



Traffic Impact Assessment

SCECGS Redlands, Cremorne at 272 Military Road, Cremorne

Stage 1 Development Application


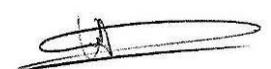
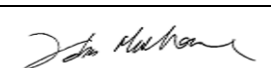
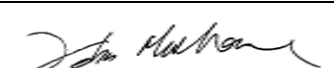
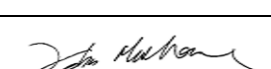

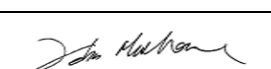
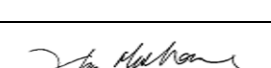
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Attachment 2: RMS Correspondence

Attachment 3: Proposed Access Driveway – Sightline Compliance with AS 2890.1

Attachment 4: Proposed Stage 1 Pedestrian & Vehicular Access locations

Attachment 5: Construction Swept Path Analysis Assessment

Attachment 6: Through Site Link – Swept Path Analysis Assessment.

1. Introduction

This Traffic Impact Assessment (TIA) has been prepared on behalf of SCECGS Redlands Ltd (“the Proponent”). It accompanies an Environmental Impact Statement (EIS) prepared in support of State Significant Development Application SSD14_6454 for the staged development of the SCECGS Redlands Senior Campus (“Redlands”).

This application seeks consent for a detailed proposal for the first stage development referred to as “Stage 1 New Learning Hub”. Details of the project are described below:

Detailed Proposal for “Stage 1” development – New Learning Hub:

- Demolition of existing buildings and structures (Mowll Building, 1, 3, 7, 9 and 11 Gerard Street, 7 and 8 Monford Place, staff offices, multi-purpose building and Design and Technology buildings on the western boundary).
- Fit-out of 7 and 8 Monford PI for temporary use as an educational facility
- Construction of a new purpose built music and education building generally comprising a four storey building with basement car park and outdoor learning area at roof level.
- Creation of new vehicular access road off Gerard Street for the new basement car park.
- Creation of new internal vehicular access link facilitating ingress from Waters Rd and egress onto Military Rd
- Associated landscaping improvements.
- New services infrastructure.
- New servicing area including loading dock and waste enclosure

The purpose of this Traffic Impact Assessment (TIA) report is to provide an assessment of the Stage 1 related works as described above and detailed within the EIS. It is noted that Stage 1 works are segregated into 5 sub-stages necessary to ensure that continued operation of the school with minimal disruption of the day to day student and staff management. These sub-stages are discussed and addressed in further detail (Section 4 onwards). The development is located within the North Sydney Local Government Area, and the proposal has been developed with due consideration of Council’s current planning controls, as well as the requirements of the school.

The report is structured as follows:

- Section 2: Provides an overview of the development location and subject site
- Section 3: Documents existing traffic conditions
- Section 4: Describes the proposed development
- Section 5: Assesses the parking requirements
- Section 6: Assesses traffic impacts
- Section 7: Overview of Construction Traffic Management
- Section 8: Provides an overview of the DGR and the necessary responses.
- Section 9: Discusses internal traffic design elements
- Section 10: Presents the overall study conclusions

2. Location and Site

2.1 Overview

The SCECGS Redlands Senior Campus is located at 272 Military Road, Cremorne and houses the Secondary School and administration facilities. The campus accommodates approximately 920 students and 150 staff (full time and part time) on site, where classes are held from 8:20am to 3:20pm and the school reception open from 8:00am to 5:00pm.

The campus has an irregular configuration with a site area of 15,500m². It accommodates frontages onto Military Road to the south, Waters Road to the north-west and Gerard Street to the north. The site also includes an area to the south-eastern corner of Hampden Avenue and Military Road. There are six (6) existing vehicular crossings which service the sit as follows:

- ➡ two (2) driveways accessed off Military Road (entry and exit driveways respectively),
- ➡ two access driveways accessed via Gerard Street,
- ➡ a single driveways accessed via Winnie Street,
- ➡ a single unused access driveway via Waters Road.

A location plan is presented in **Figure 1**, and the subject site is shown in **Figure 2**. **Figure 3** provides an overview of the campus layout in its current form and identifies the various buildings and vehicle access driveways.

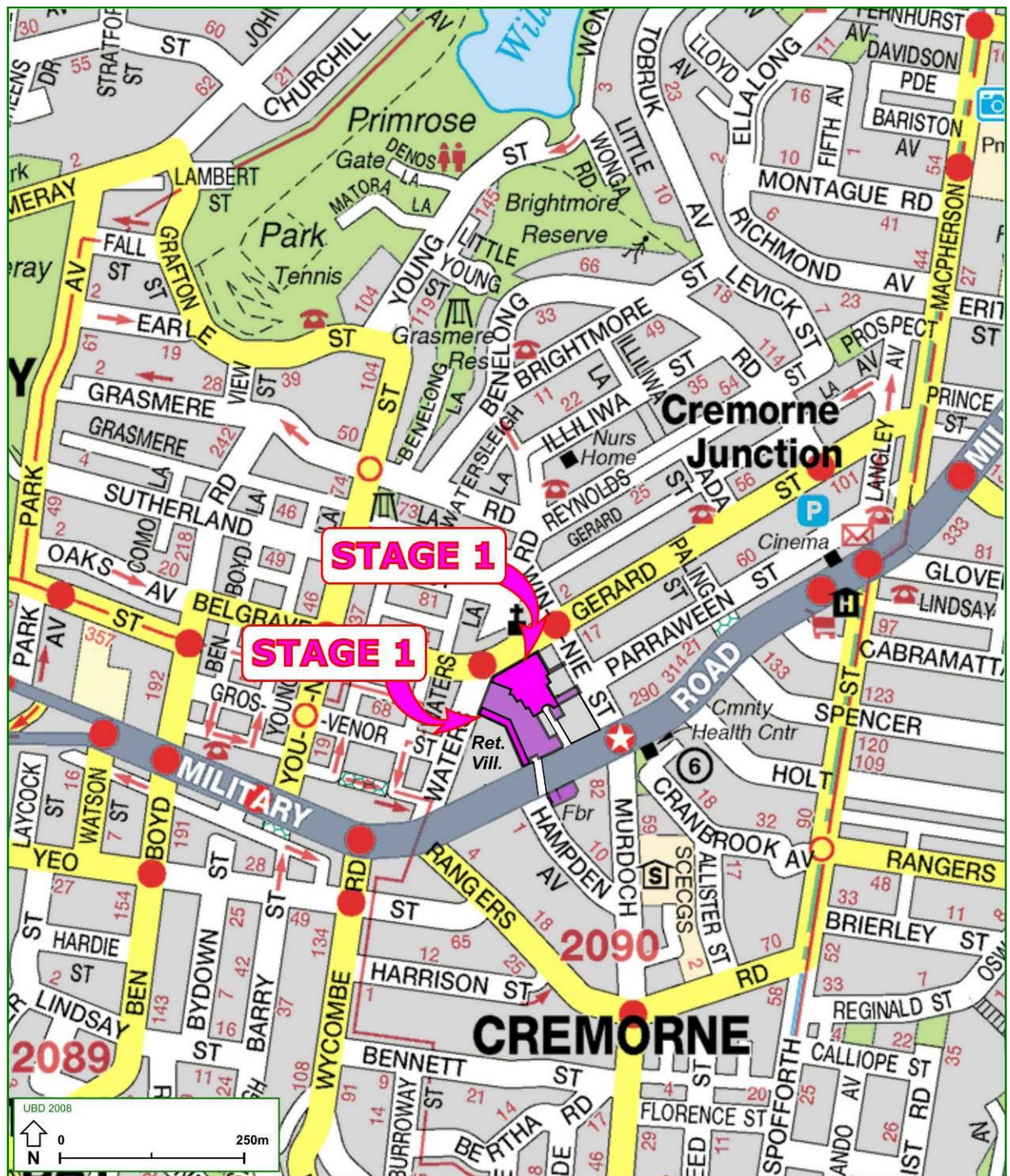


Figure 1: Location Plan



Figure 2: Site Plan

2.2 Site Access – Pedestrian & Vehicular

There are a number of vehicle and pedestrian separated accesses surrounding the School. The main vehicular access are located via three separate gates on Gerard Street, Winnie Street and Military Road. Furthermore, pedestrian access are located adjacent to the vehicle accesses located on Winnie Street and Military Road. A pedestrian overbridge is located to the east of Hampden Avenue and connects to the school campus which ensures that students/staff have safe and direct access to the site and does not require long walking distances to nearby signalised pedestrian crossings. **Figure 4** illustrates the location of the existing site accesses. **Pictures 1- 6** are also provided for information purposes highlighting the various access locations.

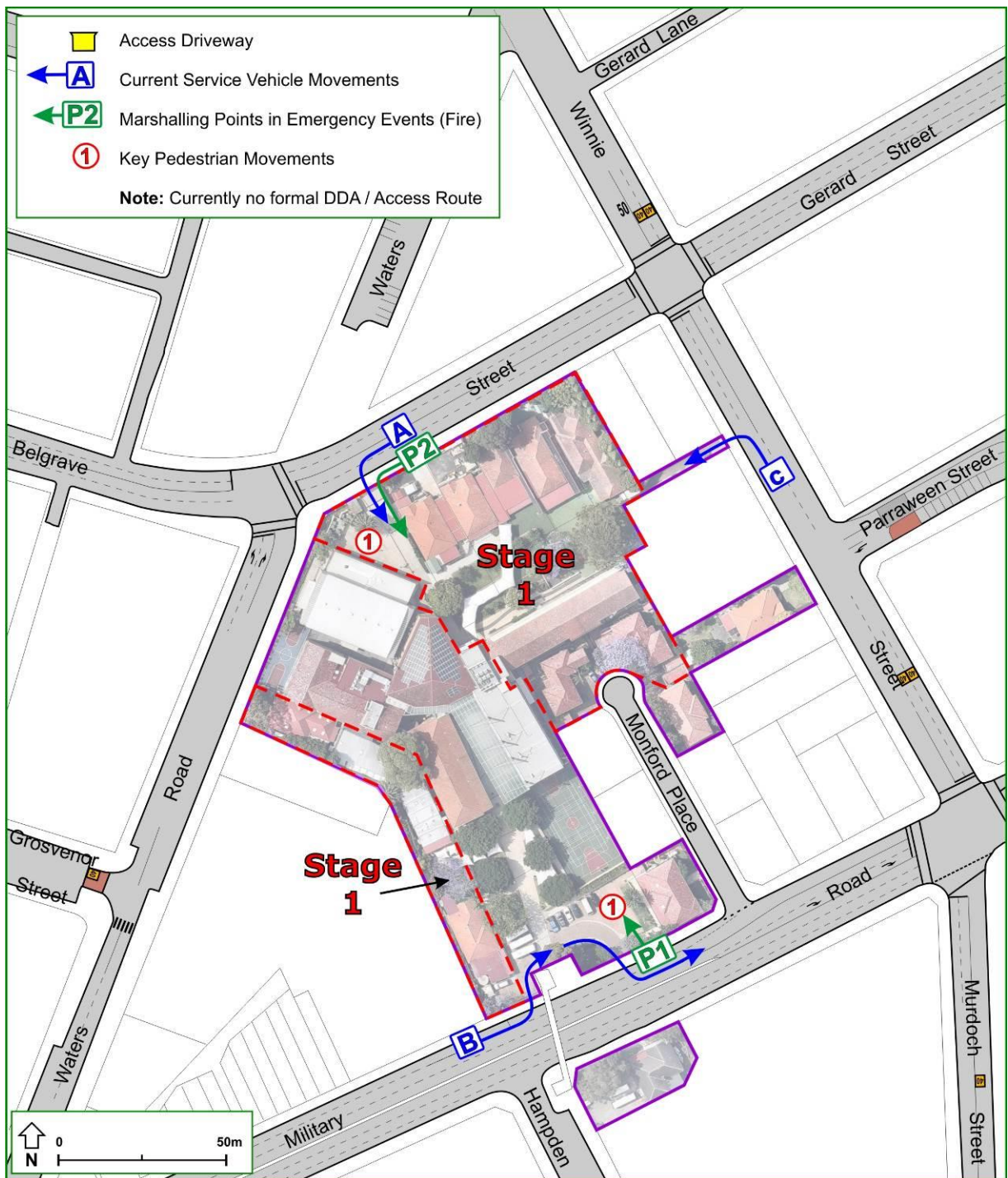
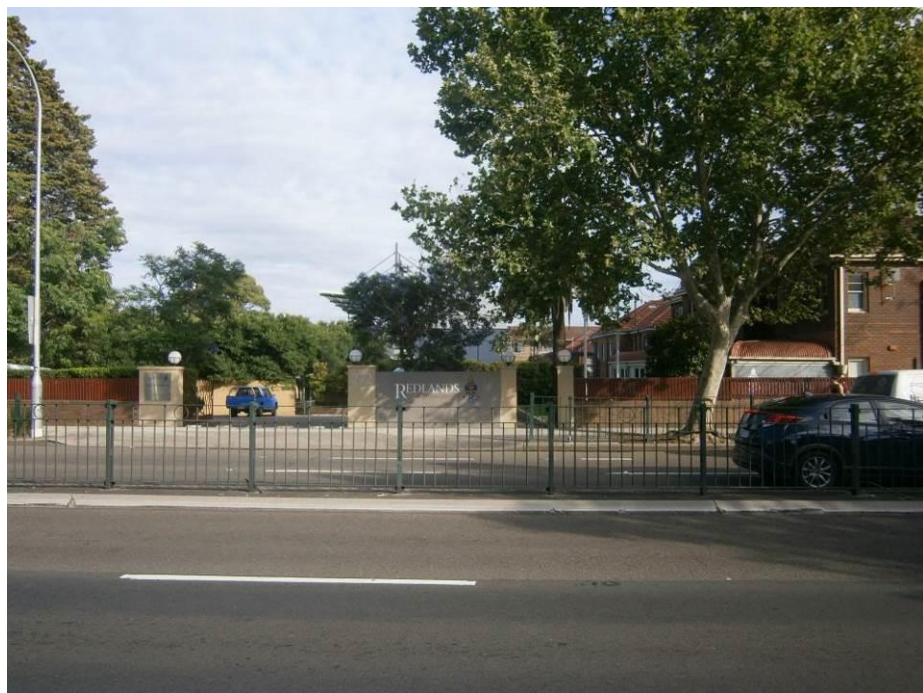


Figure 3: Existing Site Accesses



Picture 1: Existing Site Entry Access Driveway From Military Road



Picture 2: Existing Site Exit Access Driveway onto Military Road



Picture 3: Existing Site Access Driveway onto Gerard Street



Picture 4: Internal view of the Winnie Street Access Driveway. It can be seen that access to this service area is suitably managed with the use of bollards.



Picture 5: Existing Vehicular and Pedestrian Access onto Winnie Street



Picture 6: View of the existing pedestrian access from Waters Road.

3. Existing Traffic Conditions

3.1 Road Network

The broader road hierarchy surrounding the site is shown in **Figure 4**, with the following roads in proximity to the site being of particular interest:

- ➊ Military Road: an RMS Main Road (MR 164) that runs in an east-west direction to the south of the site and carries approximately 78,400 vpd. Military Road generally permits a speed limit of 60 km/h but is subject to a 40 km/h School Zone speed limit directly opposite the site between Winnie Street in the east and Waters Road in the west. Military Road has a divided carriageway with three lanes in either direction where parking is permitted in outer lanes, noting that clearway restrictions operate from 3pm to 7pm on its northern side and 6am to 10am on its southern side.
- ➋ Gerard Street: a secondary road (SR 2036) that runs in an east-west direction between Macpherson Street in the east and Waters Road in the west. It permits speed limits of 50 km/h but is subject to a 40 km/h School Zone speed limit past the school. Gerard Street has a four-lane undivided carriageway where parking is permitted on outer lanes, noting that clearway restrictions operate from 3pm to 7pm on its northern side and 6am to 10am on its southern side.
- ➌ Belgrave Street: a secondary road (SR 2036) that runs in an east-west direction between Waters Road in the east and Ben Boyd Road in the west. It permits speed limits of 50 km/h but is subject to a 40 km/h School Zone speed limit past the school. Belgrave Street has a four-lane undivided carriageway where parking is permitted on outer lanes, noting that clearway restrictions operate from 3pm to 7pm on its northern side and 6am-10am on its southern side.
- ➍ Waters Road: a local road that runs in a north-south direction between Reynolds Street in the north and Military Road in the south. It is posted at 50 km/h but is subject to a 40 km/h School Zone speed limit north of

Grosvenor Street. Waters Road has an undivided carriageway with one lane in either direction where kerbside parking is permitted.

- ⑦ Winnie Street: a local road that runs in a north-south direction between Waters Road in the north and Military Road in the south. It permits a 50 km/h speed limit but is subject to a 40 km/h School Zone speed limit along its entire length. Winnie Street has an undivided carriageway with one lane in either direction where kerbside parking is permitted.
- ⑦ Parraween Street: a local road that generally runs in an east-west direction between Macpherson Street in the east and Winnie Street in the west. It permits a 40 km/h speed zoning and has an undivided carriageway with one lane in either direction. Kerbside parking is permitted on Parraween Street via parallel and 90° angle parking configurations.
- ⑦ Grosvenor Street: a local road that runs in an east-west direction between Waters Road in the east and Ben Boyd Road in the west. It is subject to a 50 km/h speed zoning and has an undivided carriageway with one lane in either direction. Kerbside parking is permitted on Grosvenor Street via parallel and 90° angle parking configurations.
- ⑦ Monford Place: a local road that runs in a north-south direction and forms a cul-de-sac accessed of Military Road. It is subject to a 50 km/h speed zoning and has an undivided carriageway with one lane in either direction. Kerbside parking is permitted on Monford Place.
- ⑦ Hampden Avenue: a local road that generally runs in an east-west direction between Murdoch Street in the east and Military Road in the south. It is subject to a 50 km/h speed zoning and has an undivided carriageway with one lane in either direction. Kerbside parking is permitted on Hampden Avenue.

It can be seen from **Figure 4** that the site is conveniently located with respect to the arterial and local road systems serving the region and traffic activity is generally dispersed rather than concentrated.

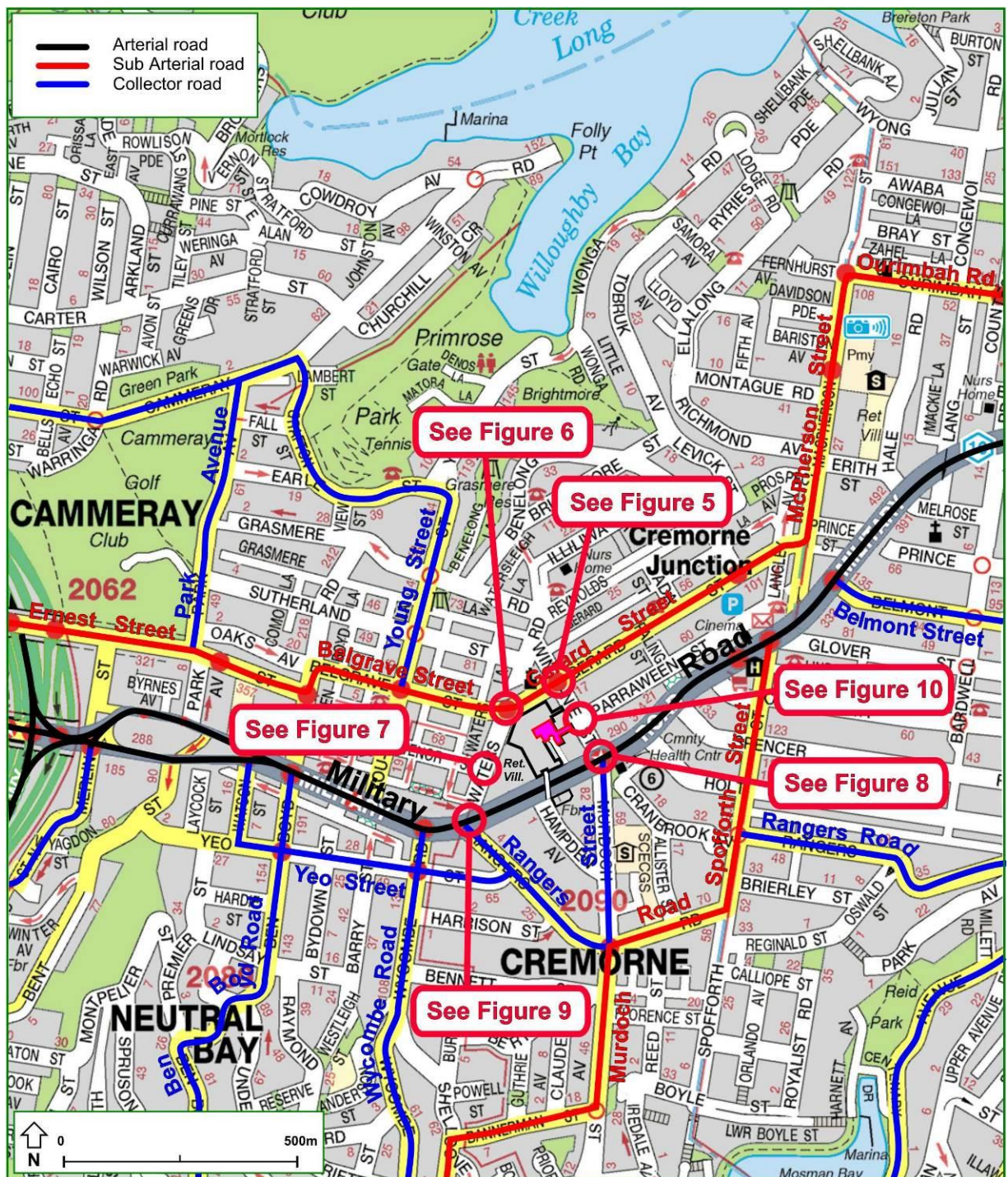


Figure 4: Road Hierarchy

3.2 Key Intersections



Figure 5: Intersection of Gerard Street with Winnie Street

Figure 5 illustrates that the intersection of Gerard Street with Winnie Street forms a four way signalised intersection. The western approach of Gerard Street provides two through lanes with no restricted movements whilst the eastern approach has a 'No Right Turn' signage restriction. Conversely Winnie Street has two through lanes on both its northern and southern approaches. All intersection legs are provided with signalised pedestrian crossings ensuring safe pedestrian movements.



Figure 6: Intersection of Gerard Street, Belgrave Street and Waters Road

Figure 6 provides a graphical representation of the Gerard Street/Belgrave Street/ Waters Street three-way signalised intersection. The northbound approach of Waters Street provides a single left-turn lane and right-turn lane. The western approach of Belgrave Street and eastern approach of Gerard Street provides two through lanes, with a left-arrow treatment included on Gerard Street. Signalised pedestrian crossings are provided to the south and east of the intersection providing direct access to one of the schools pedestrian access points.



Figure 7: Intersection of Waters Street with Grosvenor Street

Figure 7 shows that the intersection of Waters Street and Grosvenor Street forms a 'Giveway' controlled 'T' junction styled intersection. The southern approach of Waters Road accommodates a zebra pedestrian crossing providing pedestrian linkages to the nearby entrances to Redlands' Senior Campus on Waters Road.



Figure 8: Intersection of Military Road with Waters Road and Rangers Road

Figure 8 shows that the intersection of Military Road with Waters Road and Rangers Road forms a 'Giveaway' controlled intersection. Military Road provides three lanes of through traffic on its eastern and western approaches with right-turn movements banned on both approaches. Conversely Waters Road and Rangers Road permit one lane of traffic with 'No Right Turn' and 'Left Only' signs restricting both approaches to a left out movement only.

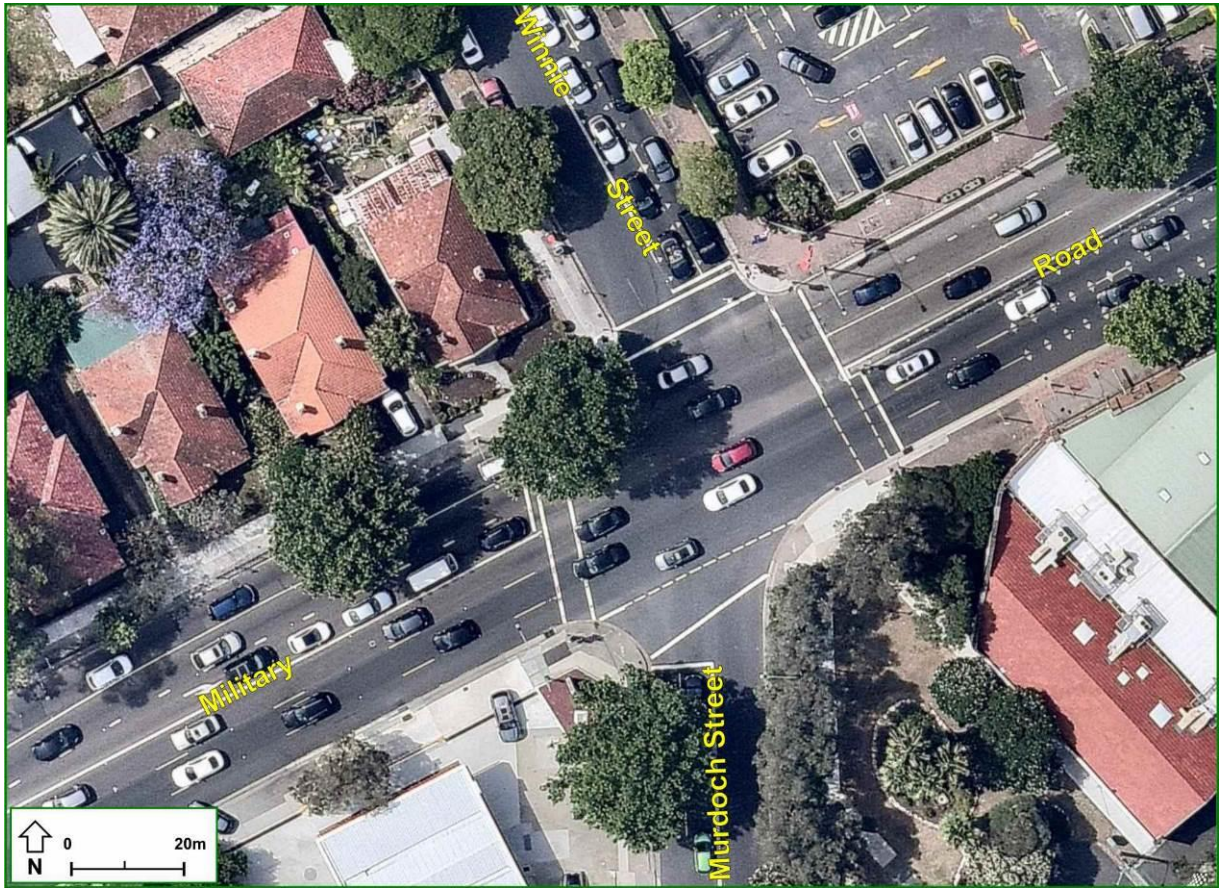


Figure 9: Intersection of Military Road with Winnie Street and Murdoch Street

Figure 9 identifies the intersection of Military Road with Winnie Street and Murdoch Street forms a four-way signalised intersection. The western approach of Military Road provides two through lanes and a single right-turn lane for traffic. The eastern approach of Military Road provides two through lanes of traffic, with 'No Right Turn – Buses Excepted' signs banning right-turn movements for regular traffic. Conversely the southern approach of Winnie Street provides two through lanes, with right-turn movements subject to 'No Right Turn - 6am-10am, 3pm-7pm, Mon-Fri, Buses Excepted' restrictions. The northern approach of Murdoch Street provides two through lanes, with 'No Right Turn – Buses Excepted' signage restriction right-turn movements for regular traffic.



Figure 10: Intersection of Winnie Road with Parraween Street

Figure 10 shows that the intersection of Winnie Street with Parraween Street forms a 'Giveway' controlled 'T' junction styled intersection. Winnie Street provides single through lanes on its northern and southern approaches whilst Parraween Street provides a single right turn lane and left turn lane.