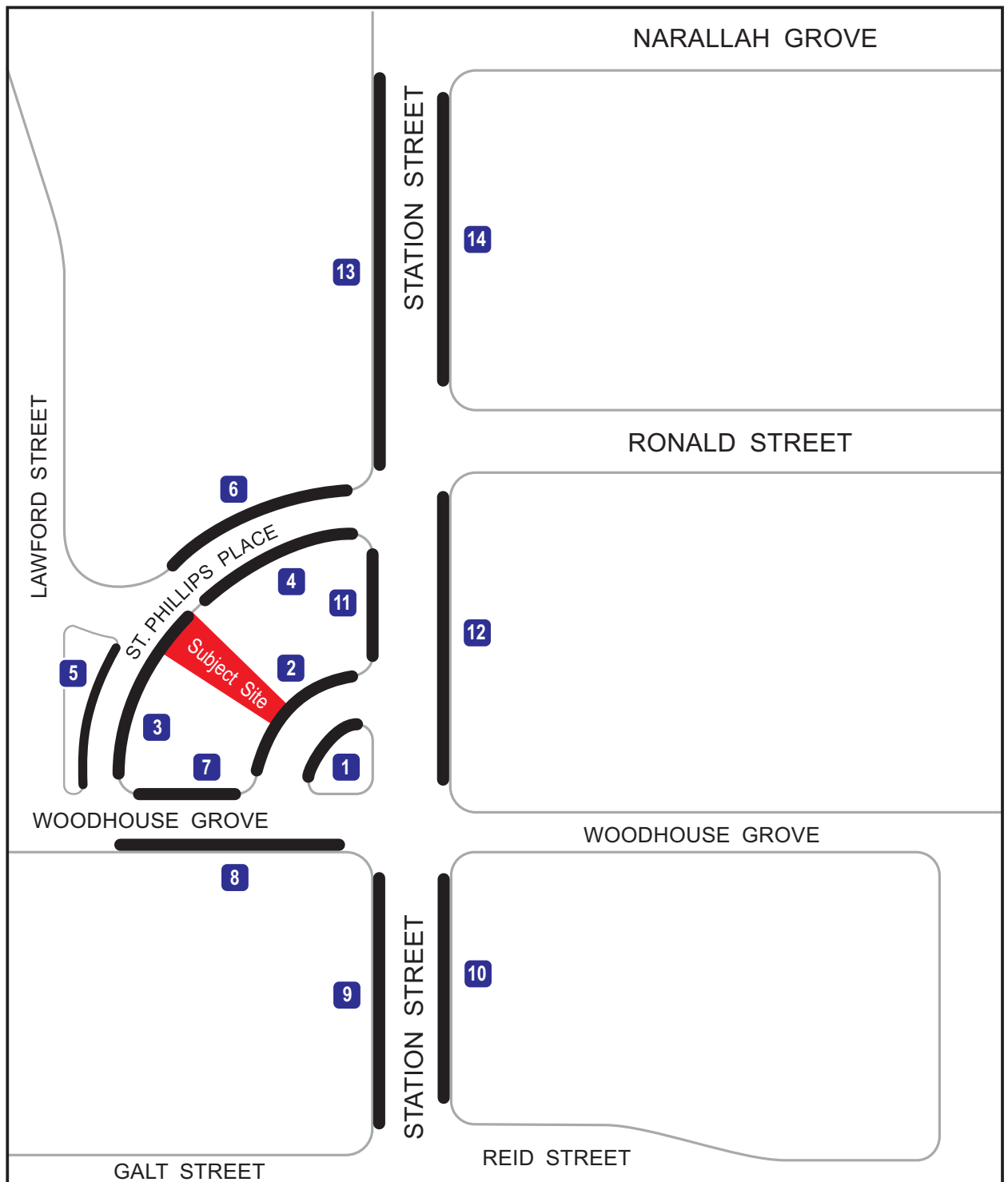
It is proposed to construct a two storey commercial building on the site, with the existing ground floor shop tenancies to be extended and office to be provided above.

Based on the assessment undertaken above, it is concluded as follows:

- Parking demands associated with shop staff are expected to be accommodated on-site;
- Shopper demands are proposed to be accommodated within the shared car park or on-street and are anticipated to be generally consistent with shopper demands associated with the existing shop tenancies. Car park occupancy surveys indicate sufficient availability of parking to accommodate these demands;
- There is expected to be an overflow of 3 staff spaces associated with the office. Car park occupancy surveys indicate sufficient availability of unrestricted parking to accommodate this demand;
- The proposed car parking and access arrangements have been designed adequately, subject to the re-grading of the car park to be no steeper than 1:16;
- There is no statutory requirement for bicycle parking;
- Loading is likely to be undertaken by vans and small trucks which can undertake loading within an on-street car space or within the shared car park;
- Waste is proposed to be collected from St. Philips Place by a private contractor; and
- The traffic anticipated to be generated by the proposal can be comfortably accommodated by the surrounding road network.

Overall, the proposed development is not expected to create adverse traffic or parking impacts in the precinct.

## Appendix A **Parking Survey Results**





Car Park Occupancy Survey Results - Saturday 3 September 2016



**Parking Occupancy Survey**

<b>Date:</b>	Saturday, 3 September 2016
<b>Location:</b>	945-946a Station Street, Box Hill North
<b>Weather:</b>	Fine
<b>Customer:</b>	Ratio

Public Parking (1/0)	Map Ref	Street	Section	Side	Restriction	Clear Way	Capacity	Parking Occupancy					
								10:00	11:00	12:00	13:00	14:00	15:00
1	1	Slip Lane	From Woodhouse Gv To Station St	S	2P 8am-6pm Mon-Fri		3	2	2	3	3	2	1
1					3P 8am-6pm Mon-Fri		2	1	1	2	1	2	2
1	2			N	1/2P 8am-6pm Mon-Fri		6	4	5	5	6	6	6
1					1/4P 6am-10pm		3	0	1	2	2	1	0
1					P Disabled		1	1	1	1	1	1	1
1					1/2P 6am-10pm		3	1	2	2	1	0	0
1	3	St Phillips Pl	From Woodhouse Gr To Subject Site	E	Unrestricted		4	1	1	1	1	0	1
1	4		From Subject Site To Station St	E	Unrestricted		5	0	1	1	1	0	3
1	5		From Woodhouse Gr To Subject Site	W	Unrestricted		6	1	1	0	0	0	3
1	6		From Subject Site To Station St	W	Unrestricted		6	0	1	1	1	0	0
1	7	Woodhouse Gv	From Station St To St Phillips Pl	N	2P 8am-6pm Mon-Fri		4	0	1	2	2	2	0
1	8			S	Unrestricted	No Stopping 7am-9am, 3pm-6pm Mon-Fri	4	0	1	1	2	2	0
1	9	Station St	From Reid St To Woodhouse Gv	W	Unrestricted	No Stopping 4pm-6pm Mon-Fri	5	0	0	0	0	0	0
1	10			E	Unrestricted	No Stopping 7am-9am, 3pm-6pm Mon-Fri	1	0	0	0	0	0	0
0	11		From Woodhouse Gv To Ronald St	W	No Stopping		0	0	0	0	0	0	0
1	12			E	Unrestricted		4	0	0	1	0	0	0
1	13		From Ronald St To Narallah Gv	W	Unrestricted		10	0	0	0	0	0	0
1	14			E	Unrestricted		6	0	0	0	0	0	1
	PUBLIC CAPACITY							73	73	73	73	73	73
	PUBLIC OCCUPANCIES							11	18	22	21	16	18
	PUBLIC VACANCIES							62	55	51	52	57	55
	PUBLIC % OCCUPANCIES							15%	25%	30%	29%	22%	25%

not available for public parking

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ISO 9001 ISO 4801

<b>Date:</b>	Tuesday, 6 September 2016
<b>Location:</b>	945-945a Station Street, Box Hill North
<b>Weather:</b>	Fine
<b>Customer:</b>	Ratio

Public Parking (1/0)	Map Ref Street	Section	Side	Restriction	Clear Way	Capacity	Parking Occupancy									
							8:00	9:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00
1	1	Slip Lane		2P 8am-6pm Mon-Fri	S	3	1	2	2	3	3	3	3	3	2	1
1				3P 8am-6pm Mon-Fri		2	1	0	2	1	2	1	2	1	1	1
1	2			1/2P 8am-6pm Mon-Fri	N	6	3	4	4	5	5	5	5	5	4	3
1				1/4P 6am-10pm		3	0	1	2	3	3	3	3	3	2	3
1				P Disabled		1	0	0	0	0	0	1	1	1	1	1
1				1/2P 6am-10pm		3	2	3	3	3	3	3	3	3	2	2
1	3	St Phillips Pl		Unrestricted	E	4	0	0	0	1	2	1	0	1	2	0
1	4			Unrestricted	E	5	0	1	1	2	2	1	0	1	2	0
1	5			Unrestricted	W	6	0	0	0	1	1	2	2	1	0	0
1	6			Unrestricted	W	6	0	1	2	2	2	1	0	1	1	2
1	7	Woodhouse Gv		2P 8am-6pm Mon-Fri	N	4	2	3	3	3	3	3	3	3	2	1
1	8			Unrestricted	S	4	0	0	3	4	4	3	3	0	0	0
1	9	Station St		Unrestricted	W	5	0	0	0	1	0	0	0	0	0	0
1	10			Unrestricted	E	1	0	0	0	0	0	0	0	0	0	0
0	11			No Stopping	W	0	0	0	0	0	0	0	0	0	0	0
1	12			Unrestricted	E	4	0	0	0	0	0	1	0	0	0	0
1	13			Unrestricted	W	10	0	0	0	0	0	0	0	0	0	0
1	14			Unrestricted	E	6	0	0	0	0	0	0	0	0	0	0
	PUBLIC CAPACITY						68	73	73	73	73	73	73	68	63	63
	PUBLIC OCCUPANCIES						9	15	22	29	30	28	25	23	19	14
	PUBLIC VACANCIES						59	58	51	44	43	45	48	45	44	49
	PUBLIC % OCCUPANCIES						13%	21%	30%	40%	41%	38%	34%	34%	30%	22%

## Ratio Consultants