

MACARTHUR MEMORIAL PARK Varroville

Preliminary Traffic Assessment



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INTRODUCTION

Road Delay Solutions has been engaged by Catholic Metropolitan Cemeteries Trust to prepare a brief statement of the traffic and transport conditions pertaining to the rezoning of land on St Andrews Road, Varroville for the purpose of providing a landscaped memorial garden and cemetery for the greater Western Sydney Region.

The site for which the cemetery is being considered is approximately 113 ha in size. It lies generally between St James Road and the Hume Highway encompassing several parcels of land known as Lot B, 22 and 1, on St Andrews Road, Varroville, neighbouring the South West Growth Centre (SWGC).

The site is characterised by undulating grassed hills and pockets of forested areas. It enjoys panoramic views onto the Blue Mountains, Sydney CBD and the Campbelltown Valley below. The site lies within the Scenic Hills and surrounds the historical Varroville House.

This report examines the available traffic and transport data, currently available in the public domain, in defining the parameters necessary to prepare a detailed integrated transport strategy (ITS) for the site.

The data has been employed in assessing the parking provisions and potential to accommodate the basic prescribed levels of traffic generation from the proposed memorial gardens and cemetery, within the available capacity constraints identified on the road network, in particular, St Andrews Road and Campbelltown Road.

It is envisaged that this report, and supporting data, will be adopted in the future preparation of an Integrated Transport Strategy (ITS) considering the expectations of the local and broader communities to satisfy their needs for sustainable population and economic growth within the framework of local, state and federal government policy and legislation as it pertains to land use.

All three tiers of government have active policies in support of sustainable transport initiatives, the reduction of greenhouse gas emissions, integrated land use and transport, the promotion of healthier and socially connected communities and the improvement of accessibility.

Mode choice potential, based on current trends and social bias, will be investigated after this initial assessment, to relieve any identified constraints and deficiencies on the transport network. Any proposed mode change will consider the economic ramifications for both patrons and key stakeholders, while aligning with government intent and strategies.

MACARTHUR MEMORIAL PARK Cemetery

This report simply identifies the current trends and does not propose any mode shift. Rather, this assessment investigates a considered 'worst case' scenario for the road network based on currently available data.

The basic data, utilised in this assessment, has been sourced from...

- 'Population and Employment Forecasts', BTS – August 2012,
- 'Campbelltown Road Upgrade - Traffic and Transport – AECOM 2013,
- 'Leppington Planning Workshop – GCC 2013,
- 'South West Growth Centre Strategic Plan' – GCC, and
- 'Oran Park Precinct DCP', DIPNR - December 2007.



Figure 1 **Impression of Proposed Memorial Gardens and Lawn Cemetery in Year 2163**
Source: *Ignite Architects, 2013*

CURRENT CONDITIONS

LOCATION

The site for which the cemetery is being considered is approximately 113 ha in size. lies generally between St James Road, to the north, and the Hume Highway, to the south, encompassing several parcels of land known as Lot B, 22 and 1, on St Andrews Road, Varroville, and neighbouring the South West Growth Centre (SWGC).

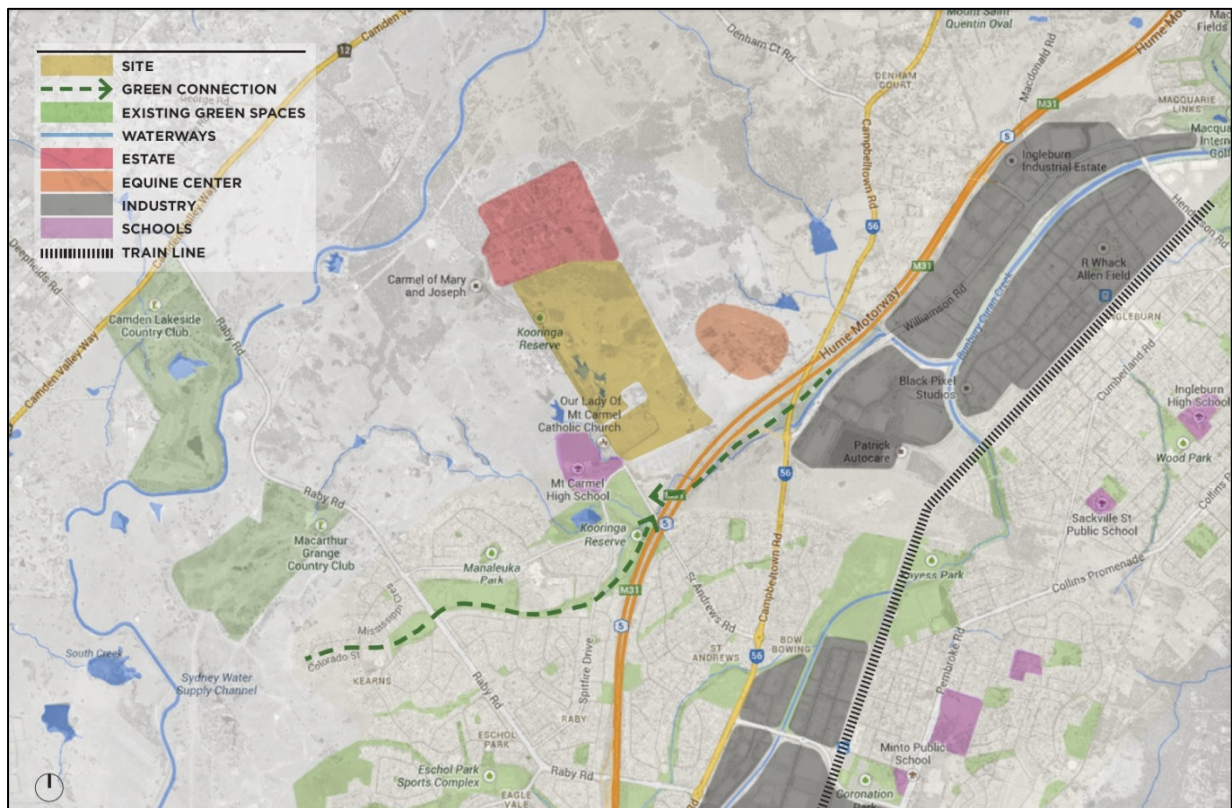


Figure 2 Site Location in Context

Source: 'MacArthur Memorial Park – MasterPlan', Florence Jaquet, 2013

MACARTHUR MEMORIAL PARK Cemetery

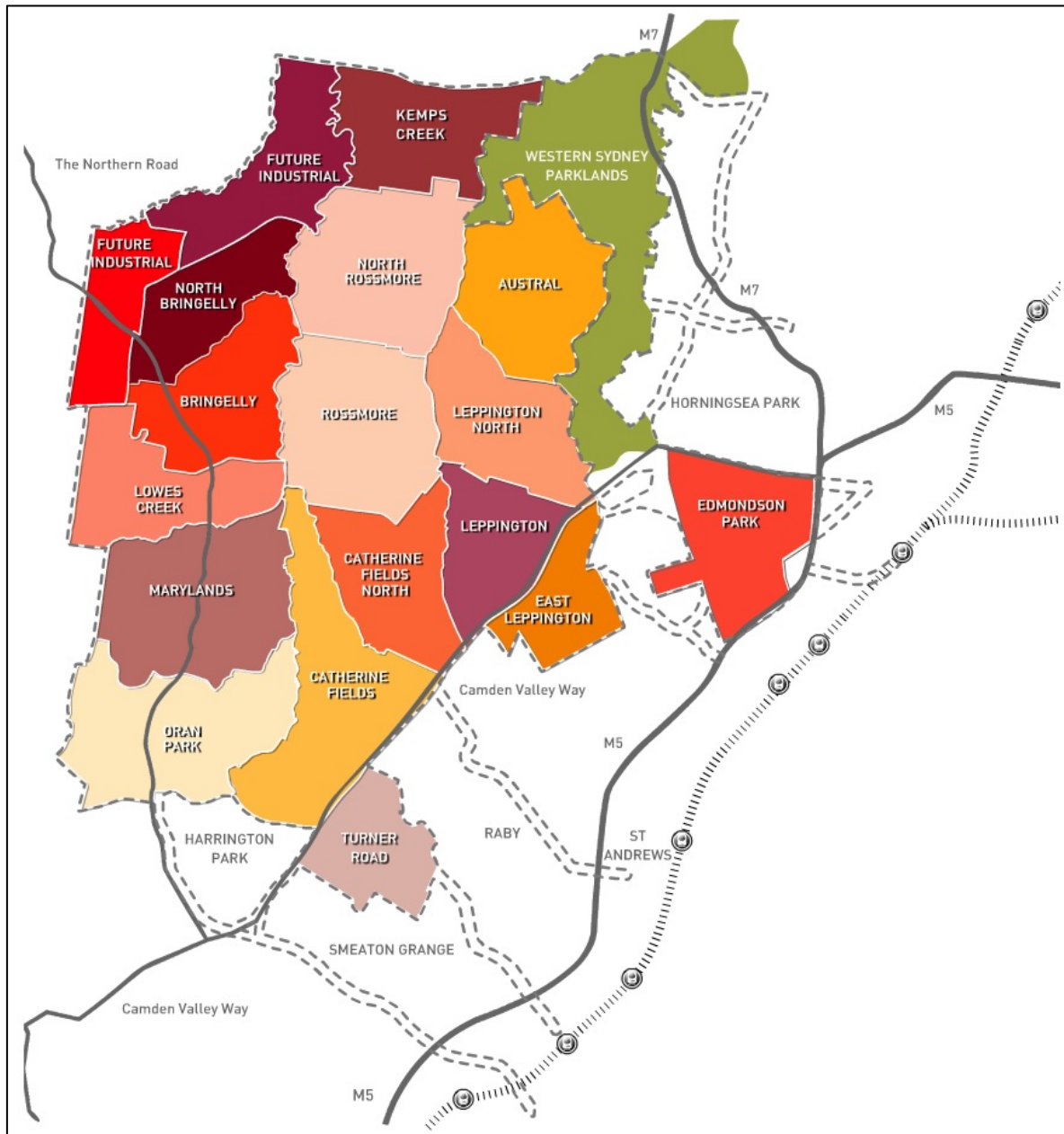


Figure 3 South West Growth Centre Precinct Plan
Source: 'South West Growth Centre Structure Plan' – GCC, 2011

ROAD NETWORK

The site is serviced primarily by St Andrews Road, a local road to the west and Campbelltown Road, a main road under the auspices of the Roads and Maritime Services (RMS) to the southeast.

Campbelltown Road currently accommodates 950vph in both directions during the morning peak (AM) and 1000vph in the evening peak (PM), through its intersection with St Andrews Road.

St Andrews Road currently travels northwest from Campbelltown Road but is yet to connect to Camden Way Way. Site inspection during the AM and PM peak commuter periods revealed only a small amount of traffic in the order of some 45vph, both ways, past the proposed memorial gardens site. As St Andrews Road travels south past Spitfire Drive and on through to Campbelltown Road, it collects traffic from the neighbouring residential catchments of Raby and St Andrews.

The morning peak inspection indicated some 185vph northbound and 320vph southbound at the Campbelltown Road roundabout. While the evening peak suggested some 340vph northbound and 110vph southbound.

MODE SHARE

The 2006 census data indicates that the overall mode split for the Campbelltown LGA is 81% car driver and only some 3.7% by public transport, in the context of a single mode journey to work. This is, however, an area wide average and must not be taken to apply equally to all local precincts nor in or immediately around Varroville.

The following figure presents the single mode Journey to Work (JTW) transport trips, made as within the Campbelltown LGA.

The high percentage of car drivers and passengers, within the Campbelltown LGA, is likely a result of one or a combination of any or all the following reasons...

- *Inability or perception that public transport fails to meet community needs,*
- *Lack of direct public transport services to employment centres,*
- *Inadequate frequency of public transport and/or inadequate inter regional services,*
- *Congestion on major roads accommodating bus services,*
- *Poor or no modal interchange,*
- *The perception that private vehicle travel is more convenient,*
- *Access by motor vehicles to employment centres, is comparatively more convenient, and/or*
- *A significantly high proportion of self employed and/or trades personnel are private vehicle dependent for business.*

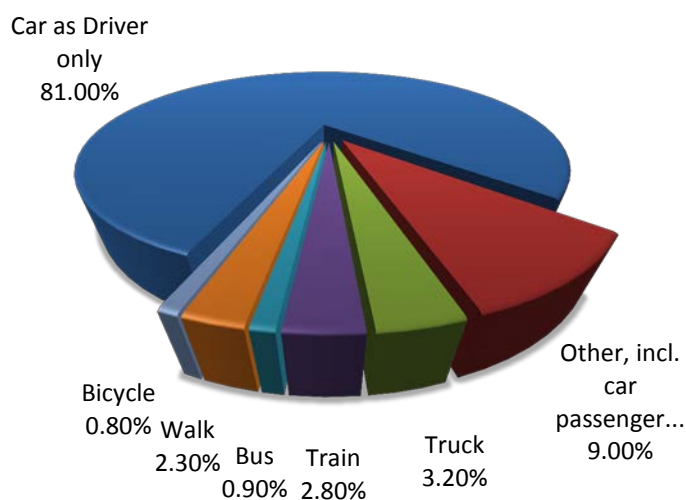


Figure 4 Campbelltown LGA JTW Mode Share – Journey by Single Mode

Source: Derived from 2006 ABS Census data – 'Basic Community Profiles' for the Campbelltown LGA

PUBLIC TRANSPORT

There are no existing regular bus routes along St Andrews Road connecting the rural residential catchments with employment opportunities. However, there are school buses which service the Mount Carmel High School, drawing from the residential catchments of Raby, St Andrews and Bow Bowling. Site inspection revealed six (6) school bus services utilising Spitfire Drive and St Andrews Road during the morning and evening school peaks, respectively.

Rail services are available from Minto Railway Station, which is accessed from Campbelltown Road at Ben Lomond Road, some 3.5kms to the southeast of the site.

FUTURE CONDITIONS

THE PROPOSAL

The proposal involves the transformation of the existing 113ha site, to the east of St Andrews Road, into a sculptured memorial garden and cemetery staged on an 'as needed' basis over planned 10-15 year increments, commencing with Stage 1 which is *earmarked* for a lifespan of some 60 years.

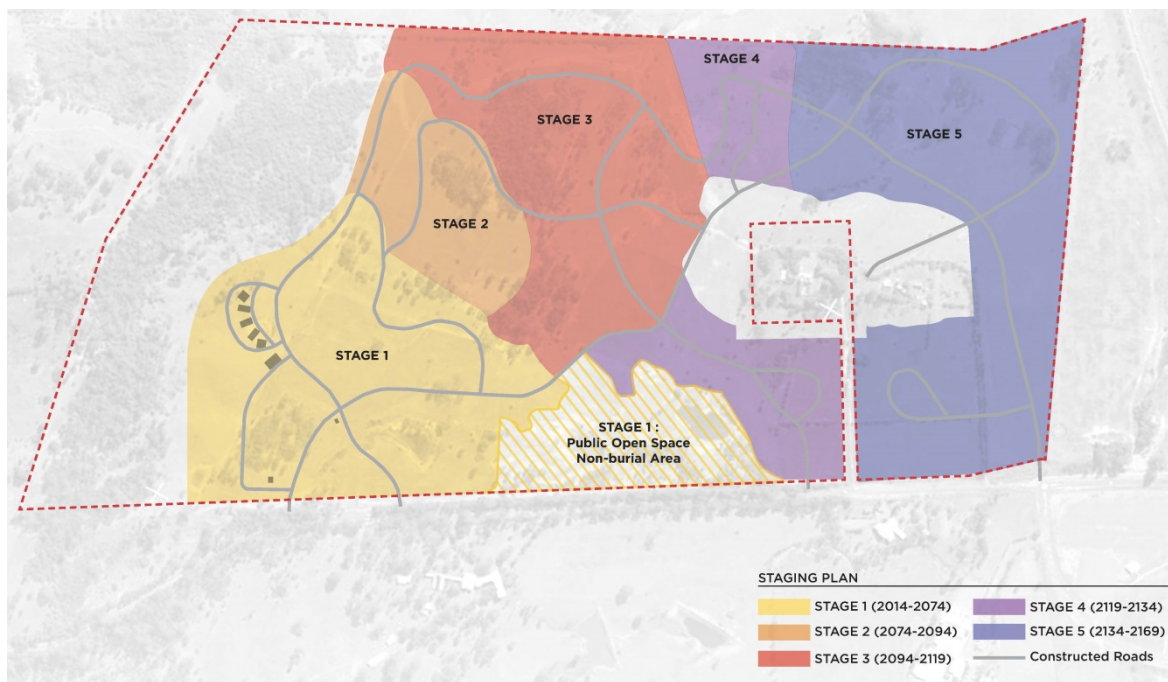


Figure 5 Proposed Memorial Gardens and Cemetery
 Source: 'MacArthur Memorial Park – MasterPlan', Florence Jaquet, 2013

MACARTHUR MEMORIAL PARK Cemetery

Stage 1 of the proposal, as shown in the above figure, is to comprise and/or involve the construction of the following traffic generating provisions...

- A site area of 27.5ha,
- 29,384 grave sites,
- An information building close to the cemetery entry to assist visitors and funeral directors. It is envisaged that there would be 1-2 staff members occupying this building,
- An office building accommodating some 5-10 staff members. This building would also incorporate consultation rooms for burial sales and consultations,
- Two (2) Chapels incorporating amenities for public use, such as dedicated disabled WC's in accordance with Australian Standards and the Building Code of Australia,
- One (1) Condolence Room,
- Service and vehicle storage units to the northwest of the site. This area would also have a small administration building providing basic facilities for 'ground staff', such as toilets, showers, a kitchen, etc...,
- Internal road network with gated entry,
- Provision for 20 dedicated, 90 degree angled spaces, on the loop road that provides access to the chapels and condolence room,
- Provision for 80 basement car spaces beneath the chapels and condolence room, inclusive of identified disabled parking provisions in accordance with AS2890.6-2009,
- Provision for 100 spaces in a satellite car park, to the east of the loop road (cut into the hill slope), and
- Provision for some 113 car spaces along the main circulation road within the cemetery, with the utilisation of roll top kerb.

Ultimately, the proposal will incorporate the further construction of...

- A third Chapel after 60 years,
- A second Condolence Room after 10 years,
- A continuation of the internal road system during each stage, and
- The introduction of two (2) further, formal access points, as demand dictates.

All formal parking provisions will adhere to AS2890.1-2004 (or better).

MACARTHUR MEMORIAL PARK Cemetery

Year	Decade	ROB Predictions (No)	Masterplan Stage
2014-2023	1 st	1121	1 (60 years)
2024-2033	2 nd	3335	
2034-2043	3 rd	5354	
2044-2053	4 th	5913	
2054-2063	5 th	6504	
2064-2073	6 th	7157	
2074-2083	7 th	7869	2 (20 years)
2084-2093	8 th	8656	
2094-2103	9 th	9522	3 (25 years)
2104-2113	10 th	10474	
2114-2123	11 th	11521	
2124-2133	12 th	12673	4 (15 years)
2134-2143	13 th	13940	5 (30 years)
2144-2153	14 th	15334	
2154-2163	15 th	16867	
Total		136,240	150 years

Figure 6 Proposed Staging and Timeline

Source: 'MacArthur Memorial Park – MasterPlan', Florence Jaquet, 2013

ACCESS PROVISIONS

It is proposed to initially transform the current public access from St Andrews Road at the northwest corner of the site, by incorporating a roundabout.

It is further proposed to establish a service entry, north of the main entry point, as it is important to keep access for maintenance and service vehicles separate ensuring minimal disruption and risk to visitors and patrons.

The site is large and will eventually require further entry and exit points as the memorial gardens and cemetery slowly expands.

These further access points are to be developed as demands requires. It is envisaged with the planned growth of the SWGC, and the future connection of St Andrews Road to Camden Valley Way, traffic volumes on St Andrews Road will invariably increase, dictating the need for further improvements to the access control methods. This need will be quantified in a later strategic analysis of the regional traffic demands associated with the SWGC.

INTERNAL ROAD SYSTEM

The road network within the cemetery must respond to self-imposed constraints, such as, no visitor or funeral staff should have to physically manage the movement of coffins more than 50m from the side of a road to a grave site. This is in direct response to OH&S trends and in respect of visitors needs, should they be elderly.

The internal road layout will also respond to bushfire requirements and, for this reason, will be designed in accordance with the Planning for Bushfire Protection 2006. (*Refer to Travers Bushfire & Ecology Pty Ltd 'Bushfire Protection Assessment Report' for details*).

The internal road will have sufficient capacity to manage the estimated traffic generation and cater for on-street parking with the provision of roll top kerbing. Patrons and visitors will be permitted to park their vehicles straddling the kerb on either side of the carriageway.

PEAK PATRONAGE

Staff and maximum occupancy numbers have been supplied by Ignite Architects, and are based on the floor space and seating capacity of both chapels and condolence room associated with Stage 1.

Building	Patronage Capacity
Chapel 1	150
Chapel 2	150
Condolence Room	150
Office and support staff	20
TOTAL	470

Table 1 Patronage Capacities

Source: Ignite Architects, 2013

ESTIMATED TRAFFIC GENERATION

The RMS *Guide to Traffic Generating Developments* does not prescribe a generation rate for cemeteries. The peak hour generation associated with the proposal has been estimated utilising first principles.

As a worst case assessment, it has been assumed that all functioning buildings on site (*the chapels, condolence room, service units, etc...*) will concurrently operate at 85th percentile capacity. While this will be unlikely to occur in practice, it is useful to assess the impact of a peak event. As a conservative estimate, 100% of the vehicles have been deemed to arrive and depart within both the morning and evening commuter peak hours. Utilising the estimated patronage capacity, the peak hour traffic generation has been calculated as follows...

$$0.85 \times 470 / 2.6 + (20 / 1.5) + (0.1 \times (29,384 / 100)) = 198 \text{ vehicles in} / 198 \text{ vehicles out}$$

Visitors + Staff Trips + Visitors to gravesites

This results in a peak total of 396vph both in and out. This is considered a conservative estimation of the traffic generation at the site.

CAR PARKING REQUIREMENTS

The RMS *Guide to Traffic Generating Developments* does not prescribe a parking rate for cemeteries.

Parking requirements for the new structures has been calculated using first principles. A worst case assessment was undertaken, assuming that the chapels and condolence room are all concurrently operating at 85th percentile capacity. Typically, 85th percentile peak events are engineered for in terms of on-site parking provision. While this concurrent maximum attendance event will be unlikely to occur often in practice, it is useful to assess the impact of a peak event. Staff numbers have been supplied by the architect.

A car occupancy rate of 2.6 persons per vehicle has been adopted for patrons to the chapels and condolence room, as is common for cemetery developments. This rate takes into account the poor public transport provisions servicing the site. The car occupancy rate for staff is taken to be 1 vehicle per 1.5 staff. Therefore the *peak* car parking demand for the proposal can be expressed...

$$(0.85 \times 470 / 2.6) + (20 / 1.5) = 168 \text{ on-site parking spaces required}$$

Visitors *+Staff Trips*

The proposal outlines the provision of parking, both formal and informal, for 313 passenger vehicles, which exceeds the calculated peak requirement by 145 vehicles.

Therefore, the proposal is supportive in terms of parking provision.

LOADING AND SERVICING PROVISION

The proposal includes the provision of service units and administration facilities to the northwest of the site, adjacent to St Andrews Road. Proposed access to the service facilities is via a gated entry on St Andrews Road.

To be located immediately north of the main memorial gardens entry, the access is to cater for both medium rigid and fire service vehicles.

The loop road, immediately to the north of the chapels and condolence room, will provide for drop off and pick-up of patrons and visitors while permitting the movement of service vehicles up to a 6.4m small rigid vehicle (SRV) to ably access the facility.

SOUTH WEST GROWTH CENTRE PROJECTIONS

The expected growth in population and housing, within the Campbelltown LGA, is based on government projections.

SWGC Precinct	Population	Homes
Leppington North	33,000	12,000
Leppington	33,000	12,000
Rossmore	25,000	9,000
Catherine Fields North	26,000	9,500
TOTAL	117,000	42,500

Table 2 **Varroville - Neighbouring Precinct**

Source: *Growth Centres Commission, 2013*

With the substantial growth and development within the SWGC, any intended link of St Andrews Road to Camden Valley Way and further extension of St Andrews Road into the Leppington Precinct, traffic flows adjacent to the proposed memorial gardens and cemetery will invariably increase.

Strategic projection modelling, in collaboration with key stakeholders, will be necessary during the EIS process, to quantify the impact of the proposal on the local road network in association with the planned regional expansion.

RECOMMENDATIONS

This preliminary assessment of the traffic and transport conditions has been undertaken and is in support of the proposed rezoning of the parcel of land, identified as Lot B, 22 and 1, on St Andrews Road, Varroville, for the purpose of providing landscaped memorial gardens and lawn cemetery for the greater Western Sydney Region.

It has been demonstrated that the proposed parking provisions and internal road system will adequately meet the demands of the proposal.

Preliminary investigations would suggest that a detailed strategic assessment, in collaboration with key stakeholders, will be required as part of any future Development Application (DA) process, given the planned expansion of the South West Growth Centre. The estimated traffic generation from the proposed memorial gardens and cemetery should be considered, over time, with the growth in traffic anticipated on St Andrews Road, and the appropriate method of traffic management adopted.