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1 Introduction

1.1 Introduction

Ratio Consultants was commissioned by Kingswood College to prepare a Traffic Management Plan in response to the requirements of Schedule 3 to the Development Plan Overlay (DPO3): that applies to the site and introduced through amendment VC37 (19 January 2006) to the Whitehorse Planning Scheme.

In particular, the Schedule 3 of the DPO requires the following changes to the ‘Kingswood College Master Plan 2000’ and the ‘Kingswood College Landscape Master Plan, Drawing No. MP01’, prepared by Baldasso Cortese Pty Ltd Architects:

- Inclusion of a Traffic Management Plan, to be approved by Council prior to the commencement of the traffic and parking works shown coloured orange on the plan marked 2003. The Plan should address the following issues:
  - Staffing for school crossings;
  - Signage to the site;
  - Preferential parking away from the entrances to minimise the impacts;
  - Management of the access to the car park after hours;
  - Any measures the school will introduce to direct parking movements during peak times;
  - Contact details in the instance of concerns;
  - Any relevant matters from Council’s review of traffic and parking conditions in Piedmont Street and surrounds.

- The Traffic Management Plan must be prepared in consultation with the community involving, at a minimum, the properties abutting directly opposite the school site and those parties who lodged submissions to Amendment C27.

The purpose of this report is to address the above-mentioned requirements in a format suitable for submission to the City of Whitehorse for their consideration and assessment.

1.2 Reference Documents

In preparing this document, Ratio Consultants have referred to the following material:

- Whitehorse Planning Scheme zoning information for 347-355 Station Street, Box Hill;
- Arborists Report, prepared by Tree Consultants and Contractors (13 December 2012)
2 Existing Conditions

2.1 Subject Site and Surrounds

Kingswood College is located on the corner of Piedmont Street and Station Street, Box Hill, as shown below in Figure 2.1.

Figure 2.1: Site Locality Plan

![Site Locality Plan](image)

Source: Melways ed. 39

The land is essentially rectangular in shape with a frontage to Piedmont Street of 325 metres and a depth of approximately 306 metres, for an overall site area of 99,450 square metres. The site is zoned Residential Zone 1 (RZ1) with a number of overlays including; Development Plan Overlay-Schedule 3 (DP03), Heritage Overlay Schedule (H076), and Vegetation Protection Overlay-Schedule 3 (VP03). Surrounding land uses are predominately residential, with a commercial district located approximately 350 metres north at the Station Street and Canterbury Road intersection.

2.2 Existing Car Parking and Internal Roads

As outlined in Section 6.5 of the original Kingswood College Master Plan, there are a number of issues and deficiencies relating to the current parking and access layout within the Kingswood College Campus. These main issues are outlined as follows:

- **Insufficient provision for parents to drop off and pick up students causing severe congestion in Piedmont Street which is primarily a residential street.**
- **Vehicular traffic traversing the campus with parking dispersed throughout the site, all conflicting with student and staff movements to and from buildings and playing fields.**
The site currently has five vehicle crossovers, with two from Piedmont Street and three from Station Street. The main vehicular access into the campus is situated on Piedmont Street and is labelled as ‘Gate 1’. This gate is operating as ‘entry only’ for vehicles that then travel around the oval and exit via Gate 3 onto Station Street. This internal access road also includes a layover area for buses to drop off and pick up students. Gate 2 on Piedmont Street provides an entry/exit for staff car parking. There are also two other existing cross-overs on Station Street, one of which leads to the care-takers residence and one of which is located at the southern boundary of the school site and was originally installed to provide access to construction activities located along the southern end of the school site. Recent planning approval will result in the construction of a new southern staff car park accessed from this location via a new proposed crossover. Refer Appendix A for the existing site plan.

Existing parking provided within the site consists of five formal car parks:

- Staff car parking area accessed via Gate 2 in a 90 degree angled configuration;
- 90 degree angled parking located to the west along the southbound section of the internal road;
- Parallel parking located to the east along the southbound section of the internal road;
- 90 degree angled parking located to both north and south side of the eastbound section of the internal road;
- A small staff parking area accessed via Gate 4 from Station Street; and
- A bus layover area located to the south-western side of the main oval.

The existing traffic and parking arrangement presents the following difficulties as identified in the previous Masterplan:

- Visitors to Kingswood College need to traverse the site in order to arrive at the Administration Office;
- Some staff parking is located off sections of the internal road;
- Students accessing the ovals have to traverse across the internal road to access the oval, and school bus layover area;
- Vehicles entering the site have no alternative but to traverse through the campus;
- Insufficient parking for visitors to the College at the Administration building.

### 2.3 Road Network

**Station Street** is classified as a secondary state arterial road and runs in a north-south direction between Highbury Road, Burwood and the Eastern Freeway in Box Hill North where it continues as Tram Road towards Doncaster Road. Station Street has a pedestrian crossing on the eastern boundary of the site approximately 100 metres south of Piedmont Street and caters for two trafficable lanes in each direction. Station Street generally has a speed limit of 60km/h however during school start and finish times (8:00am – 9:30am and 2:30pm – 4:00pm weekdays) a reduced speed limit of 40km/h applies.

**Piedmont Street** is a municipal road and functions as a local street that connects Elgar Road and Station Street and runs in an east-west direction. It has a carriageway width of approximately 7.3 metres and provides one trafficable lane in each direction. It also provides for some parallel parking on the south side as well as designated ‘No Stopping’ zones during school setdown/pickup times on the north side. Within the vicinity of the school campus Piedmont Street has a speed limit of 40km/h.
2.4 Parking Conditions

In order to determine the parking conditions in the vicinity of the subject site, Ratio Consultants conducted surveys of parking demand on Friday 19 October 2012 between 2:30pm and 4:30pm. The extent of the survey area is shown in Figure 2.2 with the detailed survey results presented in Table 2.1 of Appendix B.

The key findings of the surveys are summarised below.

Friday 19 October 2012

- There was a minimum of 357 on-street and on-site spaces available in the survey area.
- The overall peak parking demand occurred at 3:00pm with 168 vehicles occupying a total of 357 available car parking spaces, which represents 47% occupancy.
- Parking demand was moderate throughout the survey period with occupancies ranging between 47% recorded at 3:00pm and 25% at 4:30pm.

On-Street Parking

- There was a minimum of 202 on-street spaces available in the survey area.
- The overall peak parking demand occurred at 3:00pm with 59 vehicles occupying a total number of 202 available car parking spaces, which represents 29% occupancy.
- Parking demand was low to moderate throughout the survey period with occupancies ranging between 13% recorded at 2:30pm and 29% at 3:00pm.
- Between the peak setdown/pickup times of 8:00am-9:15am and 3:00pm - 4:00pm ‘No Stopping’ restrictions apply along the north side and a short section of the south side of Piedmont Street. Peak demand for unrestricted parking zones along the south side of Piedmont Street occurred at 3:00pm with 23 vehicles occupying a total number of 38 available car parking spaces, which represents 61% occupancy.
- It was also noted that although some parking on Station Street is unrestricted it is not a preferred parking zone due to the high volume of traffic and the dominant traffic movement function of the road.

On-Site Parking

- A total of 155 restricted and unrestricted parking spaces are available within the on-site parking areas.
- The overall peak parking demand occurred at 2:45pm and 3:00pm with 109 vehicles occupying a total of 155 car parking spaces, which represents 70% occupancy.
- Parking demand was generally moderate throughout the survey period with occupancies ranging between 30% recorded at 4:15pm and 70% at 2:45pm and 3:00pm.
- Peak demand for unrestricted parking zones within the on-site parking occurs at 2:45pm with 68 vehicles occupying a total number of 100 available car parking spaces, which represents 68% occupancy.
- Peak demand for staff parking zones within the on-site parking occurs at 3:00pm with 28 vehicles occupying a total of 38 available car parking spaces, which represents 74% occupancy. Demand then declined until the end of the survey period.
- High demand was observed for the short-term parking within Zone 2, with peak occupancy within this zone at 2:45pm with 8 vehicles occupying the 8 available car parking spaces.
Graph 2.1: Friday 19 October 2012 Temporal Profile of Parking Demand

Overall, the survey results indicate that parking demand for on-street and on-site parking in the vicinity of the site is moderate, with stronger demands at the peak pickup time (2:45pm to 3:00pm). Parking demand for on-street parking was moderate with some spare capacity to accommodate an increase in parking demand. Parking demand within the on-site parking is moderate with the short term parking having the highest occupancy.

2.5 Traffic Conditions

Ratio Consultants conducted traffic movement count surveys to confirm the AM and PM peak hour volumes at the Piedmont Street/Monash Street, Piedmont Street/Main Entrance, Piedmont Street/Station Street and Station Street/Main Exit intersections on Friday 19 October 2012 between 7:30am to 9:30am and 2.30pm to 5.30pm. The results of the surveys are summarised in Figure 2.3 below.
In summary, the survey results showed:

**Piedmont Street/Monash Street**

Results were recorded for:

- All movements from the east approach of Piedmont Street
- Right and left turns from Monash Street into the east approach of Piedmont Street
- Through movements from the west approach of Piedmont Street.
The AM peak hour was observed between 7:45am to 8:45am, with a total of 287 traffic movements recorded.

The PM peak hour was observed between 3:00pm to 4:00pm, with a total of 180 traffic movements recorded.

During the AM peak hour the dominant movement involved 111 vehicles travelling eastbound on Piedmont Street, with 86 vehicles travelling westbound on Piedmont Street. There were moderate levels of traffic activity turning into or from Monash Street, with 20 vehicles turning right and 22 vehicles turning left into the east approach of Piedmont Street. There were 28 vehicles turning left and 20 vehicles turning right from the east approach of Piedmont Street into Monash Street.

During the PM peak hour the dominant movement involved 76 vehicles travelling eastbound on Piedmont Street, with 61 vehicles recorded travelling westbound on Piedmont Street. There were moderate levels of traffic activity turning into or from Monash Street, with 4 vehicles turning right and 9 vehicles turning left into east approach of Piedmont Street. There were 17 vehicles turning left and 13 vehicles turning right from the East approach of Piedmont Street into Monash Street.

Piedmont Street/Main Entrance (Gate 1)

Results were recorded for all possible movements at this intersection.

The AM peak hour was observed between 7:45am to 8:45am, with a total of 466 traffic movements recorded.

The PM peak hour was observed between 2:30pm to 3:30pm, with a total of 234 traffic movements recorded.

During the AM peak hour the dominant movement involved 165 vehicles turning left from the east approach of Piedmont Street, with 113 vehicles turning right from the west approach of Piedmont Street. 123 vehicles were recorded travelling westbound and 65 eastbound on Piedmont Street.

During the PM peak hour the dominant movement involved 79 vehicles travelling westbound on Piedmont Street, with 60 vehicles travelling eastbound on Piedmont Street. There were lower levels of traffic activity turning from Piedmont Street into the site than in the AM Peak, with 59 vehicles turning left and 35 vehicles turning right into site.

It is noted that this gate is intended to function as an ‘entrance only’ and only one vehicle was recorded turning out of the school campus via this gate.

Piedmont Street/Station Street

Results were recorded for all possible movements at this intersection.

The AM peak hour was observed between 8:00am to 9:00am, with a total of 1888 traffic movements recorded.

The PM peak hour was observed between 4:30pm to 5:30pm, with a total of 1659 traffic movements recorded.

During the AM peak hour the dominant movement involved 807 vehicles travelling northbound on Station Street, with 759 vehicles travelling southbound on Station Street. There were moderate to high levels of traffic activity turning into or from Piedmont Street, with 124 vehicles turning right and 141 vehicles turning left into Piedmont Street. There were 45 vehicles turning left and 12 vehicles turning right from Piedmont Street into Station Street.
During the PM peak hour the dominant movement involved 762 vehicles travelling northbound on Station Street, with 685 vehicles travelling southbound on Station Street. There were more moderate levels of traffic activity turning into or from Piedmont Street, with 47 vehicles turning right and 47 vehicles turning left into Piedmont Street. There were 55 vehicles turning left and 43 vehicles turning right from Piedmont Street into Station Street.

Station Street/Main Exit (Gate 3)

Results were recorded for turning movements from the site onto Station Street.

- The AM peak hour was observed between 7:45am to 8:45am, with a total of 238 traffic movements recorded.
- The PM peak hour was observed between 3:00pm to 4:00pm, with a total of 135 traffic movements recorded.
- During the AM peak hour the dominant movement involved 163 vehicles turning left from the site onto Station Street. 75 vehicles were recorded turning right onto Station Street.
- During the PM peak hour the dominant movement involved a total of 103 vehicles recorded turning left from the site onto Station Street with 32 vehicles turning right onto Station Street.
- It is noted that this gate is intended to function as an ‘exit only’ and no illegal entry movements were recorded.

2.6 Sustainable Transport

Public Transport

The site has very good access to the public transport network, as described below:

- Bus route 903 (Altona to Mordialloc SMARTBUS Service) and 732 (Upper Ferntree Gully via Vermont South, Knox City, Mountain Gate) operate along Station Street, with the closest stop on the Piedmont Road corner of the site.

- Bus routes 768 (Box Hill - Deakin University via Canterbury Road) and 735 (Box Hill to Nunawading) operate along Station Street, with the nearest stop located approximately 360 metres north of the site, near the intersection of Station Street and Canterbury Road.

- Bus Routes 767 (Southland – Box Hill via Chadston, Jordanville, Deakin university) and 281 (Templestowe to Deakin University) operate along Elgar Road, with the nearest stop located approximately 550 metres west of the site.
2.7 Crash Analysis

A review has been conducted of VicRoads 'Crashstats' data base for the most recent five year period of available data from 1 July 2007 to 30 June 2012 for any reported casualty crashes along Station Street between Duncan Street and David Street and along Piedmont Street between Station Street and Wellman Street inclusive of the intersections. A summary of the crashes is presented in Table 2.1.

Table 2.1: CrashStats Analysis Summary

<table>
<thead>
<tr>
<th>Location</th>
<th>Date</th>
<th>Severity</th>
<th>Crash Type and Code</th>
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<tbody>
<tr>
<td>Piedmont Street and Monash Street Intersection</td>
<td>09/07/2007</td>
<td>Other Injury</td>
<td>Cross Traffic (intersection) (110)</td>
</tr>
<tr>
<td></td>
<td>07/12/2009</td>
<td>Serious Injury</td>
<td>Cross Traffic (intersection) (110)</td>
</tr>
<tr>
<td>Station Street and Hill Street Intersection</td>
<td>25/01/2009</td>
<td>Other Injury</td>
<td>Out of Control on Carriageway (174)</td>
</tr>
<tr>
<td>On Station Street between Piedmont Street and Hill Street</td>
<td>20/10/2008</td>
<td>Other Injury</td>
<td>Lane Side Swipe (133)</td>
</tr>
</tbody>
</table>

From the crash record there have been a few crashes in the vicinity of the subject site. Given the volume of traffic along Station Street and Piedmont Road, it is considered that the road network surrounding Kingswood College is operating in a relatively safe environment.
3 Traffic Management Plan

3.1 Objectives

The main traffic and parking objectives of this Traffic Management Plan are:

- To disconnect the internal road within the Campus to through-traffic to improve safety and connectivity between various buildings and the ovals via a new site access arrangement;
- To provide a new bus layover area for parking of school buses and to create a new stopping area that can be accessed from the ovals without the need for students to cross an internal road;
- To provide a formal pick-up/set-down area and associated short-term parking for parents, accessed via a one-way access configuration, separate from the staff parking area;
- Introduce an access control arrangement along the existing internal road, that restricts vehicular access during school hours, with only authorised service vehicle and emergency vehicle access maintained; and
- To address each of the requirements listed under Schedule 3 of the DPO3 of the Whitehorse Planning Scheme.

The following sections of this report outline the proposed traffic and parking management arrangements in further detail.

3.2 Proposed Change to Site Access Arrangements

It is proposed that a new crossover and access gate be introduced to the west of the existing Gate 2, for vehicles to enter a new parking and bus layover area in a one-way configuration.

The proposed vehicle cross-over is 6 metres wide, and has been designed to cater for turning movements (both left and right turn into the gate from Piedmont Street) for a 12.5 metre bus / Heavy Rigid Vehicle. The location of the vehicle cross-over is determined based on advice provided by the Arborists to ensure minimum need to remove existing significant trees on-site, and to minimise any potential impacts on tree root zones.

The crossover connects onto a new access road, designed taking into consideration existing trees and the Arborist’s assessment. The roadway travels south into a bend which is essential due to tree protection requirements, and also acts as a traffic management measure that maintains a low speed environment for vehicles accessing the new bus layover area, and short term parking area.

Vehicles will exit the new parking and bus layover area in a forwards direction connecting onto the existing internal access road South of Gate 1. All vehicles exiting this parking area will turn right and utilise the existing Gate 1 for exiting onto Piedmont Street.

This access / egress arrangement is considered to meet the primary objective of the Masterplan by:

- Disconnecting the existing internal access road to the majority of through-traffic that currently traverses through the site; and
- Improving pedestrian safety and connectivity between different areas of the campus by the creation of a new access and parking arrangement for parents.
3.3 Proposed Bus Layover Area

The new bus layover area is located along a newly created one-way access, separated from the angled parking area that is located to the south of the proposed short-term car parking area, with students of the Kingswood College being able to access the bus layover area without crossing a busy internal access road. The bus layover area consists of a 3m wide indented kerbside lane at least 45m in length, accessed via a 3.5m wide access aisle, providing sufficient passing opportunities around a parked bus. This area can also be used for short term pick-up/set-down requirements during peak periods when no bus services (school excursions and sport excursions) utilise the kerbside areas.

Swept path assessment using the AutoTrack software confirms that satisfactory access to/from the bus layover areas, confirms that appropriate access has been designed.

Refer to Appendix C for further details.

3.4 Short Term Car Parking Area

A short term parking area consisting of 49 parking spaces will be provided in the revised master plan scheme to cater for short-term pick-up/set-down parking associated with the Kingswood College. The 49 spaces consist of:

- 10 existing 90-degree angled parking spaces to the north of the existing access road;
- Addition of eight, 90-degree angled parking spaces to the south of the existing access road;
- 25 new 60-degree angled parking spaces, allocated to staff, accessed via a new access driveway from Piedmont Street; and
- 6 new kerbside short-term parking spaces which will be used by parents during peak pick-up/set-down periods, and for bus parking during school hours as the Kingswood College no longer has a school bus service, and the kerbside bus zone will only be used during school hours to transport students to/from excursions and activities.

The parking spaces are generally compliant with the dimensions specified in Clause 52.06-8 of the Whitehorse Planning Scheme. Swept path assessment prepared using the AutoTrack software confirms that satisfactory access is available to/from the parking areas and critical parking bays.

Refer to Appendix D for further details.

3.5 Traffic Management Arrangement

To reinforce movement priorities of the generally one-way movement arrangement, traffic management devices including pavement marking and signage are proposed. Refer to Appendix E for the Signage and Line Marking plan which set out the proposed traffic management arrangements within the site.

It should be noted that any future signage to be erected will be in accordance with standard Kingswood College signage, with staff, pedestrian and traffic areas clearly indicated.

3.6 Access to Car Parking Areas – Outside Hours

Since the original masterplan, gates have been installed at all vehicular access points of the Kingswood College which forms part of a perimeter fence surrounding the school.

It is proposed that a new access gate, similar in height, material and finishes to existing gates will be installed at the new proposed access point.
The gates will essentially be open during school hours, generally from 7:30 am – 10:30 pm Monday to Friday and 8:00 am – 6:00 pm on the weekend.

3.7 Parking Management Arrangements During Peak Periods

As per current arrangements, Kingswood College will deploy its staff to manage parking areas within the Kingswood College Campus, to ensure that parents are adhering to the short-term parking arrangements, and do not double park or park in an unsafe manner. Kingswood College staff who patrol the parking area will wear a VicRoads approved safety vest that is suitable for on-road use. Any dangerous driving behaviour observed within Kingswood College campus will be referred to Victoria Police for investigation.

3.8 Contact Details

Contact details for Kingswood parking and traffic matters are available via the school reception located at 355 Station Street, Box Hill or by calling (03) 9896 1700.

3.9 Public Consultation

The City of Whitehorse has provided a list of original objectors to the Kingswood College Masterplan. A letter notifying original objectors and nearby property owners of this Traffic and Transport Management Plan is sent out by the Kingswood College in early 2014.

Residents and objectors have the opportunity to view the proposed Traffic Management Arrangements as outlined in this Traffic Management Plan report via the website, with a link provided in the issued letter.
APPENDIX A

Existing Site Plan
APPENDIX B

Survey Results