Campbelltown Road Upgrade

Supplementary Traffic Study - Peer Review

transportation planning, design and delivery

14S1105000 16/12/13

GTAconsultants

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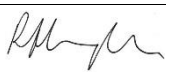
Issue: A 16/12/13

Client: Roads and Maritime Services
Reference: 14S1105000

Quality Record

Issue	Date	Description	Prepared By	Checked By	Approved By	Signed
A	16/12/13	Final	Emma A Reeves	Reece Humphreys	Reece Humphreys	

TIA/RSAMA – VIC 130913 v7.4)

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1. Introduction

1.1 Background

A traffic assessment has been prepared by AECOM (dated 11 March 2013) as part of the Campbelltown Road Upgrade project for the NSW Roads and Maritime Services (RMS). The purpose of the traffic assessment was to assess the operational performance of key intersections at the ultimate (2036) and staged (2026) design years. Subsequently a supplementary traffic study has been undertaken by AECOM (dated 10 October 2013). This report includes validation of the traffic volume data used in the intersection models in the previous report, impacts of upgrading Campbelltown Road to dual lane divided carriageway in projected 2026 and 2036 mid-block volumes, implications of turning restrictions on the local roads from future corridor upgrades, and scenario/reconfiguration testing to respond to community concerns.

Subsequent to the previous supplementary report (dated 10 October 2013), an additional report has been prepared by AECOM (dated 4 December 2013) which includes the following additional information:

- list of community concerns and responses
- updated SIDRA intersection analysis incorporating items and issues raised in GTA traffic peer review reports (dated 25 October and 20 November 2013).

This report summarises the findings of our review of the 4 December report and SIDRA analysis.

1.2 Purpose of This Report

The purpose of this report is to give Roads and Maritime Services a level of confidence that the assessment undertaken by AECOM followed standard traffic engineering and transport modelling industry practises, and that the recommendations and outcomes of the report are feasible in traffic and transport terms.

1.3 Referenced Documents

In preparing this report, reference has been made to a number of background documents, including:

- Campbelltown Road Review of Environmental Factors, Supplementary Traffic Study, AECOM, 4 December 2013
- Campbelltown Road Upgrade Review of Environmental Factors, Supplementary Traffic Study, AECOM, 10 October 2013
- Campbelltown Road Upgrade Review of Environmental Factors, Roads and Maritime Services, Traffic and Transport Modelling Assessment, AECOM, 11 March 2013
- Edmondson Park South Transport Management and Accessibility Plan, AECOM, 2010
- SIDRA files as provided by members of the Project Team
- SIDRA intersection advanced workshop notes, dated February 2010
- link volumes for the upgrade and no upgrade scenarios
- other documents as nominated within this report.

2. Review of Traffic and Transport Modelling

2.1 Validation of Traffic Volume Data

The previous models and analysis presented in the report prepared by AECOM March 2013 were based on traffic volume data collated in October 2011. Due to the fact that the upgrade construction works were undertake on Hume Motorway and Camden Valley Way between the years of 2009 and 2013, the validity of this data has been assessed using updated traffic volume data collated in August 2013.

Two locations were used to compare southbound and northbound flows on Campbelltown Road. The locations of the count stations appears to be suitable for this study in that they provide a reasonable representation of the traffic conditions on Campbelltown Road. However it is recognised that the data is comprised of a small sample.

I caution the use of a single data point for comparison as is the case for this review. It would be beneficial to obtain a larger sample, e.g. one week, to ensure that it is representative of a larger sample and accounts for daily variation. It is also noted that some of the volumes in Figure 2.1 at Denham Court Road were unable to be validated with the data available. It is recommended that this be reviewed.

2.2 Mid-block Capacity Assessment

The operational assessment includes a review of the theoretical mid-block assessment of the southern section of Campbelltown Road with projected traffic volume in 2026 and 2036 using Austroads Guide to Traffic Management Part 3. The following two scenarios were tested:

i no upgrade of Campbelltown Road – remaining as 1 lane road in each direction
ii upgrade of Campbelltown Road to four lane divided road instead of proposed 6 lanes divided road.

The projected future traffic volumes in year 2026 and 2036 are estimated based on population and employment growth, and proposed land use changes with Edmondson park precinct project.

We have undertaken a quick check of the mid-block Volume capacity ratio (V/C) calculations undertaken by AECOM and are satisfied that these are accurate.

We concur with the following conclusions and the results for each scenario:

i The corridor exceeds or would be close to its capacity in 2026 and 2036 in both AM and PM peaks if current configuration were to be maintained on the southern section of Campbelltown Road (one lane in each direction).
ii Acceptable mid-block capacity performance is achievable with a four-lane divided road.

It is noted that there are some minor errors in Table 2.4 (line 1) and 2.5 (PM Peak Hour 2026) and should be updated.

2.3 Origin – Destination Profile

The origin-destination matrix for AM and PM peak periods for 2026 and 2036 years were estimated from a cordon from the EMME model. The models have not been provided as such accuracy

and assumptions made in the models are unable to be assessed. However from the proposed and current land uses in the area, the distribution appears reasonable, particularly having regard for the anticipated distribution.

2.4 Local Area Traffic Impact

Turning movement volumes of right turns in and out of the local roads and alternate route distance have been summarised where those movements that will no longer be available with proposed installation of a central median along Campbelltown Road.

We have reviewed the resultant count data and are satisfied that it is suitable for use.

2.5 Strategic Modelling

The future year volumes for the assessment where obtained from a combination of the NSW Roads and Maritime Services EMME strategic model (Sydney Strategic Transport Model SSTM) as well as the Edmondson Park Transport Management and Accessibility Plan (TMAP) report prepared by AECOM.

The SSTM is a two hour AM and PM peak model that covers the Sydney metropolitan area. For studies such as this, it is good practice that model refinements are undertaken such as network refinements and zone desegregation as this enables the model within the study area to more accurately reflect the operating conditions of the network.

We are unsure whether these have been undertaken for this area; nevertheless the data provided from the SSTM should be adequate for this level of assessment.

2.6 Future Year Modelling Data and Sources

As the AECOM report states, growth rates have been determined from the SSTM and TMAP report. Whilst link plots have been provided, the actual and resultant turning movements have not been provided, as such are unable to be verified.

The growth rate of 1.8% and 1.1% per annum for the linear growth appears reasonable for these types of growth areas.

The sensitivity analysis of 30% reduction in traffic attractors and generators appears reasonable. Our interpretation of how this has applied to the modelling via the sensitivity analysis is that all turning movements have been reduced by 30%. Whilst a 'blanket' approach to the reduction may be a simple way to assess such an outcome, it does not cater for the possibility of additional through trips or trips outside of the study area, which could have impacts on the outcomes of the analysis.

2.7 Revised Intersection Modelling

The operation of the following key intersections along Campbelltown Road have been reassessed by AECOM using *SIDRA INTERSECTION*[1] with the recommendations outlined in the GTA report, as well as the community concerns. The intersections remodelled are:

- Campbelltown Road / Glenfield Road

[1] Program used under license

- Campbelltown Road / Beech Road
- Campbelltown Road / Ingleburn Gardens Drive
- Campbelltown Road / Macdonald Road
- Campbelltown Road / Soldier Road (former Croatia Avenue)
- Campbelltown Road / East Town Centre Road
- Campbelltown Road / Denham Court Road – redesign of the intersection as a roundabout from a signalised intersection
- Campbelltown Road / Blomfield Road – testing different configurations to maintain right turn capability to the intersection including, priority treatment, roundabout, and signalised intersection
- Campbelltown Road / Zouch Road – Campbelltown Road to be upgrade to 4 lane divided lane
- testing alternative route choice to access Denham Court Road which utilises Williamson Road if Campbelltown Road were only to be upgraded to four lane divided road on the southern section.

We have interrogated the existing conditions, 2026 year and 2036 year SIDRA models in terms of inputs and assumptions, and our previous comments provided in our peer review report dated 25 October 2013 and 20 November 2013 and the models are considered satisfactory noting:

- The model has been updated to adopt peak flow factors of 95% in all options.
- Heavy vehicle percentages appear to have been based on the count information. The future model heavy vehicle percentages have been updated to be consistent with the existing heavy vehicle percentages. Heavy vehicle percentages of 3% have been adapted to new approaches and movements which is considered appropriate.
- AECOM have confirmed that the existing intersection models have been verified and calibrated to actual observed intersection performance on site.
- The north approach of Campbelltown Road has been classed as "favourable".
- From Google map street view, Campbelltown Road sign posted speeds appear to be 70km/hr south of Lawson Road and 80km/hr north of Lawson Road. However these should be validated by another source. It is noted that the models have varying speed limits.
- Phase transitions have been coded into the model between phases except for intersection of Campbelltown Road and Beech Road which should be included.
- Linkage of intersections appears to be adopted with intersection cycle time being 150 seconds for intersections north of Hume Motorway and 120 seconds for intersections located south of Hume Motorway except for Ingleburn Gardens Drive and Denham Court intersection which have been modelled with 140 seconds cycle time.
- Gap acceptance values have been changed from default volumes for unsignalised intersections including intersection of Campbelltown Road and Zouch Road. The values adopted in the models appear reasonable.

3. Conclusions and Recommendations

Based on the analysis and discussions presented within this report, it is our view, that whilst there may be limitations to the data provided in terms of future year traffic volumes, the SIDRA models have been satisfactorily coded to best industry practices and are considered suitable for use as part of planning for this project.

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