



Queanbeyan City Council TRACKS Model

South Jerrabomberra &
Queanbeyan Traffic Analysis 2014

Part 4a – Dunns Creek Analysis Report

December 2014

Queanbeyan City Council TRACKS Model

South Jerrabomberra & Queanbeyan Traffic Analysis 2014

Part 4a – Dunns Creek Analysis Report Quality Assurance Statement

Prepared by:

Matt Ellery

Senior Transportation Planner



Reviewed by:

Grant Smith

Principal Consultant



Approved for Issue by:

Dave Hunter

Senior Principal Transportation
Engineer



Status: Report

Date: 11 December 2014

PO Box 8615, Riccarton, Christchurch 8440
New Zealand

P: +64 3 348 3215

www.tdg.co.nz

Table of Contents

1.	Introduction	1
2.	Year 2033 Model.....	2
3.	Year 2036 Model Plus 2500 Households	5
4.	Estimated Year for Old Cooma Rd LOS E	8
5.	Summary of Findings.....	9

1. Introduction

Part 4a of the South Jerrabomberra and Queanbeyan Traffic Analysis 2014 involved analysis of Old Cooma Road between Edwin Land Parkway and Googong Road to determine the additional traffic required to create a Level of Service (LOS) worse than D. This was achieved by adding households to Googong until the four lane Old Cooma Rd drops to LOS E. At this point of capacity, Dunns Creek Road would be required.

This analysis started by adding the remaining 434 planned Googong households to the year 2031 model to create a 2033 future model year with a total of 5550 households in the Googong development. The remaining 434 planned Googong households were equivalent to two more years of growth, so all ACT land use was extrapolated to year 2033 to be consistent.

If the year 2033 model did not show worse than LOS D on Old Cooma Road, a year 2036 model with an additional 2500 households would be developed. It was expected that this level of increase would result in LOS E along Old Cooma Rd and some estimate of what year LOS E would occur could then be made.

The steps taken in this analysis was therefore as follows:

- Year 2033 model (2031 Base model with remaining 434 Googong households);
- Year 2036 model (Extrapolated 2036 overall land use with 2500 additional households in south Googong);
- Estimate year of LOS E along Old Cooma Rd.

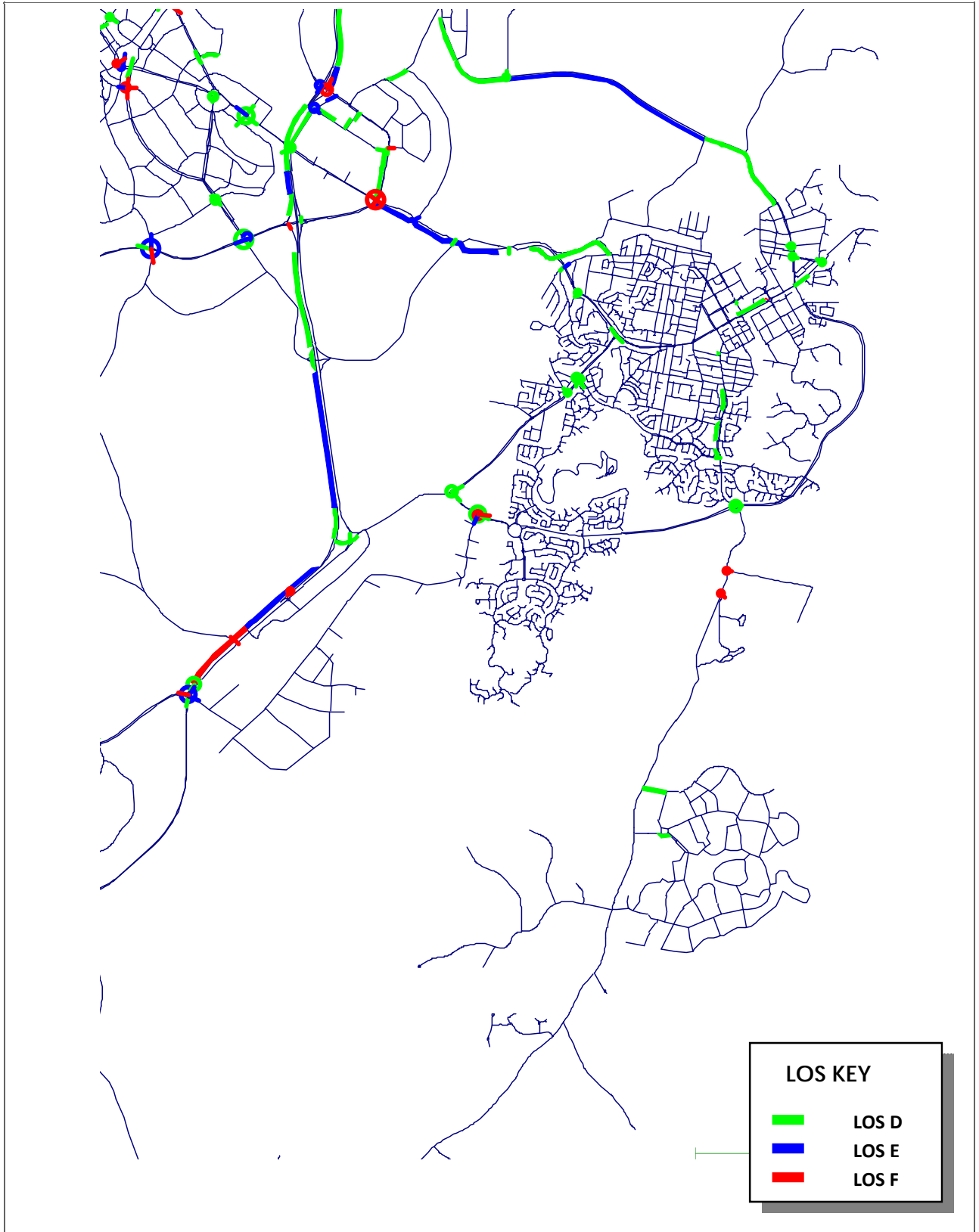
2. Year 2033 Model

The first step in this analysis was to add the remaining two years of planned Googong household growth to the year 2031 model with all improvements, i.e. 434 households. In order to be consistent with other areas of the model ACT land use was extrapolated to year 2033.

In terms of Queanbeyan employment growth, jobs were added according to the proposed sequencing of development in Tralee North and Environa North to year 2033. This resulted in an additional 56 jobs and 148 jobs respectively.

Figure 1 and Figure 2 show the morning and evening peak periods Levels of Service for the year 2033 model.

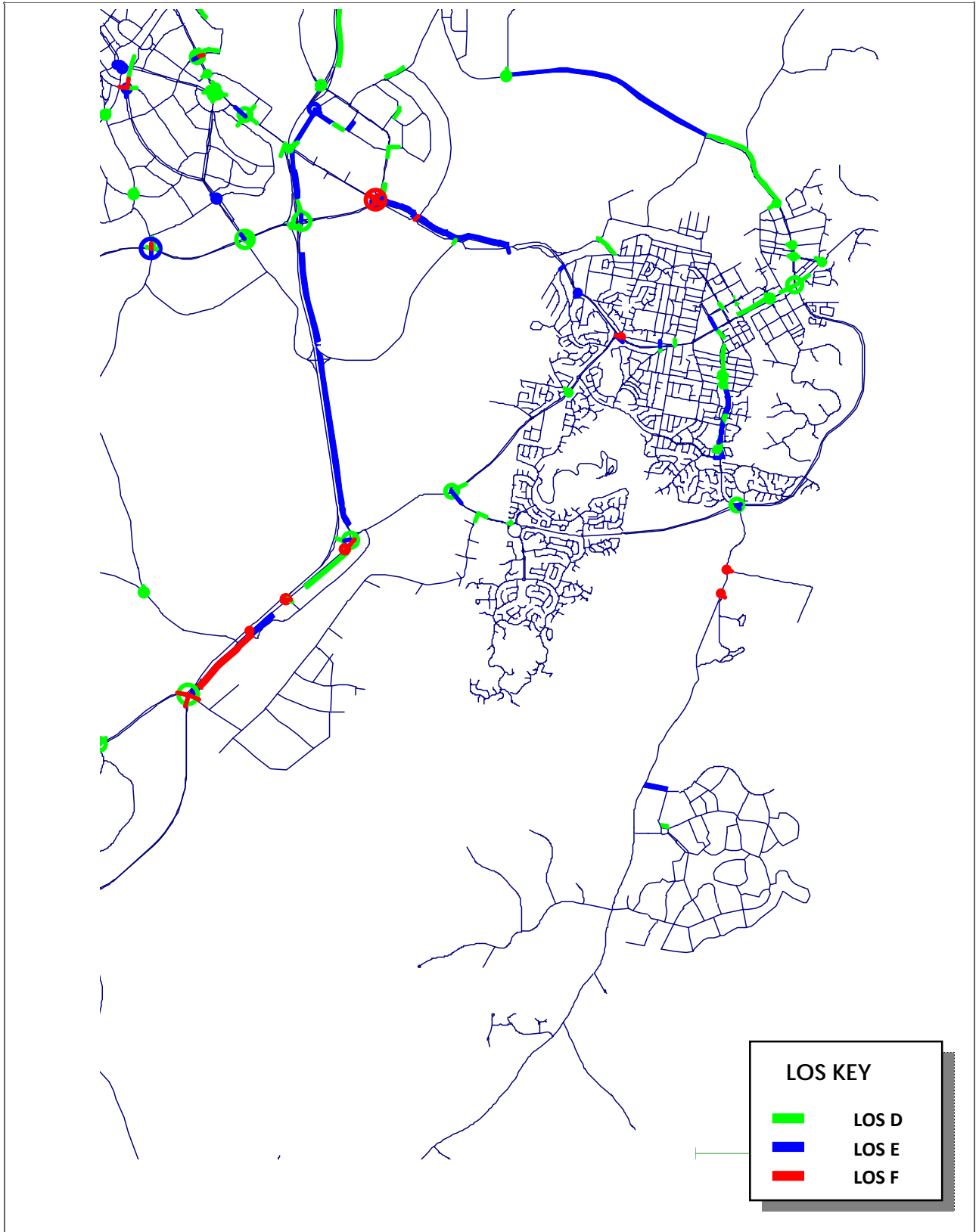
As can be seen in the plots there is no LOS worse than D occurring along Old Cooma Road between Edwin Land Parkway and Googong Road with both the morning and evening peak periods expected to operate at LOS C. As such Googong can be fully developed to at least year 2033 with Old Cooma Road operating satisfactorily and with no requirement for Dunns Creek Road. However, the additional trips produced by Googong as a result of the remaining 434 households do decrease the LOS along sections of Cooma St during the evening peak. This flow is however only 10-30 vehicles above the LOS E level.



4L Old Cooma Rd
Year 2033 Land Use
AMP Level of Service



1



4L Old Cooma Rd
Year 2033 Land Use
PMP Level of Service



2

3. Year 2036 Model Plus 2500 Households

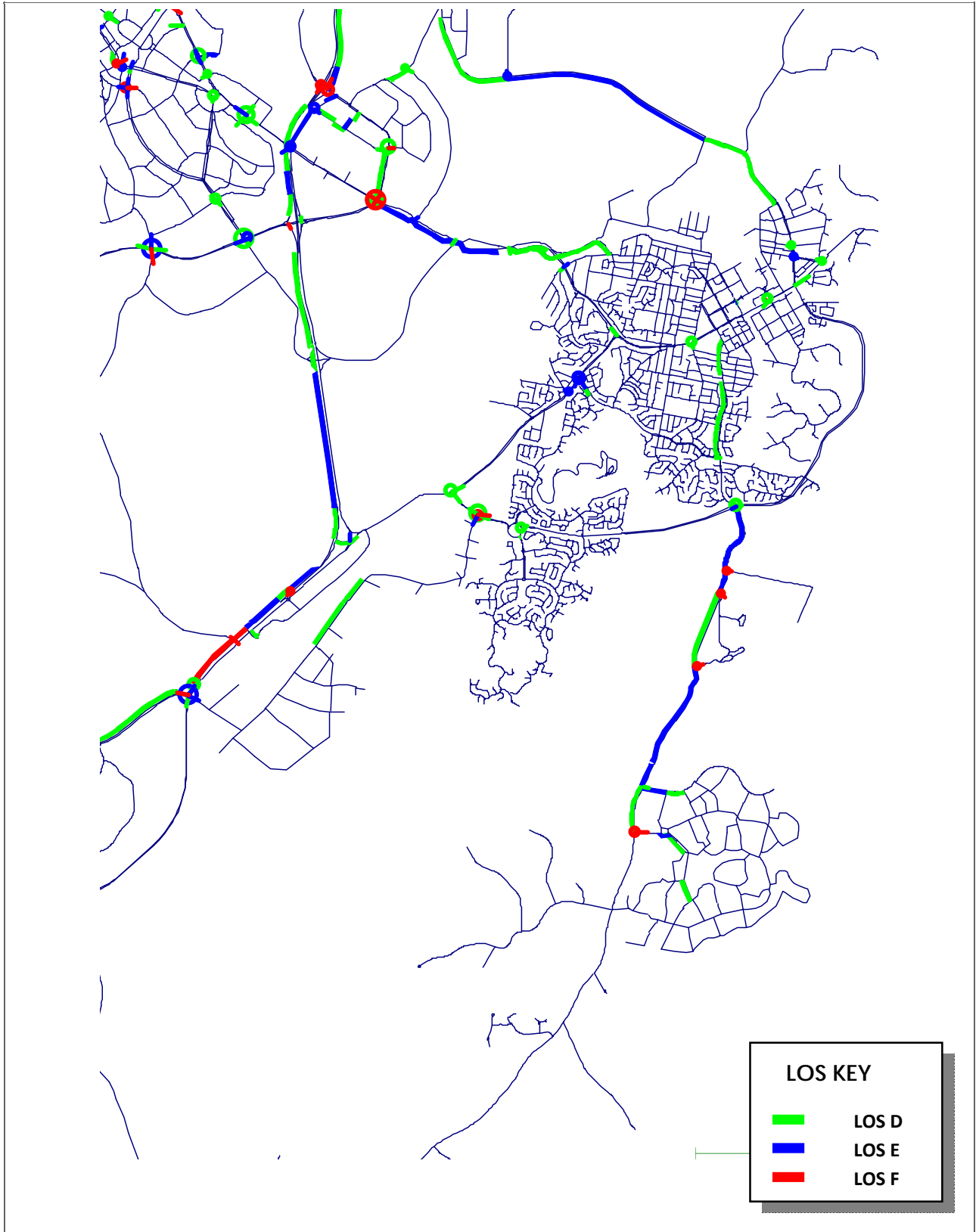
The next step in the analysis of Old Cooma Road capacity is to add the additional 2500 households to a year 2036 model to determine whether Dunns Creek Road is required by year 2036.

Similar to the previous step, ACT land use was extrapolated to year 2036 and Queanbeyan employment added according to the proposed sequencing of development in Tralee North and Environa North to year 2036, i.e. an additional one job and 221 jobs respectively to the year 2033 model.

Figure 3 and Figure 4 show the morning and evening peak periods Levels of Service for the year 2036 model with the additional 2500 households to the south of Googong.

As can be seen in the plots, Old Cooma Road between Edwin Land Parkway and Googong Road is expected to be operating at LOS E during both the morning and evening peaks as a result of this additional development. During the evening peak, the modelled flow is approximately 115vph per lane above the LOS E level for this type of road. During the morning peak it is modelled to be only 20vph per lane over the LOS E level.

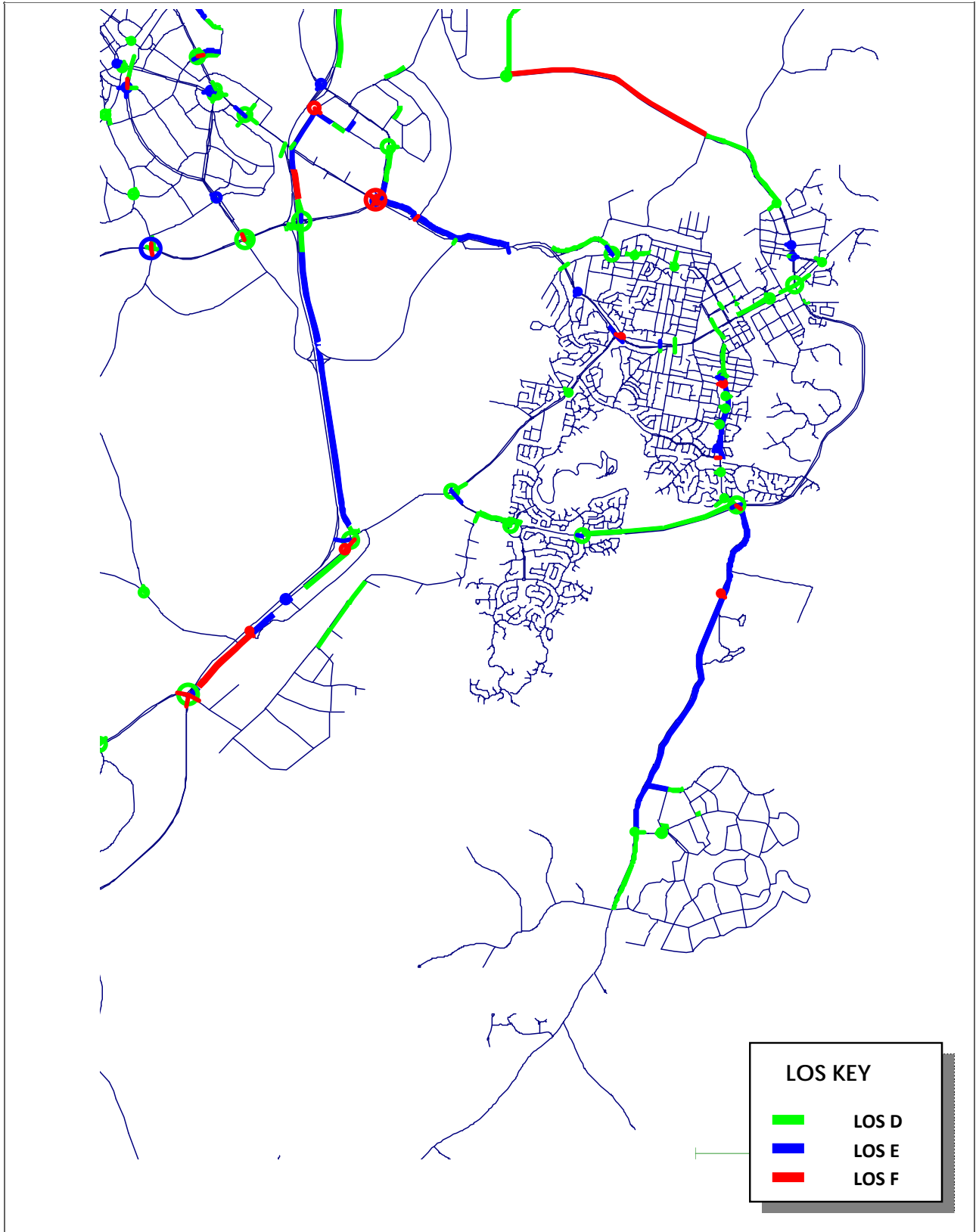
The increase in flow along Old Cooma Rd is not directly proportional to the increase in households as the increasing cost of travel forces the model to reduce trip length and keep more trips within the Googong area rather than spread them throughout the greater area.



4L Old Cooma Rd
Year 2036 Land Use plus extra 2500 HH in Googong
AMP Level of Service



3



4L Old Cooma Rd
Year 2036 Land Use plus extra 2500 HH in Googong
PMP Level of Service



4

4. Estimated Year for Old Cooma Rd LOS E

As shown in Section 3 the possible 2500 household increase on top of an expected 2036 land use is expected to create a LOS E condition along Old Cooma Rd during both the morning and evening peak periods. To estimate the future year when the LOS E condition would first occur, it is necessary to first relate the change in flow along Old Cooma Rd, at its worst location, to the change in households in the Googong area.

In 2033 the peak evening peak directional flow along Old Cooma Rd was expected to be 2170vph for 5550 households. This equated to approximately 0.391 vehicles/household. The later 2036 model predicted a peak evening directional flow of 2935vph for 8050 households at a lower rate of 0.365 vehicles/household.

The LOS E level for this type of road is modelled as 2708vph. This flow is approximately 70% of the increase in flow between the 2033 and 2036 models. This indicates that the expected rate of Old Cooma Rd vehicles/household would be approximately 0.373 vehicles/household when LOS E conditions are created.

This rate indicates that the number of households necessary to create the LOS E flow of 2708vph would be $2708/0.373 = 7260$ households. This is an increase of 1710 households over the final Googong development level.

Assuming a rate of 220 households/year this equates to eight years of development growth. Therefore the initial estimate of when Old Cooma Rd could drop to LOS E would be 2041.

5. Summary of Findings

It has been estimated that an additional 1710 households could be added to Googong by 2041 before Old Cooma Road becomes worse than LOS D in the southbound direction in the evening peak period, therefore requiring Dunns Creek Road to be in place.

To look at these corridors in more detail will require a more robust analysis using “proper” 2036 and later future year land uses. This analysis has assumed a base 2036 land use and then simply loaded that 2036 land use with more households that will in reality take much longer than 2036 to implement. To get a better understanding of the impact additional development in the Googong area would have on the Old Cooma Rd, more accurate future land use projections and infrastructure will be needed to be analysed.

Traffic Design Group Ltd