

### 3. TRAFFIC ASSESSMENT

#### Road Hierarchy

The road hierarchy allocated to the surrounding road network by the Roads and Maritime Services is illustrated on Figure 3.

Victoria Road is classified by the RMS as a *State Road* and provides the key east-west road link in the area, linking North Parramatta to Rozelle. It typically carries three traffic lanes in each direction in the vicinity of the site with opposing traffic flows separated by a centre median island. Kerbside parking is permitted at selected locations outside of commuter peak periods.

Monash Road (south of Ryde Road) and Ryde Road are classified by the RMS as *Regional Roads* which follow an east-west alignment through the area, linking Victoria Road to Burns Bay Road. They typically carry one traffic lane in each direction in the vicinity of the site with kerbside parking generally permitted.

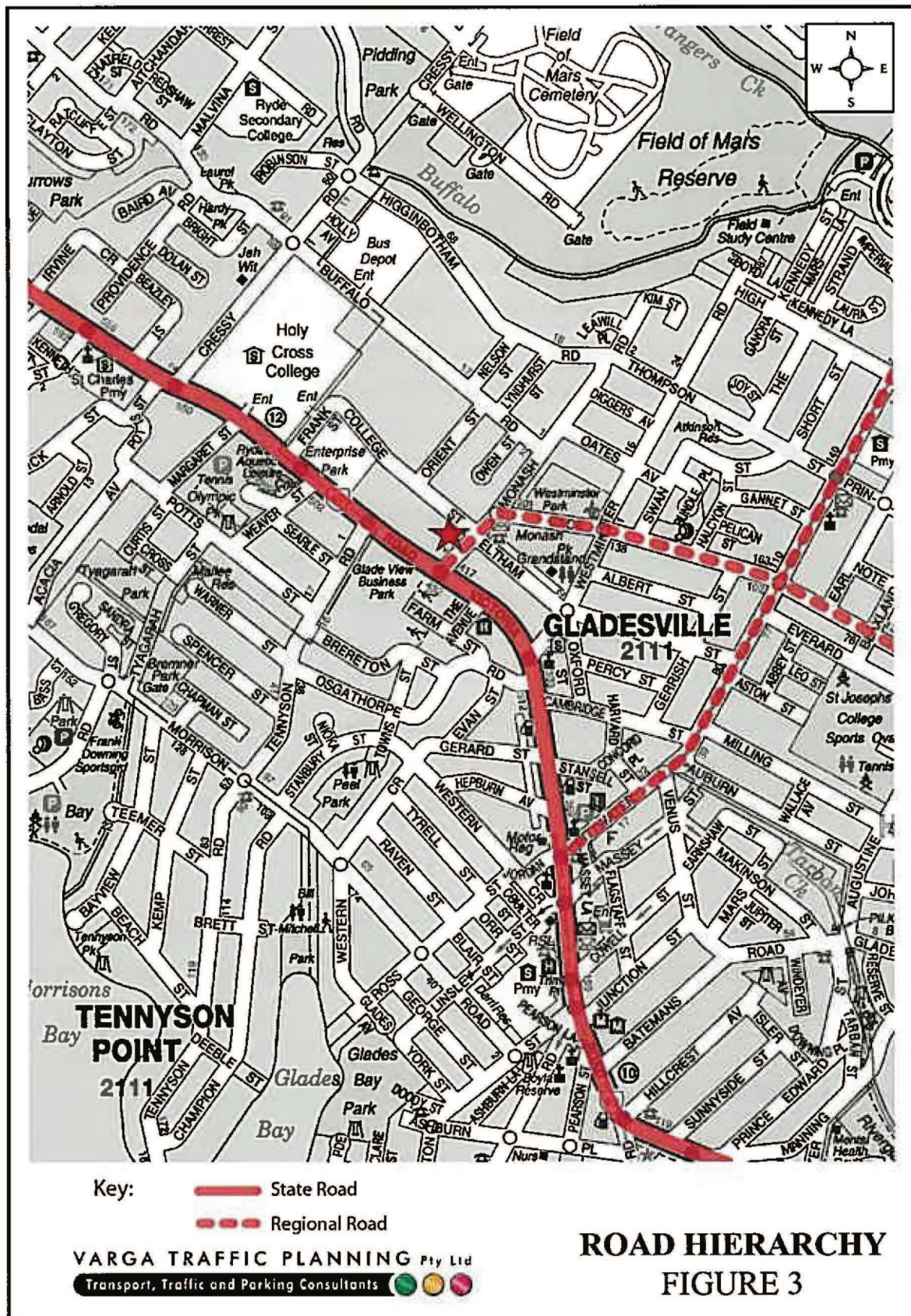
Pittwater Road is also classified by the RMS as a *Regional Road* which follow a north-south alignment through the area, linking Victoria Road to Epping Road. It also typically carries one traffic lane in each direction in the vicinity of the site with turning bays provided at key locations.

College Street is a local, unclassified road which is primarily used to provide vehicular and pedestrian access to frontage properties. Kerbside parking is generally permitted on both sides of the road.

#### Existing Traffic Controls

The existing traffic controls which apply to the road network in the vicinity of the site are illustrated on Figure 4. Key features of those traffic controls are:

- a 60 km/h SPEED LIMIT which applies to Victoria Road





- a 50 km/h SPEED LIMIT which applies to Monash Road, College Street and all other local roads in the area
- TRAFFIC SIGNALS in Victoria Road where it intersects with Monash Road and also Westminster Road
- a NO RIGHT-TURN westbound restriction in Victoria Road onto Westminster Road
- a RIGHT-TURN HOLDING BAY in Victoria Road turning onto Monash Road.

### Existing Traffic Conditions

An indication of the existing traffic conditions on the road network in the vicinity of the site is provided by reference to the RMS's *Annual Average Daily Traffic* data. The relevant count stations nearest to the subject site are summarised below, revealing that the annual average daily traffic along this section of Victoria Road is in the order of 54,000 vehicles per day (eastbound and westbound).

| Station No. | Location                              | 1996   | 1999   | 2002   | 2005   |
|-------------|---------------------------------------|--------|--------|--------|--------|
| 00.335      | Victoria Road & Monash Road (TCS)     | 55,364 | 56,695 | 51,690 | 57,164 |
| 51223       | Victoria Road (east of Weaver Street) | 52,614 | 53,606 | 55,417 | 53,898 |

A more detailed indication of the existing traffic conditions on the road network in the vicinity of the site is provided by peak period traffic surveys undertaken as part of a previous nearby traffic study. The traffic surveys were undertaken at the intersection of Victoria Road and Monash Road as well as the intersection of Monash Road and College Street/Eltham Street. The results of the traffic surveys are reproduced in full in Appendix A and reveal that:

- two-way traffic flows in Victoria Road are typically in the order of 3,900 vehicles per hour (vph) during the weekday *afternoon* peak period, reducing to 3,200 vph during the Saturday peak period
- two-way traffic flows in Monash Road past the site frontage are typically in the order of 950 vph during the weekday *afternoon* peak period, reducing to 800 vph during the Saturday peak period

- two-way traffic flows in College Street are typically in the order of 200 vph during the weekday *afternoon* peak period, reducing to 100 vph during the Saturday peak period

### **Projected Traffic Generation**

An indication of the traffic generation potential of the proposed development is provided by reference to the Roads and Traffic Authority's publication *Guide to Traffic Generating Developments, Section 3 - Landuse Traffic Generation (October 2002)*.

The RTA *Guidelines* are based on extensive surveys of a wide range of land uses and nominate the following traffic generation rates which are applicable to the development proposal:

#### **Commercial Premises**

2.0 peak hour vehicle trips per 100m<sup>2</sup> GFA

#### **High Density Residential Flat Buildings in Sub-Regional Centres**

Thursday PM: 0.29 peak hour vehicle trips per dwelling

Saturday: 0.29 peak hour vehicle trips per dwelling (assumed)

The RTA *Guidelines* also make the following observation in respect of high density residential flat buildings:

#### **Definition**

A *high density residential flat building* refers to a building containing 20 or more dwellings. This does not include aged or disabled persons housing. *High density residential flat buildings* are usually more than 5 levels, have basement level carparking and are located in close proximity to public transport services. The building may contain a component of commercial use.

#### **Factors**

The above rates include visitors, staff, service/delivery and on-street movements such as taxis and pick-up/set-down activities.

It should be noted that the exact nature of the proposed retail/commercial component is not yet known, therefore the abovementioned traffic generation rate of "2.0 peak hour vehicle trips/100m<sup>2</sup> GFA" nominated in the RTA *Guidelines* for "commercial premises" has been adopted in respect of the retail/commercial component of the development proposal.

Application of the above traffic generation rates to the residential and retail/commercial components of the development proposal yields a traffic generation potential of approximately 11 vehicle trips per hour during commuter peak periods as set out below:

**Projected Future Traffic Generation**

|                                                  |                                     |
|--------------------------------------------------|-------------------------------------|
| Residential Apartments (25 Apartments):          | 7.3 peak hour vehicle trips         |
| Retail/Commercial Premises (167m <sup>2</sup> ): | 3.3 peak hour vehicle trips         |
| <b>TOTAL TRAFFIC GENERATION POTENTIAL:</b>       | <b>10.6 peak hour vehicle trips</b> |

That projected future level of traffic generation potential should however, be offset or *discounted* by the volume of traffic which could reasonably be expected to be generated by the existing uses of the site, in order to determine the *nett increase (or decrease)* in traffic generation potential expected to occur as a consequence of the development proposal.

Application of the “dwelling house” and the abovementioned “commercial premises” traffic generation rates nominated in the RTA *Guidelines* to the existing dwelling house and dental surgery on the site yields a traffic generation potential of approximately 5 vehicle trips per hour during commuter peak periods as set out below:

**Existing Traffic Generation Potential**

|                                                      |                                    |
|------------------------------------------------------|------------------------------------|
| No.10 Monash Rd Dental Surgery (200m <sup>2</sup> ): | 4.0 peak hour vehicle trips        |
| No.2 College St Dwelling House:                      | 0.9 peak hour vehicle trips        |
| <b>TOTAL TRAFFIC GENERATION POTENTIAL:</b>           | <b>4.9 peak hour vehicle trips</b> |

Accordingly, it is likely that the proposed development will result in a slight *increase* in the traffic generation potential the site of approximately 6 vph as set out below:

**Projected Nett Increase in Peak Hour Traffic Generation Potential  
as a consequence of the development proposal**

|                                                       |                           |
|-------------------------------------------------------|---------------------------|
| Projected Future Traffic Generation Potential:        | +10.6 vehicle trips       |
| Existing Traffic Generation Potential:                | -4.9 vehicle trips        |
| <b>NETT INCREASE IN TRAFFIC GENERATION POTENTIAL:</b> | <b>+5.7 vehicle trips</b> |

For the purposes of this assessment however, it has been assumed that *all* of the projected future traffic flows of 11 peak hour vehicle trips will be new or *additional* to the existing traffic flows currently using the adjacent road network.

That projected increase in traffic activity as a consequence of the development proposal is minimal and will clearly not have any unacceptable traffic implications in terms of road network capacity, as is demonstrated by the following section of this report.

### **Traffic Implications - Road Network Capacity**

The traffic implications of development proposals primarily concern the effects that any *additional* traffic flows may have on the operational performance of the nearby road network. Those effects can be assessed using the SIDRA program which is widely used by the RTA and many LGA's for this purpose. Criteria for evaluating the results of SIDRA analysis are reproduced in the following pages.

In this regard, it is noted that the JRPP has previously approved a large mixed-use development directly opposite the site, at 1-9 Monash Road. For the purposes of assessing the Planning Proposal therefore, the traffic generation potential of that previously approved development has been added to the existing traffic volumes to create a new existing or "base case" scenario.

The results of the SIDRA analysis of the Victoria Road & Monash Road intersection are summarised on Table 3.1 below, revealing that:

- the Victoria Road & Monash Road intersection currently operates at *Level of Service "B"* under the existing traffic demands (including the 1-9 Monash Road development) with total average vehicle delays in the order of 19-20 seconds/vehicle
- under the projected future traffic demands expected to be generated by the development proposal, the Victoria Road & Monash Road intersection will continue to operate at *Level of Service "A"*, with increases in average vehicle delays of *less than* 1 second/vehicle.

The results of the SIDRA analysis of the Monash Road/Eltham Street intersection are summarised in Table 3.2 below, revealing that:

- the Monash Road/Eltham Street intersection currently operates at *Level of Service "A"* under existing traffic demands (including the 1-9 Monash Road development), with total average vehicle delays in the order of 5-6 seconds per vehicle
- under the projected future traffic demands expected to be generated by the development proposal, the Monash Road/Eltham Street intersection will continue to operate at *Level of Service "A"*, with increases in the average vehicle delays of *less than* 1 second per vehicle.

In the circumstances, it is clear that the development envisaged by the Planning Proposal will not have any unacceptable traffic implications in terms of road network capacity. In particular, it is confirmed that no intersection upgrades or improvements will be required as a consequence of the Planning Proposal.

| <b>TABLE 3.1 - RESULTS OF SIDRA ANALYSIS OF<br/>VICTORIA ROAD &amp; MONASH ROAD</b> |                                    |            |                                                 |            |
|-------------------------------------------------------------------------------------|------------------------------------|------------|-------------------------------------------------|------------|
| <b>Key Indicators</b>                                                               | <b>Existing<br/>Traffic Demand</b> |            | <b>Projected Development<br/>Traffic Demand</b> |            |
|                                                                                     | <b>PM</b>                          | <b>SAT</b> | <b>PM</b>                                       | <b>SAT</b> |
| <b>Level of Service</b>                                                             | B                                  | B          | B                                               | B          |
| <b>Degree of Saturation</b>                                                         | 0.646                              | 0.654      | 0.686                                           | 0.696      |
| <b>Average Vehicle Delay (secs/veh)</b>                                             | 17.6                               | 17.3       | 19.1                                            | 19.6       |

VIC\_MONX

VIC\_MONP

| <b>TABLE 3.2 - RESULTS OF SIDRA ANALYSIS OF<br/>MONASH ROAD &amp; ELTHAM STREET &amp; COLLEGE ST</b> |                                    |            |                                                 |            |
|------------------------------------------------------------------------------------------------------|------------------------------------|------------|-------------------------------------------------|------------|
| <b>Key Indicators</b>                                                                                | <b>Existing<br/>Traffic Demand</b> |            | <b>Projected Development<br/>Traffic Demand</b> |            |
|                                                                                                      | <b>PM</b>                          | <b>SAT</b> | <b>PM</b>                                       | <b>SAT</b> |
| <b>Level of Service</b>                                                                              | A                                  | A          | A                                               | A          |
| <b>Degree of Saturation</b>                                                                          | 0.234                              | 0.155      | 0.354                                           | 0.401      |
| <b>Average Vehicle Delay (secs/veh)</b>                                                              | 5.5                                | 4.2        | 7.9                                             | 7.3        |

MON\_ELTX

MON\_ELTP

## Criteria for Interpreting Results of Sidra Analysis

### 1. Level of Service (LOS)

| LOS | Traffic Signals and Roundabouts                                                                        | Give Way and Stop Signs                         |
|-----|--------------------------------------------------------------------------------------------------------|-------------------------------------------------|
| 'A' | Good operation.                                                                                        | Good operation.                                 |
| '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, Roundabout                                                                            | Give Way and Stop Signs                      |
|------------------|--------------------------------------|--------------------------------------------------------------------------------------------------------|----------------------------------------------|
| A                | less than 14                         | Good operation.                                                                                        | Good operation.                              |
| B                | 15 to 28                             | Good with acceptable delays and spare capacity.                                                        | Acceptable delays and spare capacity.        |
| C                | 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<sup>1</sup> 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.

<sup>1</sup> The values of DS for intersections under traffic signal control are only valid for cycle length of 120 secs.