QUEANBEYAN-PALERANG REGIONAL COUNCIL

MAY 2018

New Cemetery at 1241 Old Cooma Road, Googong

Transport Impact Assessment

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New Cemetery at 1241 Old Cooma Road, Googong
Transport Impact Assessment

Queanbeyan-Palerang Regional Council

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REV	DATE	DETAILS
A	01/05/18	Draft report for client review
B	10/05/2018	Final
C	31/05/2018	Removal of Crematorium element

	NAME	DATE	SIGNATURE
Prepared by:	Brigette Humphrey-Robinson	30/05/18	
Reviewed by:	Cindy Williams	31/05/18	
Approved by:	Cindy Williams	31/05/18	

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1 INTRODUCTION

1.1 BACKGROUND

Queanbeyan-Palerang Regional Council has prepared a planning proposal for a new cemetery on land located at 1241 Old Cooma Road, Googong, as indicatively shown in Figure 1.1. The site is located approximately 11 kilometres south of Queanbeyan and approximately four kilometres south of the Googong urban release area, on the eastern side of Old Cooma Road and the southern side of Burra Road.

The site is currently zoned as E4 – Environmental Living as part of the Queanbeyan Local Environmental Plan 2012.

Source: NSW Land & Property Information, https://maps.six.nsw.gov.au/, visited 19 April 2018

Figure 1.1 Site location

This report has been prepared to assess the impacts of the proposal on the adjacent road network, identify any constraints on the road network and determine if the existing road network can cater for the proposed land use.

1.2 DETAILS OF THE PROPOSAL

Once operational, the cemetery is expected to accommodate up to 4 funerals per week. This involves light excavation equipment equivalent to a farm tractor or backhoe, small truck and cars associated with a funeral procession. Routine maintenance will include ride on lawn mowers, whipper-snippers and other garden equipment.

The typical hours of operation would be 7.00 am to 4.00 pm Monday to Friday, with most services occurring after 9.00 am and the occasional service occurring on weekends or after 4.00 pm on a weekday.

1.3 REFERENCES

The following documents have been reviewed and referenced in the preparation of this report:

1 Australian Bureau of Statistics, Census of Population and Housing data from 2016

2 Australian Standards, AS/NZS 2890.1: 2004 Parking facilities Part 1: Off-street car parking

3 Australian Standards, AS/NZS 2890.6: 2009 Parking facilities Part 6: Off-street parking for people with disabilities

4 Austroads, Guide to Road Design Part 4 Intersections and Crossings: General, 2017

5 Queanbeyan – Palerang Regional Council, Queanbeyan Development Control Plan, 2012

6 Queanbeyan – Palerang Regional Council, Planning Proposal for Cemetery and Crematorium Lot 2 DP 112382 and Lot DP 754881 Old Cooma Road, Queanbeyan

7 Roads and Maritime Services, Traffic Modelling Guidelines, 2013

8 Roads and Maritime Services, Guide to Traffic Generating Developments, 2002

9 TDG, Queanbeyan City Council TRACKS Model South Jerrabomberra and Queanbeyan Traffic Analysis 2014, Part 2 – Selected Road Network Improvements Transportation Assessment Report, December 2014

10 Traffic count data conducted in June/July 2017 provided by Queanbeyan – Palerang Council.

2 TRANSPORT CONTEXT

2.1 LAND USE

The subject site is currently surrounded by rural residential development including the Little Burra Estate to the south of the site, as well as rural land grazing land.

North of the site, the Googong urban release area is expected to accommodate nearly 6,200 residential dwellings once complete, as well as a town centre and other community uses.

To the east of the site, approximately 45 rural residential dwellings are being planned for development and a further 50 dwellings are being planned to the south.

To the west of Old Cooma Road, Mount Campbell Estate includes approximately 50 residential dwellings.

2.2 EXISTING TRANSPORT NETWORK

The site has frontages to Old Cooma Road and Burra Road, which are both local roads with posted speed limits of 100 kilometres per hour. Along the site frontage, Burra Road has a straight alignment and Old Cooma Road has two horizontal curves.

Old Cooma Road and Burra Road are two-way roads configured with one traffic lane in each direction and intersecting at a priority controlled intersection with Give Way control on Burra Road.

The following on-site observations were made regarding the intersection of Old Cooma Road and Burra Road:

- Vehicles turning left from Old Cooma Road to Burra Road typically turn at relatively high vehicle speeds
- The Burra Road approach operates as two stand up lanes, with the potential for a right turn vehicle on Burra Road to block the sight lines for a left turn vehicle on Burra Road and vice versa
- Majority of vehicles entering and exiting Burra Road were travelling to/from the north on Old Cooma Road
- The intersection operates with no vehicle queues and minimal delays during the peak hours.

South of Burra Road, Old Cooma Road intersects with Evans Road, providing access to the Mount Campbell Estate. This intersection is located on the inside of a horizontal curve, with some sight line implications.

The surrounding road network does not currently accommodate walking and cycling facilities, or public transport services, with the exception of school bus routes and a school bus stop located on Old Cooma Road, approximately 65 metres north of Evans Road.

2.2.1 EXISTING TRAFFIC VOLUMES

2.2.1.1 OLD COOMA ROAD

Old Cooma Road connects Queanbeyan to the north with the Monaro Highway to the south, which in turn provides access to Cooma.

Traffic data collected in mid 2017 indicates that in the vicinity of the site, Old Cooma Road currently carries approximately 2,540 vehicles per day, with a heavy vehicle proportion of 8.6 per cent and weekday peak hourly volumes of approximately 310 to 350 vehicles in the AM and PM peak, respectively. Therefore, Old Cooma Road currently has a peak to daily traffic volume ratio of 12 to 14 per cent.

The weekday peak hours along Old Cooma road are 8.00 am to 9.00 am and 5.00 pm to 6.00 pm. On the weekend, traffic volumes were observed to be relatively consistent between 10.00 am to 4.00 pm (up to 270 vehicles per hour).

South of the site, Old Cooma Road carries approximately 1,700 vehicles per day.

2.2.1.2 BURRA ROAD

Burra Road primarily provides access to the suburb of Burra and also offers an alternative route to/from other nearby suburbs including Williamsdale and Urila.

Burra Road carries approximately 1,100 vehicles per day, with a heavy vehicle proportion of 4.6 per cent. Applying a 12 to 14 per cent peak to daily ratio to Burra Road results in estimated peak hourly traffic volumes of 132 vehicles and 154 vehicles in the AM and PM peak hours, respectively.

2.2.1.3 INTERSECTION OF OLD COOMA ROAD AND BURRA ROAD

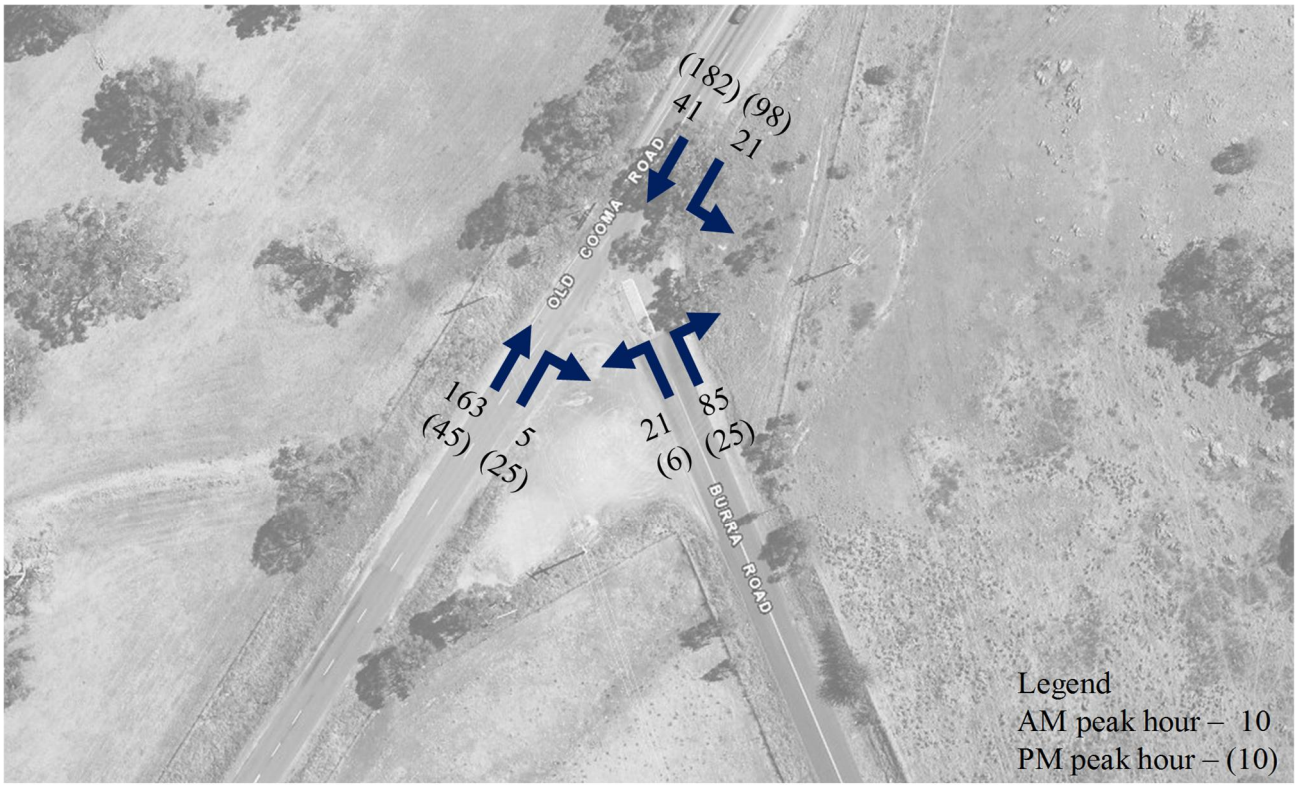
With regards to the tube count data available for Old Cooma Road and Burra Road, the following directional assumptions have been made:

— AM peak hour – 80 per cent northbound, 20 per cent southbound

— PM peak hour – 20 per cent northbound, 80 per cent southbound.

In addition, it is estimated that nearly 80 per cent of vehicles using Burra Road would travel to/from the north via Old Cooma Road, with 20 per cent travelling to/from the south via Old Cooma Road.

On the above basis, the estimated AM and PM peak hourly traffic volumes at the intersection of Old Cooma Road and Burra Road are shown in Figure 2.1.



Source: NSW Land & Property Information, https://maps.six.nsw.gov.au/, visited 19 April 2018

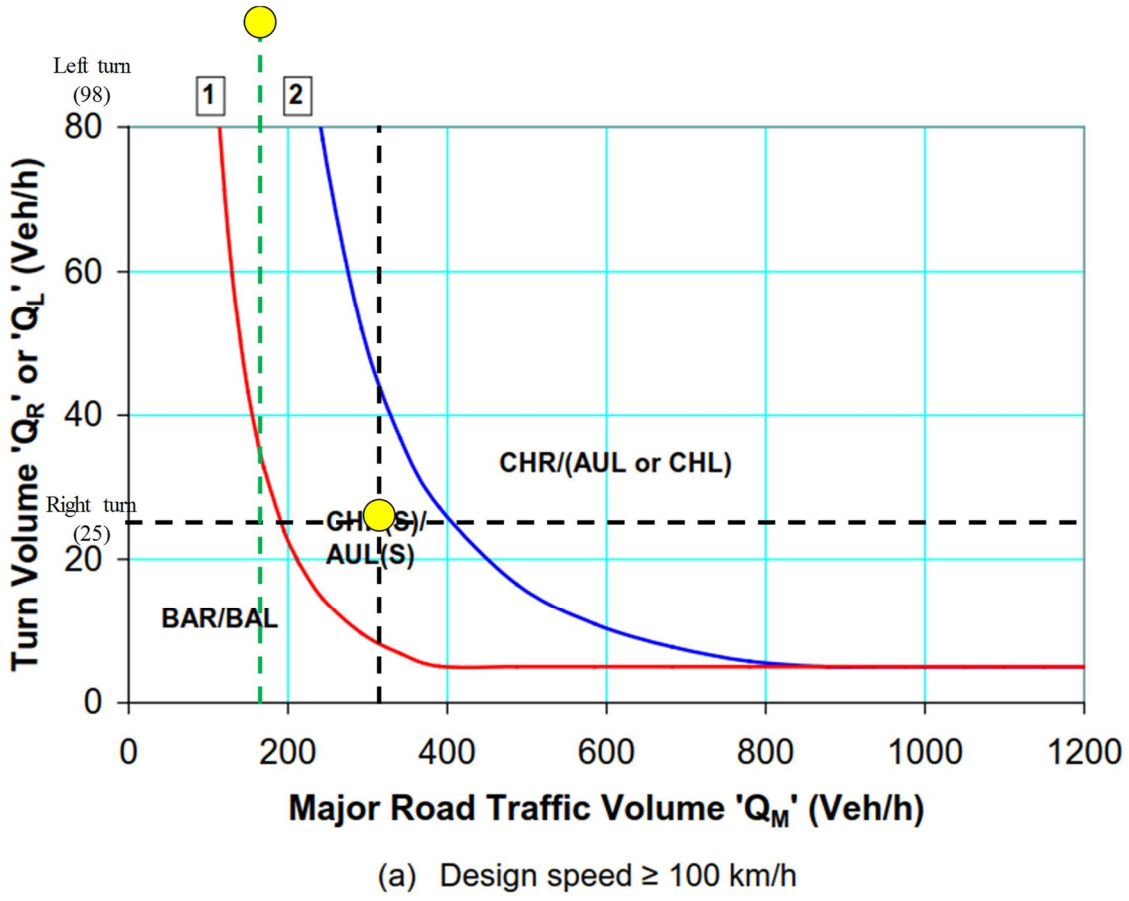
Figure 2.1 Estimated existing peak hour traffic volumes

Adopting these estimated traffic volumes, an assessment of the warrants for basic, auxiliary and channelised turn treatments on the major road at rural priority controlled intersections, as presented in the Guide to Road Design Part 4: Intersections and Crossings – General (2017) has been completed for the Old Cooma Road and Burra Road intersection. On this basis, Figure 2.2 shows that the intersection of Old Cooma Road and Burra Road currently warrants the following turn treatments on Old Cooma Road:

— Channelised right turn treatment, with a short deceleration lane

— Auxiliary left turn treatment, with a short deceleration lane albeit noting that a channelised left turn treatment is preferred for road safety reasons.

In addition, the planned increase in residential dwellings with access via Burra Road and forecast traffic growth along Old Cooma Road would increase the need for the above treatments at the Old Cooma Road and Burra Road intersection to maintain safe intersection operation in the future.



Source: *Basemap from Guide to Road Design Part 4 Intersections and Crossings: General, Austroads, 2017*

Figure 2.2 Warrants assessment for turn treatments at the existing intersection of Old Cooma Road and Burra Road

The operation of the intersection of Old Cooma Road and Burra Road has been assessed using SIDRA Intersection modelling software, adopting the indicative peak hour traffic volumes shown in Figure 2.1.

The Traffic Modelling Guidelines (Roads and Maritime Services, 2013) specifies that intersection operation is generally measured by the following three elements:

— Degree of Saturation (DoS)

— Level of Service (LoS)

— 95th per centile base of queue distance.

SIDRA Intersection measures these elements, with the intersection LoS being a measure of the average delay at the intersection, as defined by the criteria set out in Table 2.1.

Table 2.1 SIDRA Intersection level of service criteria

Level of Service	Average Delay per vehicle (second per vehicle)	Criteria for traffic signals and roundabouts	Criteria for give way and stop signs
A	Less than 14	Good operation	Good operation
B	15 to 28	Good operation with acceptable delays and spare capacity	Good operation with acceptable delays and spare capacity
C	29 to 42	Satisfactory	Satisfactory, but accident study required
D	43 to 56	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, requires other control mode
F	Greater than 70	Extra capacity required	At capacity, requires other control mode

Source: Adopted from Guide to Traffic Generating Developments (Roads and Maritime Services, 2002)

Table 2.2 presents a summary of the existing intersection operation of the Old Cooma Road and Burra Road intersection, with full results presented in Appendix A. It is noted that the critical movement for level of service at a priority controlled intersection is the movement with the worst delay.

Table 2.2 Existing intersection operation

Intersection	Peak	Leg	Degree of Saturation	Average Delay (seconds)	95th Percentile Queue (metres)	Level of Service
Old Cooma Road/ Burra Road	AM	South	0.10	8.5	3	A
	PM	South	0.03	8.8	1	A

Based on the above indicative traffic modelling, the intersection of Old Cooma Road and Burra Road currently operates well with minimal queues and delays on all approaches.

2.3 FUTURE TRANSPORT NETWORK

Stage 1 of the Old Cooma Road upgrade was completed in 2014 and included construction of 1.8 kilometres of straight road with three traffic lanes, including one travel lane in each direction and a southbound overtaking lane. The Stage 1 realignment provided a straighter section of the road near the existing quarry, to facilitate safer north-south access between Queanbeyan and Googong and further south.

Stage 2 of the Old Cooma Road upgrade is planned to commence in July 2018 and be completed by December 2019. Stage 2 will include two lanes in each direction between Edwin Land Parkway and Googong Road (approximately 4 kilometres north of Burra Road), as well as a 2.5-metre-wide shared path.

It is understood that there ae currently no plans to upgrade Old Cooma Road south of Googong Road and near the site.

Referencing traffic modelling conducted on behalf of Council (TRG, 2014), traffic volumes along Old Cooma Road south of Googong Road are estimated to be the following within 2031:

— AM peak – 550 vehicles including 450 vehicles travelling northbound and 100 vehicles travelling southbound

— PM peak – 550 vehicles including 150 vehicles travelling northbound and 410 vehicles travelling southbound.

These 2031 traffic forecasts indicate traffic growth of between 45 per cent to 85 per cent between 2017 and 2031. This equates to linear annual growth of up to 6 per cent per year.

It is also noted that the traffic forecasts adopt an 80:20 directional split, which is generally consistent with the assumptions made in this assessment, as discussed in section 2.2.1.3.

2.4 CRASH DATA REVIEW

Crash data provided by Council indicates that between the five-year period of 2012 to 2017 two crashes occurred at the intersection of Old Cooma Road and Burra Road, with the following characteristics:

— One rear end crash with a vehicle colliding with a stationary vehicle. Both vehicles were travelling northbound on Burra Road

— One crash involved a school bus performing a U-turn and colliding with a culvert.

No crashes occurred in this five-year period at the intersection of Old Cooma Road and Evans Road, which is located opposite the site.

In addition, three collisions occurred mid-block, within one kilometre from the intersection of Old Cooma Road and Burra Road. These crashes are summarised below:

— One crash occurred on Burra Road and two occurred on Old Cooma Road

— Two crashes were run-off road collisions and one crash involved a vehicle hitting a kangaroo.

This crash data does not highlight any obvious crash trends or any significant road safety hazards along Old Cooma Road and Burra Road, in the vicinity of the site.

3 PARKING IMPACT ASSESSMENT

3.1 CAR PARKING

No guidelines exist with regards to suitable car parking requirements for cemeteries and ancillary facilities. Therefore, car parking demand can be forecast using a first principles approach on the basis of anticipated visitor numbers and estimated vehicle occupancy.

It is estimated the number of attendees at most services is between 50 and 100. However, a large number of attendees, estimated to be up to 300 can occur occasionally. For the purpose of this parking assessment, the following three design scenarios have been assessed:

- Typical service – 50 attendees
- Large service – 150 attendees
- Very large service – 300 attendees.

Reference has been made to the Australian Bureau of Statistics, Census of Population and Housing data from 2016 (ABS data) to estimate the average number of people per vehicle that would attend a service at the proposed cemetery. The ABS data indicates that the average household size in the Queanbeyan-Palerang Local Government Area (LGA) is 2.6 people per household. Therefore, a conservative vehicle occupancy rate of two people per vehicle has been adopted for this assessment.

The parking demand for three design scenarios are summarised in Table 3.1.

Table 3.1 Parking demand scenarios

Design scenario	Number of attendees	Average Vehicle Occupancy Rate	Estimated Parking demand
Typical	50 people	2.6	25
Large	150 people		75
Very large	300 people		150

Based on the above, and noting that there is no on-street parking available in the vicinity of the site, it is recommended that the proposed cemetery should be designed to accommodate approximately 150 parking spaces.

Given that the peak parking demand of 150 spaces would occur occasionally, an on-site parking provision of 150 spaces would typically accommodate a combined visitor and staff parking demand.

3.2 ACCESSIBLE PARKING

Part 2 of Queanbeyan DCP 2012 specifies that for community uses, two to three per cent of the car parking provision should be accessible parking. Based on a parking provision of 150 spaces, five of these should be accessible spaces.

3.3 CAR PARK LAYOUT

Car parking should be dispersed across the site to enable easy and accessible access to various facilities and burials.

The on-site car parking should be designed in accordance with the Australian Standards, (AS/NZS 2890.1: 2004 and AS/NZS 2890.6). Referencing Table 1.1 of AS/NZS 2890.1: 2004, the proposed car parking spaces should be designed for user class 3 for short term city and town centre parking, with parking space dimensions of 2.6 metres wide and 5.4 metres long and aisle widths of 5.8 metres.

4 TRAFFIC IMPACT ASSESSMENT

4.1 VEHICLE ACCESS ARRANGEMENTS

Two alternatives are being investigated for vehicle access for the proposed development, as follows:

1. vehicle access via Old Cooma Road
2. vehicle access via Burra Road.

With consideration for the existing configuration of both roads, it is recommended that the site access be positioned along the straight section of Burra Road to avoid potential sight line issues associated with the placement of the site access on a horizontal curve along Old Cooma Road.

With consideration for the required sight distances along a 100 kilometres per hour sign posted rural road, ideally the site access would be located around 300 metres south of the intersection of Old Cooma Road and Burra Road. However, sight lines are partially restricted in this location due to horizontal and vertical road geometry. Therefore, it is recommended that consideration be made to reduce the speed limit of Burra Road at its northern end to 80 kilometres per hour, with the site access to be located approximately 240 metres to the south of the intersection of Old Cooma Road and Burra Road, where a minimum sight distance of 225 metres could be achieved in both directions.

A site access on Burra Road would result in increased traffic demand along Burra Road and increased turning movements at the intersection of Old Cooma Road and Burra Road.

4.2 TRAFFIC GENERATION

As discussed in section 3, a funeral service could generate between 25 and 150 vehicles, depending on the number of attendees. Given that the cemetery is expected accommodate up to 4 funeral services per week, it is unlikely that more than one service would occur at the same time.

Due to the nature of the proposed development, the traffic generation would be tidal, with all attendees expected to arrive in one hour and leave in another hour.

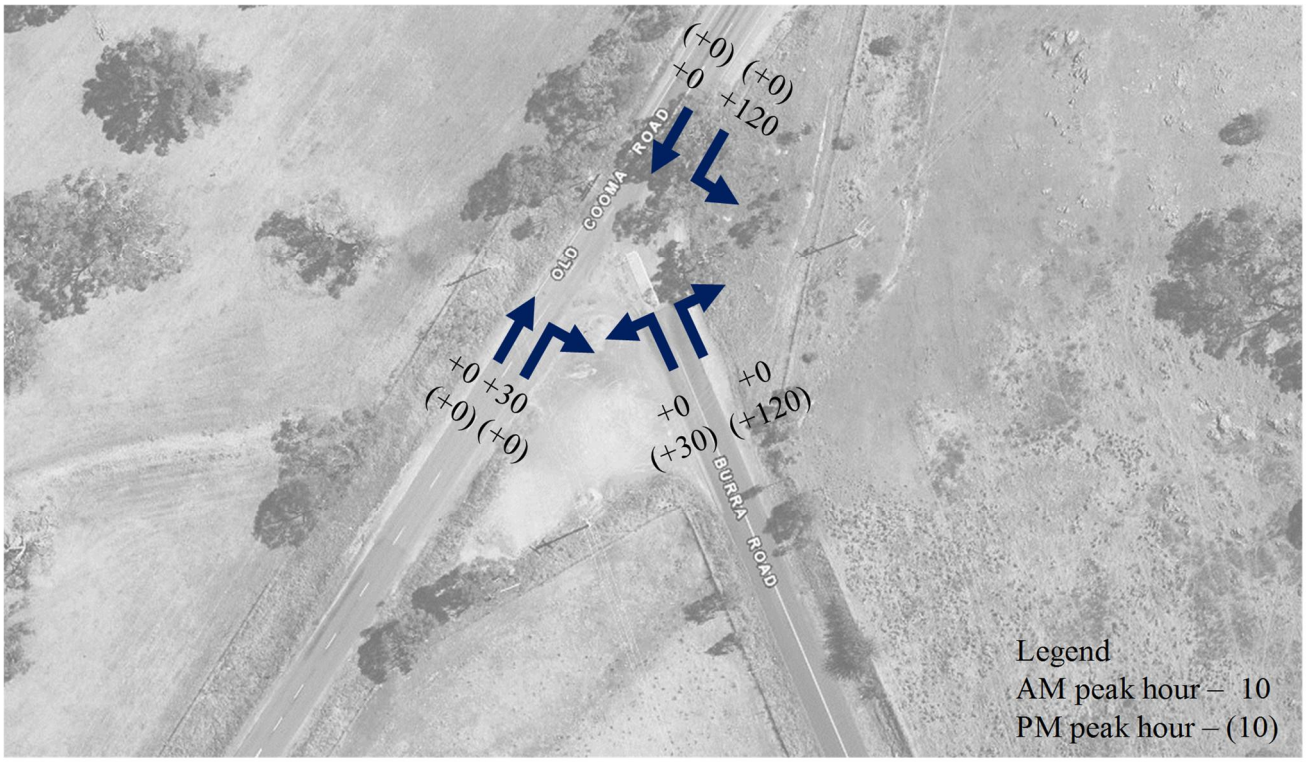
With consideration for the proposed hours of operation for the cemetery and the design scenarios discussed in section 3, the following conservative traffic scenarios have been considered as part of this assessment:

1. Weekday AM – up to 150 vehicles entering the site
2. Weekday PM - up to 150 vehicles exiting the site.

The following assumptions have been made with respect to the directional distribution of the traffic generated by the development:

- To/from the north via Old Cooma Road – 80 per cent
- To/from the south via Old Cooma Road -20 per cent.

On the above basis, the estimated traffic generation for the site is shown in Figure 4.1.



Source: NSW Land & Property Information, https://maps.six.nsw.gov.au/, visited 19 April 2018

Figure 4.1 Peak hour development traffic generation

4.3 INTERSECTION OPERATION

The future intersection operation in 2031, assuming traffic generation plus 6 per cent per annum linear growth of the estimated existing traffic volumes presented in Figure 2.1 has been assessed, as summarised in Table 2.2. The full results are included in Appendix A.

Table 4.1 Post-development 2031 intersection operation

Intersection	Peak	Leg	Degree of Saturation	Average Delay (seconds)	95th Percentile Queue (metres)	Level of Service
Old Cooma Road/ Burra Road	AM	South	0.12	9.4	3	A
	PM	South	0.23	9.5	7	A

Based on the above indicative traffic modelling, the intersection of Old Cooma Road and Burra Road would continue to operate well with minimal queues and delays on all approaches in 2031, with consideration for 6 per cent annual linear background growth.

Notwithstanding the above, the intersection of Old Cooma Road and Burra Road would warrant the following turn treatments to accommodate the development and expected background traffic growth:

— Channelised right turn treatment, with a full deceleration lane

— Channelised left turn treatment, with a full deceleration lane.

In addition to the above, a channelised right turn with a full deceleration would be warranted at the site entry on Burra Road to safely accommodate right turn movements into the site.

It is recommended that peak hourly intersection counts at the Old Cooma Road and Burra Road intersection be completed and used in any subsequent traffic assessments as part of the future development applications.

5 ADDITIONAL TRANSPORT PROVISIONS

As discussed in section 2.2, the site does not currently have access to public transport and/or walking and cycling facilities.

Given the surrounding road high speed road network and long distances to surrounding urban areas, walking and cycling provisions to/from the site would unlikely be well used by staff or visitors of the site. Internally, the site layout should be designed with a suitable footpath network that links car park areas to key locations across the site including provisions for mobility impaired visitors. This may include provision of a low speed shared zone road environment throughout the site.

Further, consideration should be made for future public transport services linking the site with Queanbeyan and surrounding urban areas and planned residential areas to improve accessibility of the site for all staff and visitors, particularly those that don't have access to a private vehicle. It is also recommended that set-down/pick-up areas and associated covered waiting areas be provided to be used for ride share vehicles including taxi's and any community transport services which may be available now or in the future.

6 SUMMARY

Based on the traffic and transport assessment documented in this report, the following conclusions are made:

- Queanbeyan-Palerang Regional Council is proposing a new cemetery on land located at 1241 Old Cooma Road, Googong.
- Once operational, the cemetery is expected to accommodate up to 4 funerals per week.
- The typical hours of operation for the proposed cemetery would be 7.00 am to 4.00 pm Monday to Friday, with most services occurring after 9.00 am and the occasional service occurring on weekends or after 4.00 pm on a weekday.
- Land surrounding the site, primarily consists of rural residential developments and rural grazing land with rural residential developments continually being planned nearby.
- The site has frontages to Old Cooma Road and Burra Road, which are both high speed rural roads carrying 2,500 vehicles and 1,100 vehicles per day, respectively.
- The intersection of Old Cooma Road and Burra Road is a priority controlled intersection which would likely warrant turn bays on Old Cooma Road under the existing traffic volumes. Notwithstanding this, the intersection currently operates well with minimal vehicle queues and delays on all legs.
- Old Cooma Road and Burra Road are expected to experience considerable growth in the future, approximately 6 per cent per annum (linear growth) as a result of nearby future residential areas.
- It is estimated that the site could generate a peak parking demand of 150 vehicles. Therefore, the site should be designed to accommodate approximately 150 spaces which would ideally be dispersed across the site.
- The car parking provisions would need to accommodate two to three per cent as accessible spaces.
- The site is estimated to generate a peak of 150 vehicles in the AM and PM peak hours. Albeit, the likelihood of the peak traffic generation of the site to overlap with the road network peak hours is considered very low.
- The intersection of Old Cooma Road and Burra Road would continue to operate with minimal queues and delays on all approaches in 2031, following completion of the development and with consideration for 6 per cent annual traffic growth on all movements.
- It is recommended that the site access be provided along Burra Road with the following provisions:
  - Positioned approximately 240 metres south of the intersection of Old Cooma Road and Burra Road
  - Include a right turn bay on Burra Road to accommodate the vehicle peak arrivals
  - Speed limit reduction on Burra Road from 100 kilometres per hour to 80 kilometres per hour.
- It is recommended that peak hourly intersection counts at the Old Cooma Road and Burra Road intersection be completed and used in any subsequent traffic assessments as part of the future development applications.
- Consideration for alternative transport modes including public transport and ride share services should be made to ensure access to the site for those that do not have access to a private vehicle.

APPENDIX A

SIDRA INTERSECTION RESULTS

MOVEMENT SUMMARY

Site: 1v [Old Cooma Rd/Burra Rd-Ex-AM]

Three-way intersection with 2-lane major road (Stop control)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Burra Road											
1	L2	22	4.6	0.103	8.1	LOS A	0.4	2.6	0.19	0.66	72.0
3	R2	89	4.6	0.103	8.5	LOS A	0.4	2.6	0.19	0.66	71.6
Approach		112	4.6	0.103	8.4	LOS A	0.4	2.6	0.19	0.66	71.7
East: Old Cooma Road											
4	L2	22	4.6	0.036	8.0	LOS A	0.0	0.0	0.00	0.23	81.0
5	T1	43	8.6	0.036	0.0	LOS A	0.0	0.0	0.00	0.23	93.0
Approach		65	7.2	0.036	2.7	NA	0.0	0.0	0.00	0.23	88.6
West: Old Cooma Road											
11	T1	172	8.6	0.096	0.0	LOS A	0.0	0.3	0.01	0.02	99.2
12	R2	5	4.6	0.096	7.7	LOS A	0.0	0.3	0.01	0.02	85.0
Approach		177	8.5	0.096	0.2	NA	0.0	0.3	0.01	0.02	98.7
All Vehicles		354	7.0	0.103	3.3	NA	0.4	2.6	0.07	0.26	86.6

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 1v [Old Cooma Rd/Burra Rd-Ex-PM]

Three-way intersection with 2-lane major road (Stop control)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Burra Road											
1	L2	6	4.6	0.033	8.6	LOS A	0.1	0.8	0.33	0.66	71.5
3	R2	26	4.6	0.033	8.8	LOS A	0.1	0.8	0.33	0.66	71.1
Approach		33	4.6	0.033	8.8	LOS A	0.1	0.8	0.33	0.66	71.2
East: Old Cooma Road											
4	L2	103	4.6	0.161	8.0	LOS A	0.0	0.0	0.00	0.24	80.8
5	T1	192	8.6	0.161	0.0	LOS A	0.0	0.0	0.00	0.24	92.7
Approach		295	7.2	0.161	2.8	NA	0.0	0.0	0.00	0.24	88.2
West: Old Cooma Road											
11	T1	47	8.6	0.046	0.6	LOS A	0.2	1.3	0.28	0.24	90.0
12	R2	26	4.6	0.046	8.6	LOS A	0.2	1.3	0.28	0.24	78.2
Approach		74	7.2	0.046	3.5	NA	0.2	1.3	0.28	0.24	85.4
All Vehicles		401	7.0	0.161	3.4	NA	0.2	1.3	0.08	0.27	86.0

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 1v [Old Cooma Rd/Burra Rd-Ex-AM+Dev+Growth]

Three-way intersection with 2-lane major road (Stop control)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Burra Road											
1	L2	22	4.6	0.119	8.2	LOS A	0.4	3.0	0.29	0.69	71.0
3	R2	89	4.6	0.119	9.4	LOS A	0.4	3.0	0.29	0.69	70.6
Approach		112	4.6	0.119	9.2	LOS A	0.4	3.0	0.29	0.69	70.7
East: Old Cooma Road											
4	L2	167	4.6	0.136	8.0	LOS A	0.0	0.0	0.00	0.46	76.5
5	T1	79	8.6	0.136	0.0	LOS A	0.0	0.0	0.00	0.46	87.1
Approach		246	5.9	0.136	5.4	NA	0.0	0.0	0.00	0.46	79.6
West: Old Cooma Road											
11	T1	172	8.6	0.139	0.4	LOS A	0.5	3.5	0.22	0.18	92.1
12	R2	63	4.6	0.139	8.5	LOS A	0.5	3.5	0.22	0.18	79.8
Approach		235	7.5	0.139	2.6	NA	0.5	3.5	0.22	0.18	88.4
All Vehicles		593	6.3	0.139	5.0	NA	0.5	3.5	0.14	0.39	80.9

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.

MOVEMENT SUMMARY

Site: 1v [Old Cooma Rd/Burra Rd-Ex-PM+Dev+Growth]

Three-way intersection with 2-lane major road (Stop control)
Giveway / Yield (Two-Way)

Movement Performance - Vehicles												
Mov ID	OD Mov	Demand Flows Total veh/h	HV %	Deg. Satn v/c	Average Delay sec	Level of Service	95% Back of Queue Vehicles veh	Distance m	Prop. Queued	Effective Stop Rate per veh	Average Speed km/h
South: Burra Road											
1	L2	43	4.6	0.233	8.7	LOS A	0.9	6.4	0.40	0.73	70.7
3	R2	175	4.6	0.233	9.5	LOS A	0.9	6.4	0.40	0.73	70.3
Approach		218	4.6	0.233	9.4	LOS A	0.9	6.4	0.40	0.73	70.4
East: Old Cooma Road											
4	L2	103	4.6	0.161	8.0	LOS A	0.0	0.0	0.00	0.24	80.8
5	T1	192	8.6	0.161	0.0	LOS A	0.0	0.0	0.00	0.24	92.7
Approach		295	7.2	0.161	2.8	NA	0.0	0.0	0.00	0.24	88.2
West: Old Cooma Road											
11	T1	87	8.6	0.085	0.6	LOS A	0.3	2.5	0.29	0.24	90.0
12	R2	48	4.6	0.085	8.7	LOS A	0.3	2.5	0.29	0.24	78.1
Approach		136	7.2	0.085	3.5	NA	0.3	2.5	0.29	0.24	85.3
All Vehicles		648	6.3	0.233	5.2	NA	0.9	6.4	0.20	0.41	80.8

Site Level of Service (LOS) Method: Delay (RTA NSW). Site LOS Method is specified in the Parameter Settings dialog (Site tab).
Vehicle movement LOS values are based on average delay per movement.
Minor Road Approach LOS values are based on average delay for all vehicle movements.
NA: Intersection LOS and Major Road Approach LOS values are Not Applicable for two-way sign control since the average delay is not a good LOS measure due to zero delays associated with major road movements.
SIDRA Standard Delay Model is used. Control Delay includes Geometric Delay.
Gap-Acceptance Capacity: SIDRA Standard (Akçelik M3D).
HV (%) values are calculated for All Movement Classes of All Heavy Vehicle Model Designation.