



APPENDIX J TRAFFIC



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Your ref: PS119910

By e-Submission
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13 October 2020

Anna Chauvel
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Dear Anna

Southern Memorial Park Master Plan Preliminary Transport Inputs

Place Laboratory engaged WSP to provide transport engineering inputs into the Southern Memorial Park Master Plan. Subsequently, WSP will also provide transport inputs into the stage 1 design development and will prepare a full transport assessment report that can support the future planning approvals for the site.

The attached preliminary transport advice was developed to inform the draft master plan and is likely to be refined as part of the SMP transport impact assessment.

Please get in contact if you would like to discuss the attached transport planning advice.

Yours sincerely

A handwritten signature in black ink that reads 'B. Humphrey-Robinson'.

Brigette Humphrey-Robinson
Senior Traffic Engineer

Encl: SMP Master Plan Transport Inputs

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SMP MASTER PLAN TRANSPORT INPUTS

1. BACKGROUND

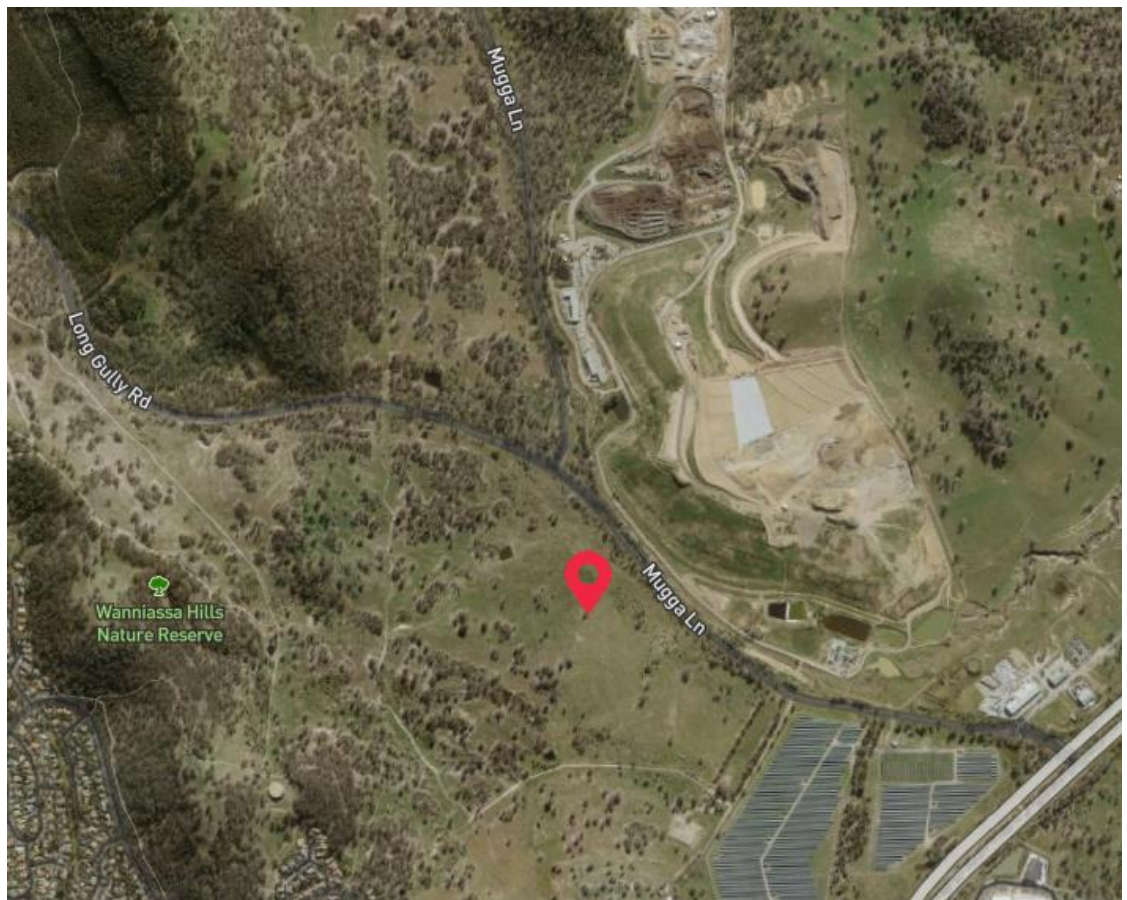
Southern Memorial Park (SMP) is being planned as a world-leading natural landscape, accepting many types of funeral ceremonies and functions and removed from the traditional idea of a cemetery. It will be a park setting where the celebration of life lived replaces the rigid monumentality of the past, where a very wide range of contemporary approaches to the ceremonial commitment of human remains to nature can be accommodated.

The ACT Government is revising the 2012 SMP Master Plan, to set the strategic vision and overarching site layout for SMP.

The ACT Government and Place Laboratory engaged WSP to provide traffic and transport advice into the revised SMP Master Plan, as documented in this brief Master Plan inputs report.

2. SITE LOCATION

Located south of Canberra City in a largely vacant area, the SMP site is bounded by Mugga Lane and is located to the south of the Mugga Lane and Long Gully Road intersection and to the north of the Monaro Highway, as shown in Figure 2.1.



Source: Metromap

Figure 2.1 Site location

The Mugga Lane Resource Management Centre is located opposite the site, along Mugga Lane. The Resource Management Centre is one of the largest traffic generating uses in the area, particularly on weekends.

3. EXISTING TRANSPORT CONDITIONS

3.1 ROAD NETWORK

Mugga Lane is classified as a rural road that connects the arterial roads, Hindmarsh Drive to the north and the Monaro Highway to the south. Long Gully Road is also an arterial road and intersects with Mugga Lane adjacent to the site, at a priority controlled T-intersection and Erindale Drive/Yamba Drive to the north.

Long Gully Road has a posted speed limit of 80 km/h and has one traffic lane eastbound and two traffic lanes westbound for its majority. This enables smaller vehicles to overtake larger, heavy vehicles driving uphill towards the Erindale Drive and Yamba Drive intersection. Mugga Lane also has a posted speed limit of 80 km/h and one traffic lane in each direction, as shown in Figure 3.1.

Both Mugga Lane and Long Gully Road are classified as B-double routes.



Figure 3.1 Mugga Lane, looking westbound near the site

3.2 ACTIVE AND PUBLIC TRANSPORT

No bus stops are located along Mugga Lane. The closest public transport link is provided along the Monaro Highway and is the peak bus route 182 operating between Lanyon and City West. Each day, this route provides three services to City West (inbound) between 6:30am – 8:30am and three services to Lanyon (outbound) between 4:30pm – 6:45pm.

No footpaths or cycling facilities are provided along Mugga Lane or Long Gully Road.

3.3 TRAFFIC VOLUMES

TCCS provided May 2017 traffic count data from a mid-block location along Mugga Lane between John Cory Circuit and Long Gully Road (near the site). The 2017 traffic count data indicates:

- Mugga Lane carries around 13,500 vehicles per day, with a heavy vehicle percentage of around 10 per cent
- Mugga Lane carries around 1,200 vehicles per hour (two-way), with a 50:50 northbound and southbound split

- The AM peak occurs at 8:00am and the PM peak hour occurs at 4:00pm, as shown in the daily traffic profile in Figure 3.2
- Traffic volumes along Mugga Lane have increased at a compound annual growth rate of around 1 per cent, noting that the 2012 SMP Master Plan indicated that Mugga Lane carried around 1,150 vehicles per hour in 2012.

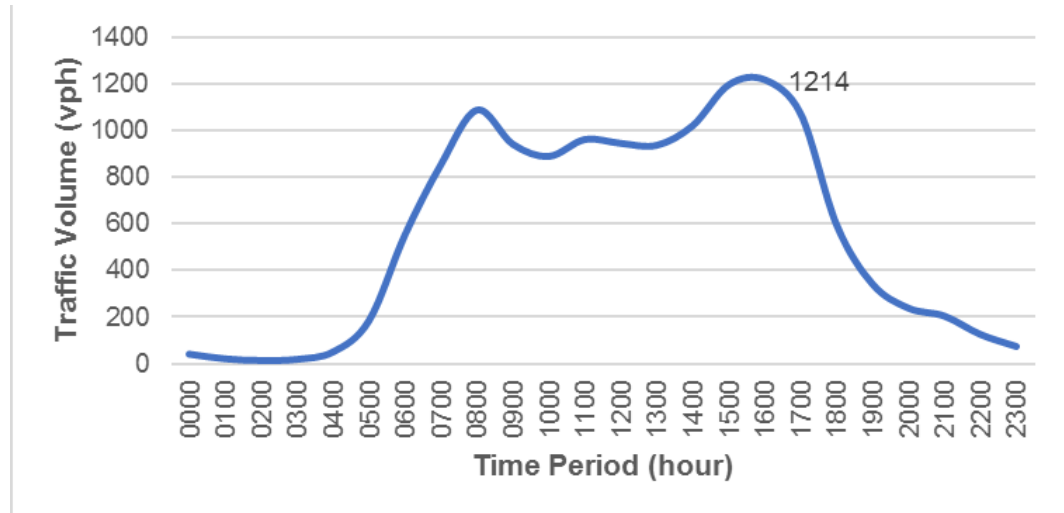


Figure 3.2 Mugga Lane mid-block traffic volumes (two-way)

Adopting the existing Mugga Lane traffic volumes (1,200 vehicles per hour two-way), an assessment of the warrants for any basic, auxiliary and channelised turn treatments for any priority controlled intersections along Mugga Lane was conducted based on the Guide to Traffic Management Part 6: Intersections, Interchanges and Crossings (Austroads, 2020). The assessment indicates the following:

- Channelised right turn treatment where right turn volumes are higher than 5-10 vehicles per hour
- Auxiliary left turn treatment or channelised left turn treatment where the left turn volumes are higher than 5-10 vehicles. Although, noting that the channelised left-turn treatment presents better safety outcomes than an auxiliary turn treatment and is therefore a preferred treatment at this location.

3.4 CRASH DATA

A total of 318 crashes occurred along Mugga Lane and Long Gully Road, over the five-year period between 2015 and 2019. This included two fatalities and 20 crashes resulting in an injury

A crash summary is provided in Table 3.1 and shown in Figure 3.3. The historical crash data along Mugga Lane and Long Gully Road indicates a high number of crashes have occurred at intersections and mid-block locations.

Table 3.1 Historical crash data summary

Location	Total	Fatal	Injury	Property damage only
Mugga Lane and Monaro Highway intersection	77	1	2	74
Mugga Lane between Monaro Highway and Hindmarsh Drive (including the intersection with Long Gully Road)	87	0	9	78
Mugga Lane and Hindmarsh Drive intersection	60	0	4	56
Long Gully Road (excluding Mugga Lane intersection)	22	1	2	19
Long Gully Road, Erindale Drive and Yamba Drive intersection	72	0	4	68
Total	318	2	20	296

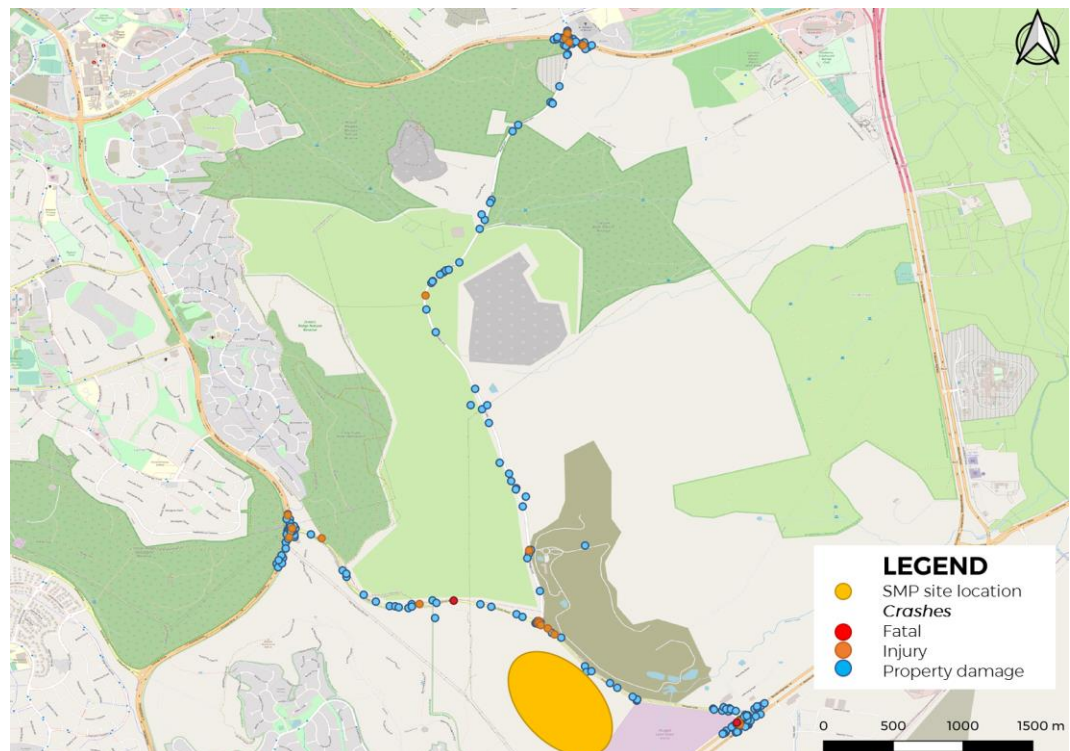


Figure 3.3 Historical crash data map

4. REVISED MASTER PLAN

4.1 PROPOSED LAYOUT

The draft master plan is indicatively shown in Figure 4.1 including the following transport related features:

- Main vehicle access point via Mugga Lane approximately 700m south-east of the intersection of Mugga Lane and Long Gully Road
- Potential service vehicle access via an existing shared laneway at the south-eastern site border near the existing horse agistment
- Landscaped formal car park and overflow car park area in the centre of the site
- Low speed internal road network
- Small pocket car parks including on-street and off-street car parks across the site.



Figure 4.1 Revised Draft Master Plan

4.2 EXPECTED SITE OPERATIONS

It is assumed that SMP could have the following design population (consistent with the SMP 2012 Master Plan):

- Memorial hall – 750 visitors
- Admin – 18 employees
- Kitchen – 12 employees
- Café – 100 visitors
- Crematorium – 9 employees.

This equates to a maximum of 50 employees and up to 850 visitors on-site at any one time. However, it is estimated the number of attendees at typical service is between 50 and 100, with a large service of around 300 visitors.

Therefore, the traffic and parking requirements for the site should be considered with regards to the typical, large and maximum scenarios described in Table 4.1.

Table 4.1 Visitor and staff scenarios

Ceremony size	Number of visitors	Number of staff	Total persons	Assumptions
Typical	100	50	100	May occur simultaneously with other small ceremonies
Large	300	50	350	Unlikely to occur simultaneously with other ceremonies
Maximum	750	50	750	Unlikely to occur simultaneously with other ceremonies

5. PRELIMINARY TRANSPORT REVIEW

5.1 CAR PARKING

5.1.1 CAR PARKING REQUIREMENTS

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.

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 Canberra Region is 2.36 people per household. Therefore, a conservative vehicle occupancy rate of 1.8 people per vehicle has been adopted for this assessment.

The parking demand for the three design scenarios are summarised in Table 5.1.

Table 5.1 Visitor parking demand scenarios

Design scenario	Number of ceremony attendees	Average vehicle occupancy rate	Estimated visitor parking demand
Typical	100 people	1.8	56
Large	300 people		167
Maximum	750 people		417

Based on the above, and noting that there is no on-street parking available in the vicinity of the site, it is recommended that SMP be designed to accommodate up to 420 spaces for visitors. However, given the infrequency of the maximum sized ceremonies 200-250 of these spaces could be accommodated in an overflow area rather than a formal car park.

An additional 50 spaces should be provided for staff, who are more likely to drive in a single occupancy vehicle.

Therefore, SMP's parking requirements can be summarised as:

- 50 spaces for staff for everyday use
- Around 200-250 spaces for visitors to cater for typical and large ceremonies
- Overflow area with capacity for 200-250 spaces to accommodate the maximum size ceremonies.

Therefore, a formal car parking supply of 250-300 spaces is considered suitable for SMP.

5.1.2 ACCESSIBLE PARKING REQUIREMENTS

The *Parking and Vehicular Access General Code* (ACTS Planning and Land Authority, 2014) indicates that for non-residential buildings, parking for people with disabilities should comprise a minimum of 3 per cent of the total number of spaces provided. Based on the proposed parking requirement for 250-300 spaces, this results in a requirement for 8-9 accessible spaces.

However, given the nature of the site, it is recommended that a higher proportion of accessible spaces be provided.

5.1.3 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). Referencing Table 1.1 of AS/NZS 2890.1: 2004, the proposed off-street car parking spaces should be designed for user class 3 for short term city and town centre parking.

An off-street car park is proposed in the centre of the site. It is noted that the car park which has currently been designed includes 45 degree angled spaces and a circuitous access. It would be beneficial to instead provide 90 degree parking spaces, with one-way aisles and a perimeter road to improve traffic flow through this area and minimise conflict between vehicles and also vehicles and pedestrians.

Across the site, some on-street parking is proposed including a mixture of parallel spaces and 90 degree angled spaces. Given the circuitous road network that is proposed and also the various grade differences that exist on the site, it is recommended that all on-street parking spaces be provided as parallel spaces, to minimise road safety implications associated with potential poor visibility to reversing manoeuvres associated with the 90 degree spaces.

5.2 TRAFFIC AND ROAD NETWORK

5.2.1 TRAFFIC GENERATION

As discussed above, a service/ceremony could generate between 56 and 420 vehicles (for visitors), depending on the number of attendees. Due to the nature of the site, the traffic generation would be tidal, with all attendees expected to arrive in one hour and leave in another hour. Further, the staff and visitors are unlikely to arrive or leave in the same hour.

With consideration for the scenarios discussed in Table 4.1, it is estimated that the peak traffic scenario would be for a maximum sized ceremony, which could have the following traffic generating characteristics:

1. Weekday AM – up to 417 vehicles entering the site
2. Weekday PM - up to 417 vehicles exiting the site.

It is noted that these traffic generations are considered to be conservative, noting that the maximum sized events are unlikely to frequently coincide with the road network peak hours.

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

- To/from the north via Mugga Lane – 80 per cent
- To/from the south via Mugga Lane - 20 per cent.

On the above basis, the estimated peak hourly traffic generation for the site is summarised in Table 5.2.

Table 5.2 Peak hour traffic generation (directional)

Direction	Peak hour traffic generation (vehicles per hour)	Comment
To/from the north	334	In the AM, this is right turn movements into the site and in the PM, this is left turn movements out of the site
To/from the south	84	In the AM, this is left turn movements into the site and in the PM, this is right turn movements out of the site
Total	417	

5.3 SITE ACCESS ARRANGEMENTS

The 2012 SMP Master Plan proposed vehicle access to the site via a main intersection along Mugga Lane and a secondary access via the intersection of Mugga Lane and Long Gully Road.

The main SMP access via Mugga Lane was proposed as a dual lane roundabout and the service vehicle access was proposed via a new southern leg at the intersection of Mugga Lane and Long Gully Road, to enable access along the north-western site boundary.

These access arrangements were revisited by the project team and it was recommended that no site accesses be located at the intersection of Mugga Lane and Long Gully Road and main access be provided as further away from the intersection of Mugga Lane and Long Gully Road to minimise impacts. It is also understood that a signalised intersection is preferred over a roundabout for this site.

Based on the preliminary traffic generation estimates documented above, the main site access would likely require a signalised intersection with auxiliary lanes, as indicatively shown in Figure 5.1 and including:

- Dedicated right turn lane on Mugga Lane of around 125m long to accommodate the peak vehicle arrivals
- Dedicated left turn slip lane and 125m deceleration lane for left turning vehicles into the site
- SMP site access configured with dedicated left and right lanes and two entry lanes, as requested by TCCS

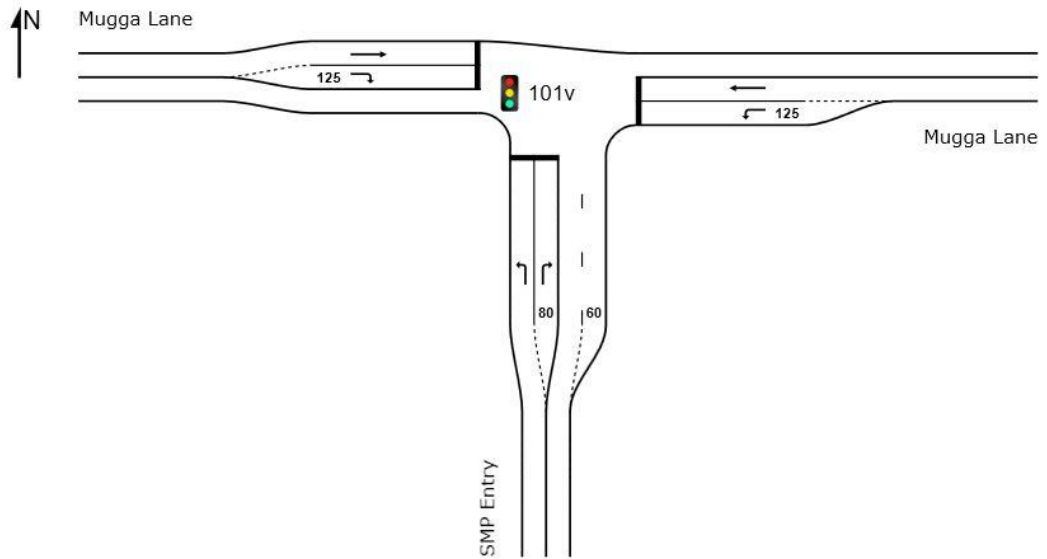


Figure 5.1 Indicative SMP site access intersection

It is noted that this intersection layout is preliminary and is subject to change following further analysis to be conducted as part of the transport assessment.

With regards to the potential secondary access via the shared lane with the adjacent horse adjustment, the minimum Mugga Lane intersection treatments discussed earlier will be required to facilitate the low turning movements at Mugga Lane:

- Channelised right turn treatment
- Auxiliary left turn treatment or channelised left turn treatment. Although, noting that the channelised left-turn treatment presents better safety outcomes than an auxiliary turn treatment and is therefore a preferred treatment at this location.

5.4 INTERNAL ROAD NETWORK

The proposed road cross-sections are indicatively shown in Figure 5.2 and generally include 6m wide two-way roads and 3m wide one-way roads. These road widths are considered suitable given the intended slow speed environment and also the relatively low traffic volumes.

Some road widening may be required around any small radius bends. However, these should be limited as much as practical to maintain good driver sight lines across the site.

Local area traffic management measures should be considered in future design stages to create a self-enforcing slow speed environment.

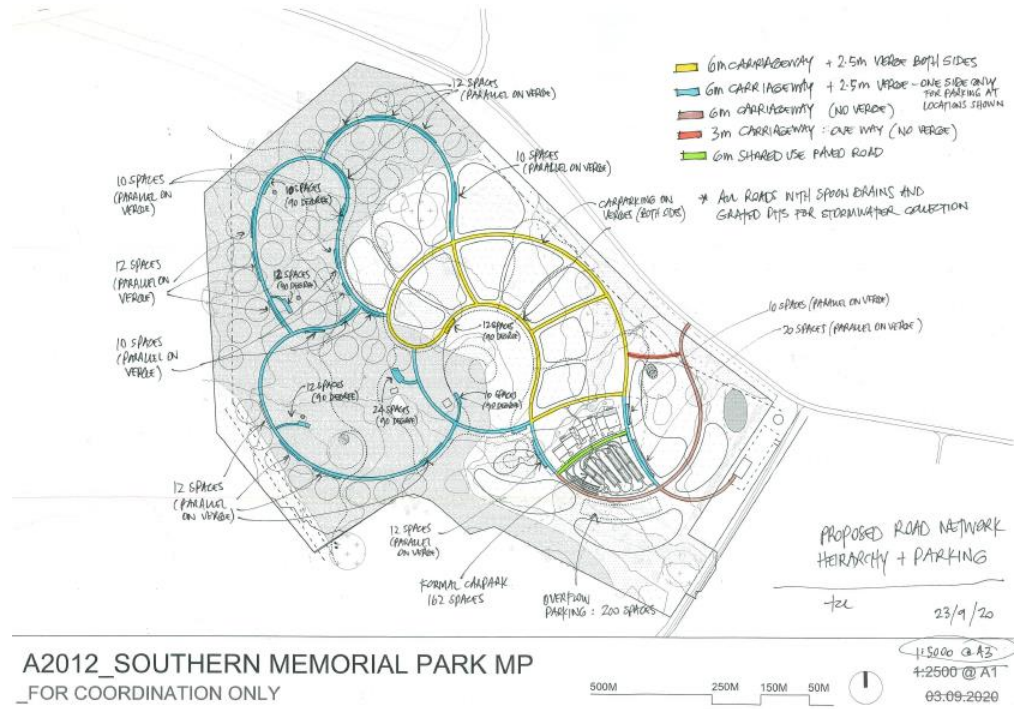


Figure 5.2 Revised Draft Master Plan

5.5 NEXT STEPS

A transport assessment is to be prepared for the SMP site in accordance with the TCCS Guidelines. The assumptions documented in this report in addition to others relevant to the transport assessment will be agreed with TCCS prior to any further traffic analysis or assessment.