

INFO NOTE



THE CAMDEN (TORRINGTON PLACE TO TAVISTOCK PLACE) (PRESCRIBED ROUTES, WAITING AND LOADING RESTRICTIONS AND LOADING PLACES) TRAFFIC ORDER [2017] PUBLIC INQUIRY

ONE MODEL VALIDATION

IDENTIFICATION TABLE

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1. INTRODUCTION

- 1.1.1 This note provides a summary of a validation exercise carried out by SYSTRA using the version of the ONE model developed for the study, with refinements and updates made within the study area – these are covered elsewhere.
- 1.1.2 This has been produced subsequent to the document “TN08 – Review of Camden Evidence and Response Document”, dated 17/10/17 and produced by Mr John Russell. In Section 5 of this document, mention is made of the lack of validation against independent data (para 5.1) and in paragraphs 5.4. and 5.5 it is stated that an independent validation is currently being undertaken and that upon receipt of this data Mr Russell may be in a position to conclude that the model is fit for purpose.
- 1.1.3 The validation exercise utilised Manual Classified Counts (MCCs) from the following sources:
- London Borough of Camden (12th May 2016)
 - SYSTRA (21 June 2016)
 - John Russell (24th May 2016)
- 1.1.4 This note accompanies the spreadsheet with the filename “Turn Validation 20171017 EXTERNAL_002.xlsm” which contains a comparison of the observed traffic flows from this MCC data against model flows at a turn level. This spreadsheet is reproduced in Appendix A of this note.
- 1.1.5 The data from the MCCs has not been used in the calibration (i.e. matrix estimation) process and provide an independent check of the modelled flows at a more detailed level than the calibration.

2. VALIDATION CRITERIA

- 2.1.1 According to the standards specified in the Design Manual for Roads and Bridges (DMRB) Volume 12a Part 1 ‘Traffic Appraisal in Urban Areas’, the criteria outlined in Table 1 need to be met for the model to be deemed calibrated and validated.

Table 1. DMRB Calibration and Validation Criteria

Criteria and Measures	Acceptability Guidelines
GEH statistics: individual flows: GEH<5	>85% of cases
Individual flows within 100 vph for flows < 700vph	>85% of cases
Individual flows within 15% for flows <700-2700vph	
Individual flows within 400 vph for flows > 2700vph	

Note: vph – vehicles per hour

- 2.1.2 The principal measures to gauge model accuracy are through comparisons of modelled flows with surveyed traffic flows. The guidelines contain two different measures that can be used to compare modelled and observed traffic flows. As well as making a direct comparison of the flows, the GEH statistic (a form of the Chi-squared statistic) is used to compares two values and weights the difference according to the average of the two flows.



2.1.3 The weighting is not linear but takes the form of a square root function:

$$GEH = \sqrt{\frac{2(M - C)^2}{M + C}}$$

Where:

M = Modelled Flow

C = Observed Flow

2.1.4 The lower the GEH value, the better the fit between observed and modelled flows, with a GEH value of less than 5 considered a good and sufficient fit between modelled and observed traffic flows.

2.1.5 It should be noted that WebTAG unit M3.1 states in paragraph 3.2.7 that comparisons that meet either the GEH or the flow criteria should be deemed satisfactory.

3. TURNING MOVEMENT VALIDATION ANALYSIS

3.1.1 Table 2 below shows a summary of the validation exercise carried out in comparing the observed MCC turning flows against the model flows for both the AM and PM peak periods.

Table 2. Validation Analysis

	AM PEAK	PM PEAK
TOTAL LINK COUNTS	128	128
GEH<5	75	82
DMRB FLOW CRITERIA	106	117
%AGE MEETING CRITERIA	84%	91%

3.1.2 As can be seen from Table 2 above, the turn flows validation meets the criteria in 84% of surveyed turns for the AM peak and 91% in the PM peak. The full details are provided in appendix A of this note.

3.1.3 The PM peak is considered to be significantly over the required threshold of 85% required by the guidance. The AM peak is considered a suitable goodness of fit which is almost at the threshold point.

3.1.4 It is to be recognised that, as stated in DMRB Volume 12, Section 2, Part 1, para 4.4.37 “[...]the accuracy of the modelled turning flows, in percentage terms, will generally be much less than that of the modelled link flows. In this case, a lesser degree of apparent agreement between modelled and observed flows does not necessarily imply a poorer model fit.”



APPENDIX A



APPROVAL

Version	Name	Position	Date	Modifications
1	Author	Mohsin Munshi	Associate	19/10/2017
	Checked by	Mohsin Munshi	Associate	19/10/2017
	Approved by	Dave Carter	Director	19/10/2017

