

To: Masa Kimura, Transport for NSW From: Stantec Australia Pty Ltd
6 Stewart Ave, Newcastle West, NSW
Project/File: 301400263 Date: 2 August 2022

**Reference: St Philip's Christian College, Cessnock Campus (SSD-10360337)
Wine Country Drive/ Lomas Lane Intersection**

The memorandum has been prepared to address stakeholder submissions in relation to St Philip's Christian College, Cessnock, specifically relating to the intersection of Wine Country Drive and Lomas Lane.

Proposed Intersection Upgrade Timing

The response to submission received from Cessnock City Council (Council) and Transport for NSW (TfNSW) indicated the need to reconsider the proposed timing for improvements at the intersection of Wine Country Drive and Lomas Lane. These comments have been noted and it is agreed that there is benefit in bringing the intersection upgrades forward.

The school is committed to delivering the necessary staged works prior to any corresponding staged increase in the student population. To address stakeholder concerns, the intersection upgrade works initially planned for Stage 2 can be brought forward to Stage 1b. However, if there was no land acquisition required to complete the intersection upgrade works these works could potentially be brought forward to Stage 1a. It is noted that this commitment includes retaining the existing student population until the completion of the agreed Stage 1 road network upgrades.

Following the completion of the agreed road network upgrades, the student population can increase to 1,417 with the subsequent stages similarly ensuring student population caps. The 1,732-student population would not be reached until Stage 2 works are completed and operational. That is, enrolments above 1,417 to reach the 1,732 student-population can commence from Stage 3 onwards.

Proposed Intersection Layouts

Two intersection layouts have been considered at the intersection of Wine Country Drive and Lomas Lane to appropriately cater for the future traffic volumes along Wine Country Drive and planned student population. The two options considered are:

- dual-lane roundabout
- four-way signalised intersection.

Concept design plans of both options are included in Attachment 1, with the layouts summarised below.

The dual lane roundabout provides two approach and departure lanes for both northbound and southbound traffic along Wine Country Drive. Separate left and right turn lanes are provided on Lomas Lane and a vehicular crossing is incorporated to provide access to properties on the western side of Wine Country Drive. The proposed roundabout design has been developed to accommodate a B-Double undertaking a U-Turn. As a result, the roundabout footprint requires extensive property acquisition and is likely to impact the ability to deliver the required road network upgrades in Stage 1a.

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The proposed signalised intersection includes a western leg to provide access to the properties west of Wine Country Drive. As per existing, one through lane is provided in each direction along Wine Country Drive, with appropriate turning bays provided in accordance with Austroads Guide to Road Design Part 4A. The proposed signalised layout can be accommodated within the existing road reserve and negates the need for any land acquisition.

Furthermore, it is noted that the provision of traffic signals at the intersection of Wine Country Drive and Lomas Lane would likely provide wider benefits. As indicated in the TfNSW traffic signal design guide, a side effect of signalisation is that traffic flow along the major road is broken up into platoons. This platooning effect would create opportunities at nearby side streets or accesses to cross or enter Wine Country Drive.

SIDRA intersection analysis has been undertaken for both layout options to determine the anticipated operation of the intersections in 2031. The models including projected 2031 traffic volumes (1.5 per cent background growth applied) with additional school traffic generated by 1,732 student population and associated staff. In 2031 the dual lane roundabout is anticipated to operate at Level of Service A in both the AM and PM peak half hour periods. The proposed signalised layout is expected to operate at Level of Service B in both the AM and PM peak half hour periods. From an operational perspective both layouts can adequately cater for future traffic volumes, with minimal delays and queuing on all approaches.

Given the land acquisition constraints and potential impact on staging, the preferred intersection layout at Wine Country Drive and Lomas Lane is traffic signals. The proposed signalised layout would meet the TfNSW requirements provided to date, including addressing safety concerns and absorbing all future background traffic growth. Furthermore, traffic signals have the ability to provide wider benefits along Wine Country Drive by creating vehicle platoons and creating gaps for nearby side roads and accesses.

Ongoing stakeholder consultation will ensure appropriate design through the detailed design stage, including consideration for appropriate cyclist facilities.

Signalisation Warrant Assessment

TfNSW Traffic Signal Design Guide (TSDG) provides warrants on the provision of traffic signals. To review the appropriateness of traffic signals at the intersection of Wine Country Drive and Lomas Lane a warrant assessment as per the TSDG has been undertaken.

The applicable signalised intersection warrant applicable to Wine Country Drive Lomas Lane requires that for each of four one-hour periods of an average day:

- The major road flow exceeds 600 vehicles/hour in each direction; and
- The minor road flow exceeds 200 vehicles/hour in one direction.

A review of the 2021 tube counts undertaken on Wine Country Drive indicates that the average weekday traffic volumes along Wine Country Drive (major road) do not exceed 600 vehicles/ hour in both directions for four one-hour periods. However, they do exceed 600 vehicles/ hour in one direction for four one-hour periods on an average weekday. These periods coincide with the school peak periods between 7:30am to 8:30 am and 2:15pm to 3:15pm. Furthermore, the average weekday traffic volumes along Wine Country Drive exceed 500 vehicles/ hour in both directions for three one-hour periods. These periods are between 8:00am to 9:00, 2:00pm to 3:00pm and 3:00pm to 4:00pm and again coincide with the school peak periods.

The intersection turning movement counts at Wine Country Drive and Lomas Lane intersection indicate traffic volumes on Lomas Lane (minor road) exceed 250 vehicles in the AM and PM peak periods.

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Although the TSDG warrant is not met, given the 80km/h speed limit and use of the intersection is predominantly school related, traffic signals are considered appropriate.

Adjacent Property Access

During the public exhibition period three submissions were received from adjoining neighbours with properties opposite the site, on Wine Country Drive. The properties being 309-311 Wine Country Drive (being a four-lot subdivision with a common access driveway onto Wine Country Drive) and 313 Wine Country Drive with an access onto Wine Country Drive directly opposite Lomas Lane. The proposed increase in traffic and continued safe access to their properties was a consistent theme raised in the submissions, with one specific objection to the proposed roundabout.

To address submissions, the applicant has commenced further engagement with these landowners. This has included a meeting with the landowners to present the intersection options and to discuss the complexities of ensuring their property access is the same or improved from existing circumstances.

Please contact the undersigned if you require any further information.

Sincerely,

Stantec Australia Pty Ltd



Rhys Hazell

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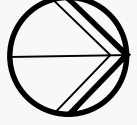
Attachment 1: Civil Intersection Concept Design Plans

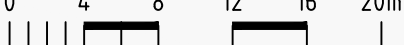


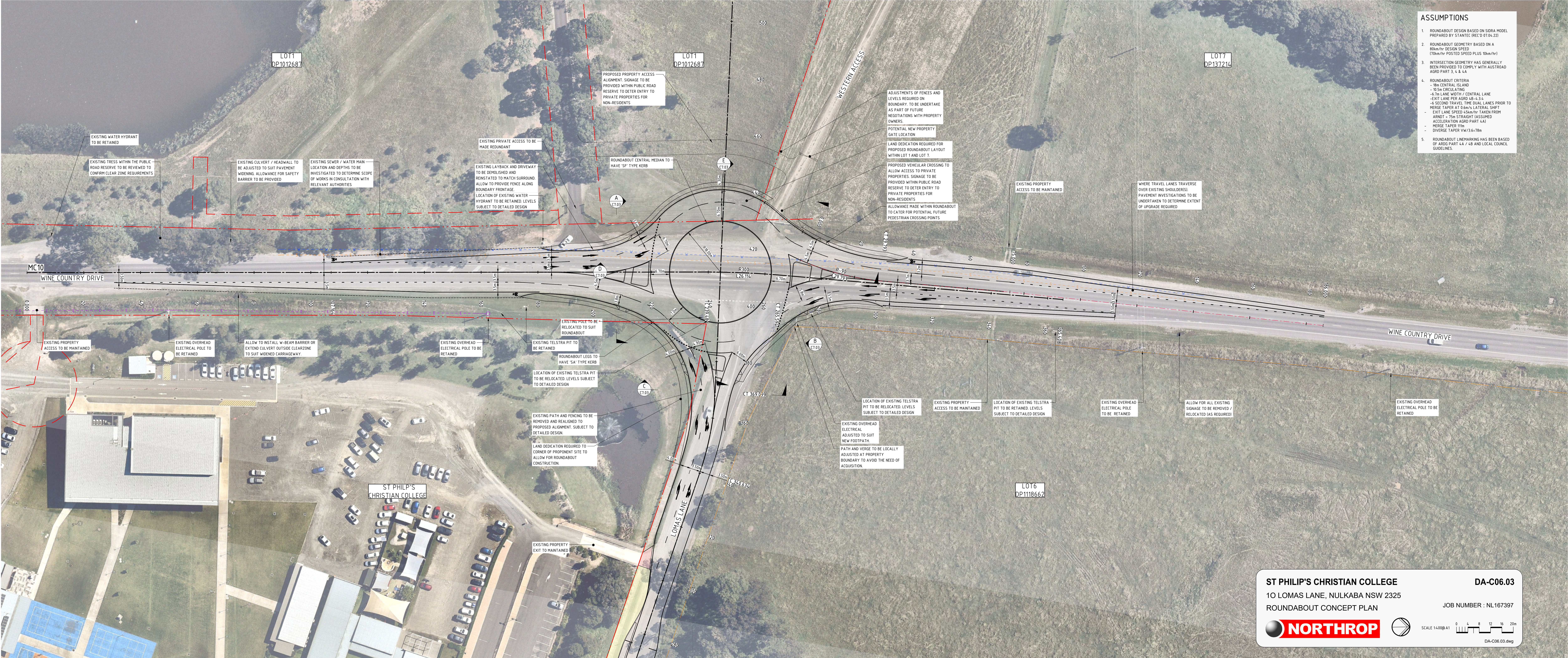
- ASSUMPTIONS**
1. INTERSECTION DESIGN BASED ON SIDRA MODEL PREPARED BY STANTEC (REV'D 07.04.22)
 2. INTERSECTION GEOMETRY BASED ON A 80km/hr DESIGN SPEED (70km/hr POSTED SPEED PLUS 10km/hr)
 3. INTERSECTION GEOMETRY HAS GENERALLY BEEN PROVIDED TO COMPLY WITH AUSTRROAD AGRD PART 3, 4, & 4A
 4. FULL DECELERATION LENGTHS PROVIDED TO AUXILIARY LANES TO PREVENT REDUCTION OF SPEED ALONG WINE COUNTRY DRIVE THROUGH LANES. DECELERATION LENGTHS NOT ALLOWED FOR WITHIN LOMAS LANE DUE TO NATURE OF THE 'T' INTERSECTION ARRANGEMENT
 5. BOUNDARY INFORMATION (SHOWN ORANGE) HAS BEEN OBTAINED FROM SIX MAPS CADASTRE

ST PHILIP'S CHRISTIAN COLLEGE
10 LOMAS LANE, NULKABA NSW 2325
OVERALL PLAN

DA-C06.01
JOB NUMBER : NL167397



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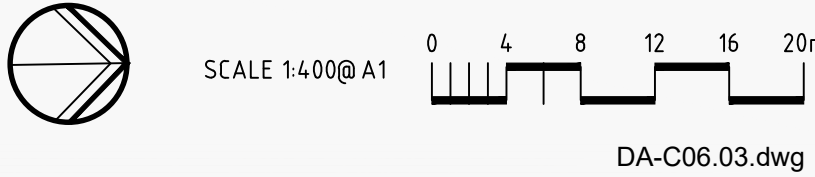


- ASSUMPTIONS**
1. ROUNDABOUT DESIGN BASED ON SIDRA MODEL PREPARED BY STANTEC (REC'D 07.04.22)
 2. ROUNDABOUT GEOMETRY BASED ON A 80km/hr DESIGN SPEED (70km/hr POSTED SPEED PLUS 10km/hr)
 3. INTERSECTION GEOMETRY HAS GENERALLY BEEN PROVIDED TO COMPLY WITH AUSTRALIAN AGRD PART 3, 4 & 4A
 4. ROUNDABOUT CRITERIA
 - 18m CENTRAL ISLAND
 - 10.5m CIRCULATING
 - 6.7m LANE WIDTH / CENTRAL LANE
 - EXIT LANE PER AGRD 4B-4.3.4
 - 4 SECOND TRAVEL TIME DUAL LANES PRIOR TO MERGE TAPER AT 0.6m/s LATERAL SHIFT
 - EXIT LANE SPEED 45km/hr TAKEN FROM AGRD 4 = 75m STRAIGHT (ASSUMED ACCELERATION AGRD PART 4A)
 - MERGE TAPER 111m
 - DIVERGE TAPER VW/3.6=78m
 5. ROUNDABOUT LINEMARKING HAS BEEN BASED ON AGRD PART 4A / 4B AND LOCAL COUNCIL GUIDELINES

ST PHILIP'S CHRISTIAN COLLEGE
10 LOMAS LANE, NULKABA NSW 2325
ROUNDABOUT CONCEPT PLAN

DA-C06.03

JOB NUMBER : NL167397



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