

Memorandum

To: Andrew Wilson

From: Fred Gennaoui

Date: 6 July 2017

Job N°: 13561.002

Subject: Old Northern Road / Francis Street Intersection Upgrade

Dear Andrew,

Background

In our Parking and Traffic Study (**PTS**) dated June 2017, we (**TDG**) have indicated that traffic signals are currently required at the intersection of Old Northern Road with Francis Street in Caste Hill.

Further analysis indicates that the intersection will continue to operate a poor level of service upon the completion of the proposed development. The installation of traffic signals with the provision of an additional exclusive right turn lane in the northbound direction would considerably improve conditions at this location.

It is understood that Council has requested a Concept Plan for the signals be prepared before the Planning Proposal goes on Exhibition. The details of the intersection are discussed below.

Development of Concept Plan

Storage Length

Based on the anticipated traffic volumes at the intersection a signalised intersection comprising (among other elements) a right turn lane in the northbound direction was modelled in the SIDRA modelling package. The purpose of this exercise was to establish the required storage length for the northbound right turn lane.

The combined traffic volumes returned a 95th percentile storage length of 39.5 metres, which occurred during the AM peak hour. As such, it can be established that a minimum storage length of 40 metres is required for the northbound right turn lane.

The Sidra signalised intersection layout is shown in Figure 1 below, and comprises two pedestrian crossings, one at the eastern leg on Francis Street, and one along the northern approach of Old Northern Road.

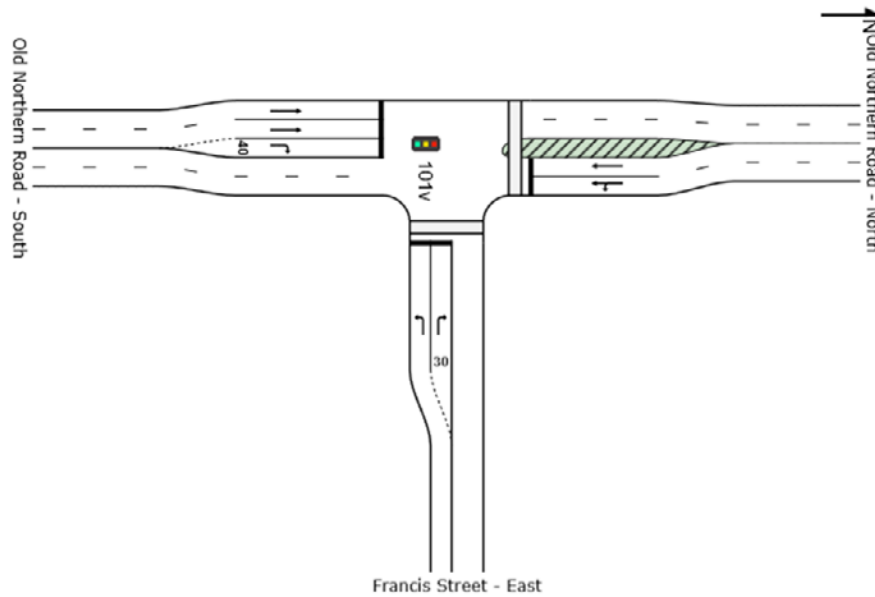


Figure 1: Concept Intersection Layout

Deceleration and Taper Length

As per Table 5.2 (Deceleration distances required for cars on a level grade) of Austroads' Guide to Road Design Part 4A (2017 edition), for a design speed of 60 km/h a deceleration (including taper) length of 55 metres is required under 'comfortable' (2.5m/s^2) rates of deceleration. Using 'maximum' (3.5m/s^2) rates of deceleration, a deceleration and taper length of 40 metres is required.

Available Length between Parsonage Road and Francis Street

Due to the proximity of the Old Northern Road / Parsonage Road intersection to the Old Northern Road / Francis Street intersection (approximately 95 metres centreline to centreline distance), the available length for a right turn lane is limited. After applying a 10 metre setback to the stop line for the southern approach to the Old Northern Road / Francis Street intersection, approximately 80 metres are available for a right turn lane without intruding on the Old Northern Road / Parsonage Road intersection.

As such, a storage length of 40 metres and a deceleration and taper length of 40 metres (for a total of 80 metres) is considered the minimum required design for the proposed intersection. This concept layout is shown in Figure 2.

It needs to be reiterated that this is a concept layout design, and various elements such as painted medians and additional land requirements etc. may have an impact the final design.

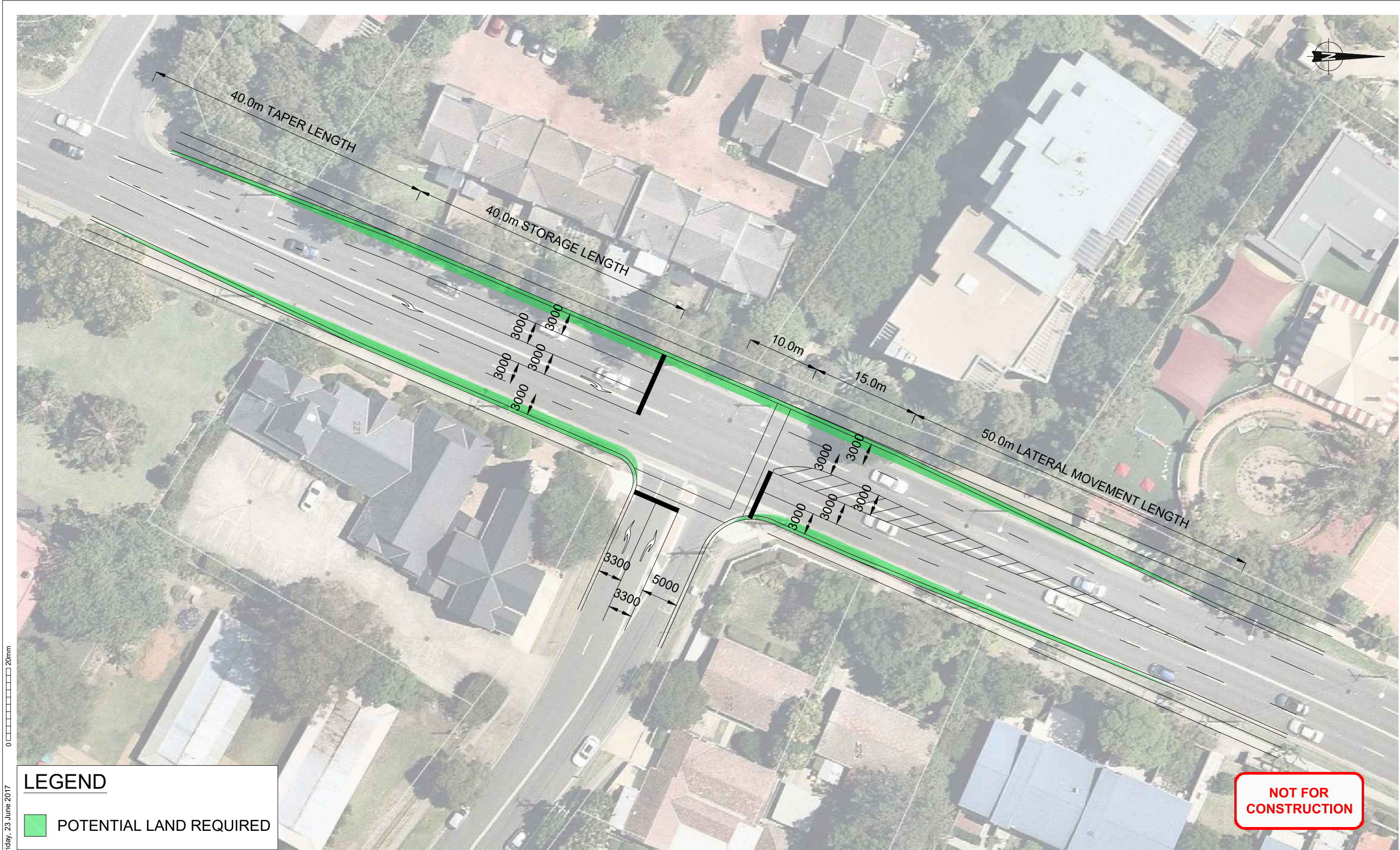
Yours sincerely

Traffic Design Group Ltd



Fred Gennaoui
Principal Consultant

Gennaoui1@bigpond.com.com.au



Friday, 23 June 2017

LEGEND

POTENTIAL LAND REQUIRED

REVISION	DATE	DESCRIPTION

Old Northern Road / Francis Street

Concept Intersection Layout

DRAWN: TJG

DATE: 23/06/2017

SCALE: 1:500 @ A3

DWG NO:13561-2S1A