M11 J7a

Essex County Council

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Executive Summary

Jacobs was commissioned in June 2014 by Essex County Council to construct a strategic traffic model of Harlow and its surrounding area. The primary objective of the model development was to assess the effect on traffic of the highway options for an additional access to Harlow from the Strategic Road Network and to inform a full business case submission.

The model was constructed following the latest DfT Highway Assignment Modelling Guidance. The demand data used in the model is a mixture of observed and synthetic data. Observed mobile phone data was collected in an area stretching from Epping in the south to Bishop's Stortford and Stansted Airport in the north. Synthetic demand was generated from established sources including National Trip End Model, Census, National Travel Survey, and Bluesheep employment survey data. The network was created from the ITN network, a reliable data source provided by Ordnance Survey. The network was coded with reference to online aerial photography and specific data provided by Essex County Council and Hertfordshire County Council.

The model is a private vehicle only model. It models three peak hour time periods (AM, Inter peak and PM) with vehicles being classified into cars, light goods vehicles and heavy goods vehicles. Cars were further divided into three separate trip purposes (commute, business and other) in keeping with guidance and allowing the model outputs to be used for Value for Money and Economic Assessments.

The model performs well against the modelling assessment criteria thus providing reassurance that the model is representative of current conditions. It is recognised that the link flow and screenline validation fall slightly below WebTAG guideline threshold criteria, however for journey time validation the criteria is exceeded.

Currently Harlow's most direct Strategic Road Network access is through junction 7 on the M11. In the area surrounding this junction, the model replicates well the observed levels of link flow and routing. This representation of traffic conditions will ensure that an accurate transfer of trips to any such modelled scheme occurs in the forecast models. In addition to the area around the scheme, the model meets link flow calibration at other key junctions on the M11. The flow of trips east and west across Harlow, where the proposed scheme is situated, validates to criteria giving further confidence in assessing any network changes in proximity of the scheme. Extensive checks have been carried out to ensure that routing through the model is accurate and delay is at the correct junctions in the model, particularly in peak periods.

The model has been constructed in a manner consistent with guidance and it has been demonstrated to meet an acceptable level of calibration/validation for the purposes for which it has been built. It is therefore expected that a high degree of confidence may be placed in the model for the purposes of assessment, economic and environmental appraisal of a new junction for Harlow on the M11, as described in the opening sections of this report.

1. Introduction

1.1 Background

1.1.1 Harlow, Epping Forest, Uttlesford and East Hertfordshire District Councils are currently evaluating existing and future development needs and five-year housing supplies in accordance with the requirements of the National Planning Policy Framework. They are at various stages of the process and the outcome will undoubtedly result in significant housing and employment growth within and around Harlow, Bishop's Stortford and Stansted Airport. Table 1.1 below presents 2012 levels of population and jobs within the study area, whilst Figure 1.1 displays the location of the above local authorities.

1.1.2 Broxbourne and Enfield District Councils are also evaluating their housing and employment needs. Although these districts are not within the immediate area of influence their development needs have been considered in the development of the Harlow Transport Model.

Figure 1.1 : Local Authorities in the vicinity of Harlow.

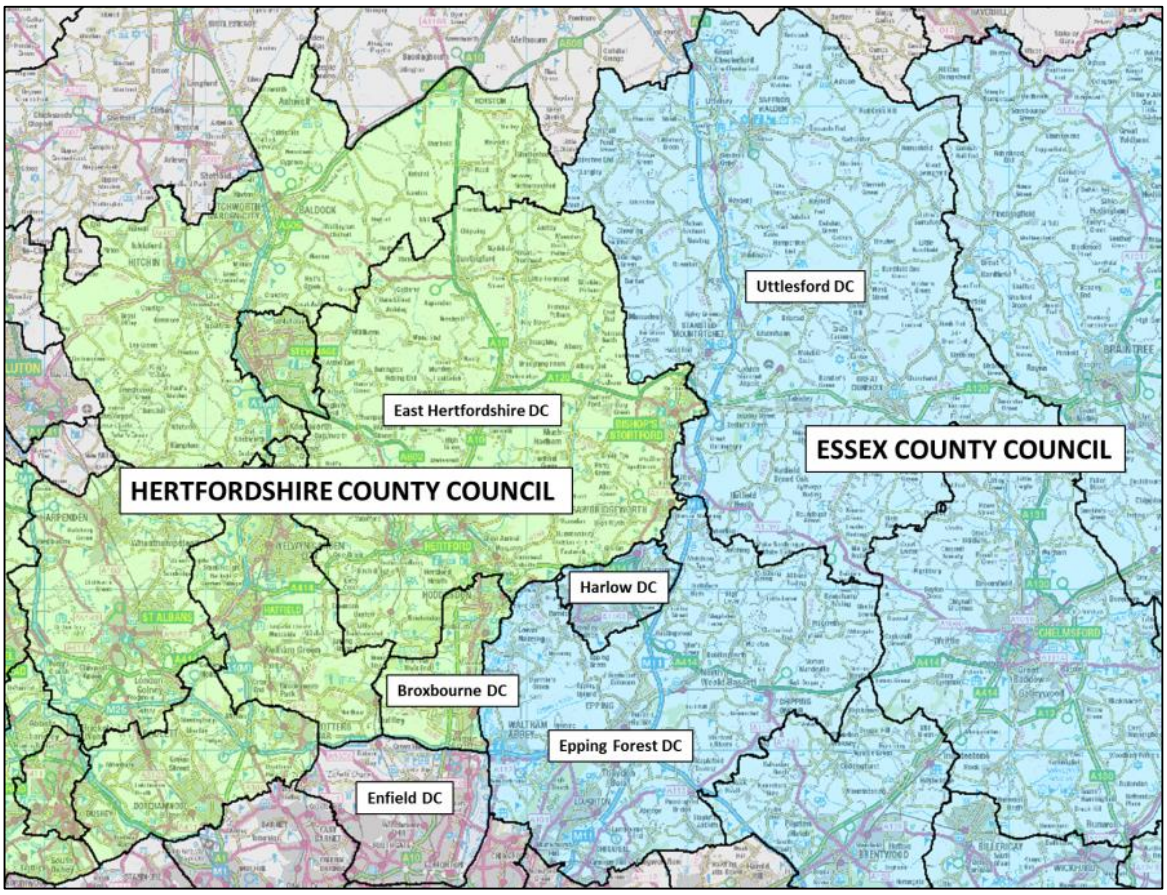

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Table 1.1 : 2012 Population and Jobs

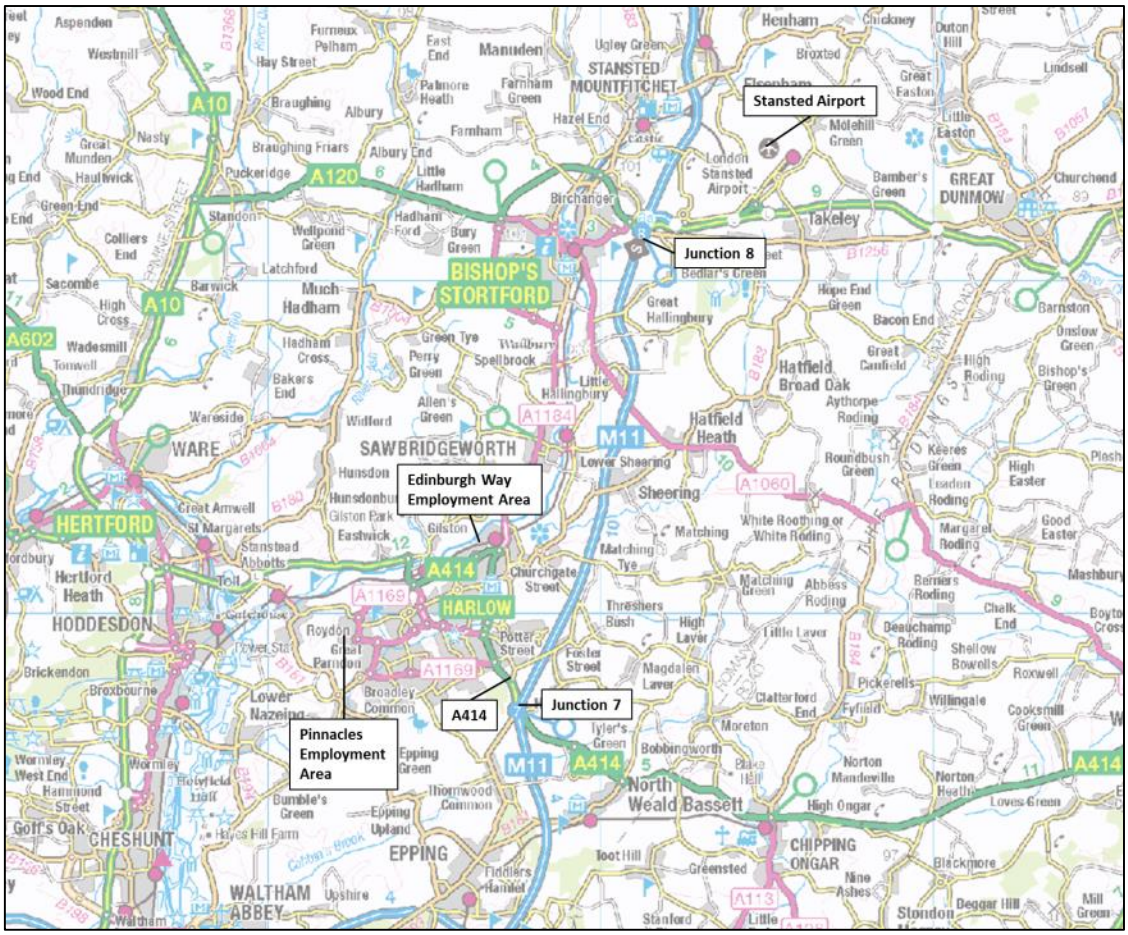
District	Population	Jobs*
Harlow	82,700	48,000
East Herts	139,500	64,000
Uttlesford	81,300	46,000
Epping Forest	126,100	56,000

Source: Nomis Official Labour Market Statistics, 2012

* Number of jobs per resident aged 16-64

1.1.3 Figure 1.2 below shows the strategic network around Harlow. Harlow has only one connection to the Strategic Road Network (SRN) on the M11 via Junction 7 (J7), which is located to the south and east of the town. With high levels of traffic needing to access this one junction, as well as pass through it on the A414, congestion is common with impacts, even from minor incidents, often causing severe congestion across the town's wider road network. This is exacerbated by the location of the existing key employment areas, towards the north and west of the town (Edinburgh Way and Pinnacles), which creates further strain on the current local road network, particularly along the A414.

Figure 1.2 : Strategic Road Network and Key Employment Sites around Harlow



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1.1.4 Preliminary evaluation work for Uttlesford District Council's next Local Plan to 2031 has also highlighted concerns for M11 Junction 8 (J8), with committed and planned growth from Stansted Airport, East Herts and Uttlesford likely to result in additional peak period pressure at this junction.

1.1.5 Essex County Council (ECC) is seeking to further develop the evidence base supporting a range of future transport schemes and investments across the county. The evidence should also be able to support future and continued engagement with central government and the South East Local Enterprise Partnership (SELEP), be amenable to future scheme changes, and be capable of supporting the evidence pathway for major scheme business case development as part of the next steps of any funding bid.

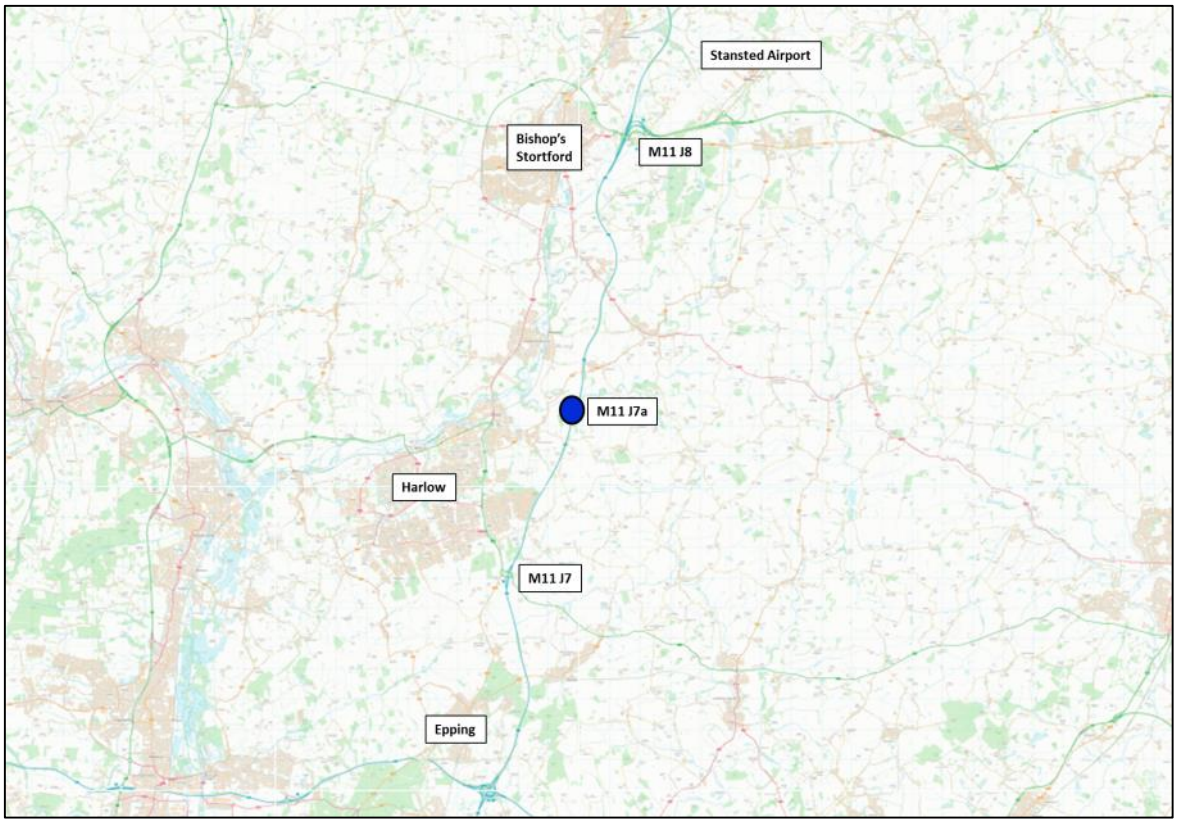
1.1.6 As a result of the problems outlined above Essex County Council has been considering options to alleviate congestion around J7 and J8. A proposed Junction 7a (J7a) to the east of Harlow will help to mitigate against these problems with the following specific objectives:

- To improve accessibility to and from Harlow;
- To reduce congestion primarily for the A414 corridor;
- To provide infrastructure of an appropriate scale for future traffic demands; and
- To facilitate future housing developments around Harlow and employment growth to the east of Harlow.

1.1.7 Additionally, the scheme would help to support development of the London-Harlow-Stansted-Cambridge-Peterborough corridor, an area which has been identified as having the potential to drive national growth.

1.1.8 The emerging Harlow Local Development Plan highlights that the inability of the existing transport system is the biggest single barrier to accommodating the level of growth needed in Harlow. M11 J7 is operating close to its planned capacity, which is recognised by Highways England (HE) as they required a cap on the number of new jobs permitted within the Harlow Enterprise Zone until network capacity issues are addressed.

Figure 1.3 : Location of the proposed M11 J7a



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1.1.9 In order to assess the proposed highway improvements Jacobs was commissioned in June 2014 by ECC to construct a strategic traffic model of Harlow and its surrounding area. The primary objective of the model development was to assess the effect on traffic of the highway options for improved access to Harlow from the SRN and to inform a full business case submission.

1.2 Model Development

1.2.1 The development of the Harlow Transport Model involved the following:

- Collecting observed trip movement data from mobile phones;
- Collecting observed traffic flows and travel times;
- Creating a model zone system to represent land usage and produce and attract realistic traffic demand;
- Building demand matrices from observed and synthesised data that would accurately represent overall traffic volumes in the model for the base year;
- Accurately representing the road network in the detailed modelled area to enable realistic traffic movements;
- Calibrating and validating the model to ensure it is fit for purpose; and
- Ensuring the model is scalable and upgradeable to include demand, forecasting and multi-modal modelling.

1.3 Purpose of the Report

1.3.1 The Local Model Validation Report (LMVR) provides a summary of the accuracy of the base year matrices and demonstrates the level to which the model has reproduced the observed situation. This provides confidence that the model is a suitable tool for assessing a proposed J7a on the M11. The purpose of this report is therefore to:

- Present the calibration and validation outputs to demonstrate model accuracy and its fitness for purpose; and
- Describe the processes behind how the model was developed.

1.4 Report Structure

1.4.1 The report follows the suggested structure given in TAG Unit M3.1 Appendix F.3, January 2014. This is:

- Chapter 2 – Proposed Uses of the Model;
- Chapter 3 – Model Standards;
- Chapter 4 – Key Features of the Model;
- Chapter 5 – Calibration and Validation Data;
- Chapter 6 – Network Development;
- Chapter 7 – Trip Matrix Development;
- Chapter 8 – Network Calibration and Validation;
- Chapter 9 – Route Choice Calibration and Validation;
- Chapter 10 – Trip Matrix Calibration and Validation;
- Chapter 11 – Assignment Calibration and Validation; and
- Chapter 12 – Summary.

2. Proposed Uses of the Model

2.1 Proposed Uses of the Model

2.1.1 The traffic model is to be used to provide relevant information for a Public Information Exhibition, Public Consultation and Business Case for a J7a scheme and will ultimately inform a Planning Application. The proposed location of M11 J7a is shown in Figure 1.3.

2.1.2 In addition to this the model is to play a key role in evaluating which development sites and what scale of development can be delivered as part of Harlow, Epping Forest, Uttlesford and East Hertfordshire District Councils' emerging Local Plans.

2.1.3 These four districts form a planning group and have jointly commissioned an assessment of their combined objectively assessed housing need. The Local Plans are being developed alongside the development of the J7a scheme, so prior to each stage of the modelling of the J7a scheme, scenarios will be developed by the client from the latest available information, which best represent the likely level of growth within the study area. The information below provides the position at the time that the base model was being developed. The exact development scenarios modelled at each stage will be detailed in the Traffic Forecasting Report.

2.1.4 Harlow's population has increased by only 1.5% in 40 years[1] and evidence indicates that between 12,000 and 15,000 new homes will be needed to meet Harlow's needs up to 2031. However, the size of its existing administrative boundary only allows for a further 8,900 homes (from previous studies) and so Harlow District Council (HDC) is working with neighbouring districts to consider how unmet housing need can be addressed through the 'Duty to Co-operate'. HDC is also planning to create 8,000-12,000 new jobs through its support of new business investment in the town, and by building on its status as one of 24 Enterprise Zones in England.

2.1.5 East Herts District Council (EHDC), within their Draft District Preferred Options Consultation paper[2], indicate that there is likely to be a need for at least 15,000 additional dwellings over 20 years and a minimum of 9,700 jobs up to 2031 within the district. Committed and proposed sites indicate that approximately 4,600 homes will be accommodated in Bishop's Stortford, 500 in Buntingford, 560 in Sawbridgeworth, 2,200 in Ware, and 2,000 in Hertford. Beyond these 15,000 homes, the area immediately to the north of Harlow, Gilston, which lies within East Herts is also identified as being able to accommodate between 5,000 and 10,000 dwellings in the longer term (between 2022-31 and beyond).

2.1.6 Uttlesford District Council (UDC) have published their draft Development Plan together with an update, which indicates that 10,460 dwellings would be needed up to 2031[3].

2.1.7 Passenger numbers at Stansted Airport, which lies within UDC, fell during the recent economic downturn from a peak of 23.5 million passengers per annum (mppa) in 2007 to 17.5 mppa in 2013, but have seen revived and are now at 21.8mppa[4] (July 2005). The current planning permission is for 35 mppa, and the operators of Stansted Airport, Manchester Airports Group's (MAG's), submission to the Airports Commission indicated that the single runway has a maximum use capacity of between 40 and 45 mppa[5].

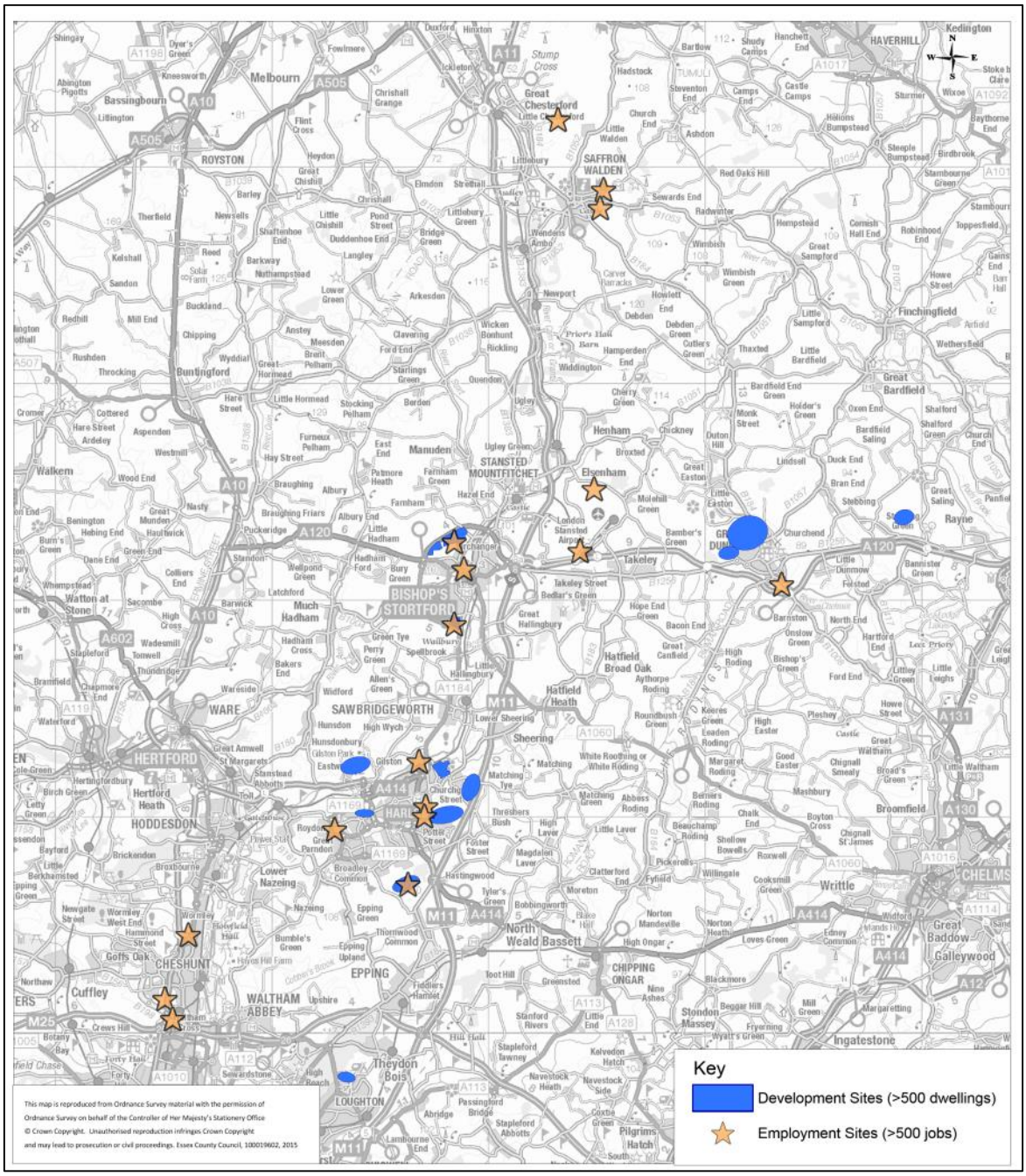
[1] Harlow Local Development Plan, Emerging Strategy and Further Options", April 2014, Harlow District Council
[2] "Draft District Plan Preferred Options Consultation, January 2014, East Herts District Council
[3] "Public Participation on a Development Plan Document, Uttlesford Local Plan – Consultation of Additional Housing Numbers and Sites", November 2013, Uttlesford District Council
[4] 'Stansted's Numbers Flying High in July' Stansted Airport Press Release, 11th August 2015
[5] Capacity for Growth", MAG's submission to the Airports Commission, July 2013

2.1.8 The Airport is the largest single employment site in the East of England, presently employing over 10,000 people across 200 on-airport companies. The MAG submission further states: *"Previous assessments have indicated that at a throughput of 35 mppa there would be around 16,800 on-airport employees, with a further 6,400 jobs being supported direct or indirectly off-airport."*

2.1.9 Epping Forest District Council's initial consultation paper on their Local Plan from 2012 included a maximum level of 10,200 homes and approximately 4,000 jobs up to 2033. It was anticipated that several EFDC housing developments may be located on the outskirts of Harlow.

2.1.10 The location of some of the proposed large scale developments across the four districts and within the modelled area that have been identified for inclusion in the forecast modelling are shown in Figure 2.1 below.

Figure 2.1 : Proposed Development Locations



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2.1.11 A number of transport infrastructure schemes have been identified in order to relieve existing congestion in Harlow and the surrounding study area and to facilitate growth. The HDC Emerging Strategy also states that *"HDC, in partnership with ECC, is promoting a new junction on the M11 (J7a). Without this part of the Enterprise Zone and substantial additional growth (housing and commercial) to meet the needs of the community cannot be delivered."*

2.1.12 A recent Highways Agency report identifies that there are issues with M11 J7 and J8, and acknowledges that there is evidence to show that the provision of J7a could relieve pressure on J7 and J8[6]; Figure 4 of the report shows both junctions as key challenges. While interim short term capacity improvements for J7 have been identified by ECC to relieve some of the existing congestion, J7a is considered necessary to provide additional access to the SRN and to deliver economic growth.

2.1.13 Interim capacity improvements have also been identified by ECC for J8 to accommodate committed growth. In the longer term, J8 (location shown in Figure 1.3) improvements could include J8b, comprising north facing M11 slips, which would almost certainly be required for any further expansion of Stansted Airport.

2.1.14 There are currently several large studies considering improvements to the A120 towards the A12 (Braintree to Marks Tey). HE are leading on potential short-term improvements to this section and ECC are leading on the development of a preferred route for a dual carriageway link between Braintree and Marks Tey. Whilst improving the A120 would significantly increase network resilience, this is a longer term aspiration requiring significant investment[7]. Improvements to the A120 could result in more traffic using the A120 to reach the M11 at J8.

2.1.15 The A14 scheme which is currently the subject of public consultation would also impact on the Harlow-Stansted-Cambridge Corridor and would be likely to affect flows on the M11 within the study area.

2.1.16 Hertfordshire County Council (HCC) has been allocated funding from the LEP towards construction of the A120 Little Hadham bypass. They anticipate submitting the planning application for the scheme in autumn 2015, with scheme completion expected in 2019[8]. This scheme, once implemented, would have significant reassignment influence on the A120 corridor and at J8.

2.1.17 In addition to the wider network schemes listed above there are a number of development-related improvement schemes, which have been identified as necessary to deliver already committed developments, or to deal with existing congestion issues, which are summarised in Table 2.1 below. While some are directly linked to developments, others require funding to be identified before they can be delivered.

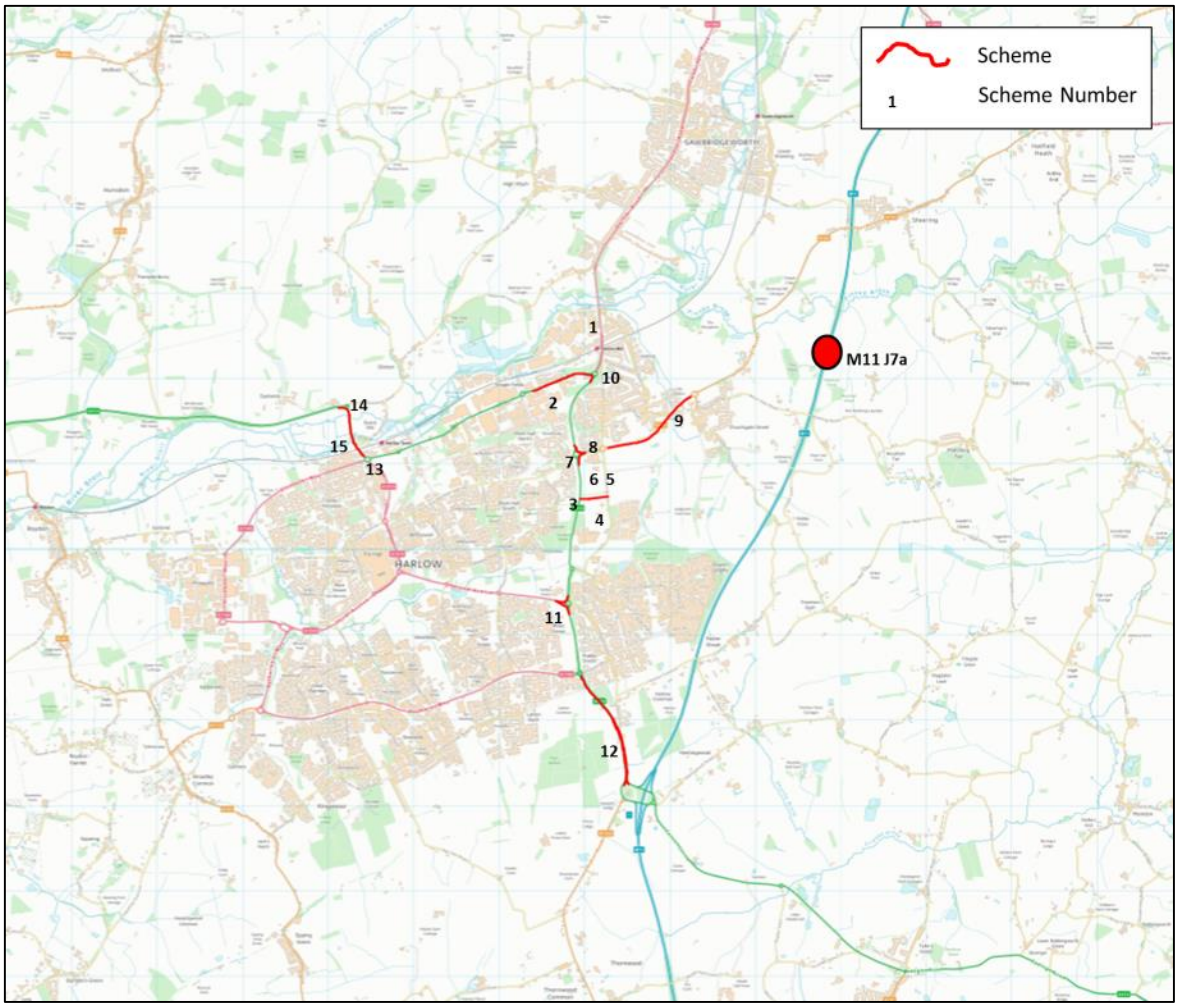
[6] "London to Leeds (East) route-based strategy evidence report", Highways Agency, April 2014, Table 4.1
[7] "A12/A120 route-based strategy", Highways Agency, March 2013, para 4.3.5
[8] Major Transport Schemes, A120 Bypass (Little Hadham) and Flood Alleviation Scheme, Project Timing and Process, Herts County Council, July 2015

Table 2.1 : Development Related Highway Improvement Schemes

No.	Scheme
1	New A1184 Cambridge Road / River Way Signalised Junction
2	A414 Edinburgh Way : River Way to A1184 Cambridge Road
3	New Access A414 to London Road Enterprise Zone
4	New Access to New Hall: A414 to London Road
5	Closure of London Road north of Link Road
6	Relocation of Mark Hall School entrance to London Road
7	A414/First Avenue - Introduction of dedicated left turns
8	B183 selective widening on junction approaches between A414 and London Road
9	B183 Upgrade, London Road to Gilden Way Development Access Junction
10	A414/A1184 Junction - Introduction of dedicated left turns
11	A414 / Second Avenue Roundabout dedicated left turns
12	A414 M11 J7 to Southern Way Dualling
13	A414 Burnt Mill Roundabout Capacity Improvement
14	A414 Eastwick Junction - Signalised Capacity Improvement
15	A414 Eastwick to Burnt Mill Dualling
16	A120 new junction for Bishop's Stortford North development

2.1.18 These development-related improvement schemes are shown in Figure 2.2.

Figure 2.2 : Map of Development Related Highway Improvement Schemes



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2.2 Key Model Design Considerations

2.2.1 In order to assess J7a, the model needs to identify and evaluate local infrastructure needs, as well as the strategic impacts of the planned development and highway schemes. Thus, the model should extend to an area that is sufficient to assess strategic movements and key route choices as well as local movements within Harlow. Particular attention should to be paid to the interaction of routing on High Wych, A414 Edinburgh Way, A1184 Cambridge Road, Lower Sheering Road and B183 Sheering Road. The model needs to capture the relationship between these routes which is essential to provide confidence in the scheme assessment as these are the routes from which trips would transfer onto the scheme.

2.2.2 The model should comply with guidance given in Department for Transport (DfT) Web-based Transport Analysis Guidance (WebTAG). The support of key stakeholders, including HE, is required during its development to ensure that the model is an acceptable tool for use in evaluating a range of planning scenarios. The scenarios will be developed with advice from the local planning authorities to ascertain the level of certainty around each planned development element.

2.2.3 In addition to the 2014 base year model, opening year and design year forecast models need to be developed. The forecast matrices will cover a number of options, with the capability to assess a range of uncertainty levels. The model will ultimately be used to identify trigger points when specific infrastructure becomes necessary and the level of development which would be acceptable up to each stage.

2.2.4 An appropriate modelling package needs to be used for construction of the model and assignment. VISUM has been chosen because of the speed with which detailed highway networks can be coded and its ability to be able to effectively carry out highway assignments for many scenarios. VISUM also allows for easy extraction of results to spreadsheet and database formats for analysis and checking.

2.2.5 For the purposes of assessing the proposed J7a scheme it was not deemed necessary to incorporate a public transport model. There was judged to be very little interaction between modes for the impacts of the proposed scheme, and thus little opportunity for modal shift as a direct consequence. As such a highway-only assignment model was developed.

2.2.6 WebTAG unit M3.1 advocates the development of base year matrices from observed data, with emphasis made on the use of roadside interview data. However, Essex County Council does not permit the undertaking of RSI surveys on their highway network.

2.2.7 As such the highway demand has been constructed through the use of aggregated mobile phone data. Full details of the collection and processing of mobile phone data can be found in Chapter 7.

3. Model Standards

3.1 Validation Criteria and Acceptability Guidelines

3.1.1 The adequacy of the Harlow Transport Model to assess a J7a on the M11 has been measured against the following guidance document:

- WebTAG unit M3.1 Highway Assignment Modelling May 2014

3.1.2 WebTAG sets out measures to compare the base year model against observed independent data to quantify the level of fit. The validation of the highway assignment has been quantified using the following measures taken from WebTAG unit M3.1 §3.2.3:

- Assigned flows and counts totalled for each screenline or cordon, as a check on the quality of the trip matrices;
- Assigned flows and counts on individual links and turning movements at junctions as a check on the quality of the assignment; and
- Modelled and observed journey times along routes, as a check on the quality of the network and the assignment.

3.1.3 Base matrix validation is the comparison of modelled and observed flows along screenlines within the model. The criteria to meet is set out in Table 3.1 below.

Table 3.1 : Screenline Flow Validation Criterion

Criterion	Acceptability Guidance
Differences between modelled flows and counts should be less than 5% of the counts	All or nearly all screenlines

3.1.4 WebTAG specifies the following guidance within unit M3.1 §3.2.6:

- Screenlines should normally consist of 5 or more links;
- The comparison of modelled and observed flows for screenlines containing high flow routes (such as motorways) should be presented both with and without such routes;
- The comparison should be presented separately for:
  - roadside interview screenlines;
  - other screenlines used as constraints in matrix estimation; and
  - screenlines used as independent validation.
- The comparison should be presented by vehicle type, i.e. for car, LGV and HGV traffic.

3.1.5 As detailed within Section 6.1 the observed matrices for this model have not been developed through roadside interviews, but through the use of aggregated mobile phone data. As such traditional screenlines across watertight roadside interview sites have not been set up. However, due to the need to potentially calibrate the model through sector adjustments, calibration screenlines have been placed on sector boundaries with additional independent validation screenlines set aside to ensure the accuracy of the model matrices.

3.1.6 In addition to validation of total screenline flows, WebTAG Unit M3.1 also contains guidelines on the validation criteria for individual links or turning movements.

3.1.7 These criteria are detailed in Table 3.2 presented below and include reference to the GEH statistic measuring the difference between modelled and observed flows. The GEH statistic is of the form:

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

where M is the modelled flow and C is the observed count.

Table 3.2 : Link Flow and Turning Movement Validation Criteria

Criteria	Description of Criteria	Acceptability Guideline
1	Individual flows within 100 veh/hr of counts for flows less than 700 veh/hr	> 85% of cases
	Individual flows within 15% of counts for flows from 700 veh/hr to 2,700 veh/hr	> 85% of cases
	Individual flows within 400 veh/hr of counts for flows more than 2,700 veh/hr	> 85% of cases
2	GEH < 5 for individual flows	> 85% of cases

3.1.8 WebTAG guidance unit M3.1 §3.2.9 states that the above comparison of modelled and observed flows should be presented for total vehicle flows and for car flows, but not for LGV and HGV flows in the absence of sufficient accuracy in the individual link counts for these vehicle types. In addition the above information should be presented by time period and applied to link flows.

3.1.9 Manual classified turning counts shall not be used due to their inherent inaccuracy caused by day to day variation in traffic flows, but can used for qualitative assessment.

3.1.10 Data collection sites used in the validation of the base year, as well as those sites used in the development of the base year model, are detailed within Chapter 5. The criteria by which a count site has been considered to be independent and thus suitable for validation is also detailed within this Chapter. Further information on all the data collected for building this model can be found in the Data Collection Report[9].

3.1.11 WebTAG also contains acceptability guidelines for the validation of journey times. The acceptability criterion for journey time validation is given in Table 3.3.

Table 3.3 : Screenline Flow Validation Criterion

Criterion	Acceptability Guidance
Modelled times along routes should be within 15% of surveyed times, or 1 minute if higher	> 85% of routes

3.1.12 WebTAG unit M3.1 §3.2.9 states that the speeds within the road network should be based upon separate relationships for light and other vehicle types. The survey information was based on TrafficMaster data and was not of sufficient accuracy to validate by vehicle type. As such the model has been validated solely on modelled car journey times.

[9] Data Collection Report, B3553F05/REP/45, 1, 22 March 2016.

3.1.13 Independent validation as specified above quantifies the ability of the model to replicate base year travel conditions within the model area. To ensure these conditions have a sound basis WebTAG provides guidance as to the acceptable changes to the highway 'prior' matrices that should result from the application of matrix estimation. These have been reproduced in Table 3 4.

Table 3.4 : Significance of Matrix Estimation Changes

Criterion	Benchmark Criteria
Matrix zonal cell changes	Slope within 0.98 and 1.02
	Intercept near zero
	R2 in excess of 0.95
Matrix zonal trip-ends	Slope within 0.99 and 1.01
	Intercept near zero
	R2 in excess of 0.98
Trip length distributions	Means within 5%
	Standard deviations within 5%
Sector-to-sector level matrices	Differences within 5%

3.1.14 WebTAG Unit M3.1 §8.3.15 states that all exceedances of the above should be noted and assessed as to their importance to assess the scheme. In addition §8.3.15 further states that the independent validation of the model as set out in Table 3.1,Table 3.2 and Table 3.3 should not be achieved at the expense of matrix estimation as presented in Table 3.4. WebTAG states that a lower level of validation should be reported in this case.

3.1.15 The use of mobile phone data to- build the prior matrices resulted in minimal changes to the matrices in the detailed modelled area through matrix estimation. However outside of the detailed modelled area (and mobile phone capture area) and at specific sites within the detailed modelled area, synthetic data was needed to infill the matrices, thus making it more difficult to achieve the criteria in Table 3 4.

3.1.16 In order to assess the validity of the processed mobile phone data regression analysis, scatterplots, have been produced to compare the demographic profiles of zones with the types of trip they produce and attract. For example, the number of houses (taken from census data) within each internal zone with the number of commute trips originating in those zones during the AM peak. This highlighted any potential outliers, which were then further investigated on a zone by zone basis.

3.1.17 A comparison of modelled trip lengths with observed data is not considered sensible, because the observed mobile phone data does not provide full trip lengths for trips that leave the detailed modelled area. Instead, a sense check of prior and post Matrix Estimation trip lengths was undertaken. For more detail on the format of the mobile phone data please refer to Chapter 7.

3.2 Convergence Criteria and Standards

3.2.1 The stability of the model flows arising from the assignment must be confirmed at the appropriate level before the model can be used to assess the scheme. That is to say that checks must be undertaken to ensure that if model runs were to run for one further iteration that the flows on each link would not change significantly. In addition the highway assignment model should converge to a point in which routes obey Wardrop's First Principle of Traffic Equilibrium. Unit M3.1 §2.3.7 defines this principle as:

"Traffic arranges itself on networks such that the cost of travel on all routes used between each OD pair is equal to the minimum cost of travel and all unused routes have equal or greater cost."

3.2.2 Achieving a good level of convergence is important for traffic assignment since it reduces run times and increases confidence that economic scheme benefits are not a result of large changes between iterations, or model noise. The analysis will be done by using the following measures of convergence:

- Proximity to the assignment objective; and
- Stability of model outputs between consecutive iterations.

3.2.3 Proximity relates to how close the model is to a particular converged solution, which varies depending on the preferences of the user or software package being used. In VISUM this equates to how close the model is to Wardrop's Principle of Equilibrium and is measured using the Gap function. Gap (denoted δ) is calculated below:

$$\delta = \frac{\sum T_{pij}(C_{pij} - C^*_{ij})}{\sum T_{ij} C^*_{ij}}$$

where:

T_{pij}	is the flow on route p from origin i to destination j
T_{ij}	is the total travel from i to j
C_{pij}	is the (congested) cost of travel from i to j on path p
C^*_{ij}	is the minimum cost of travel from i to j

Source: WebTAG Unit M3.1 paragraph C.2.4

3.2.4 The gap value therefore represents the excess cost incurred by failing to travel on the route with the lowest generalised cost and is expressed relative to that minimum route cost. The excess cost is summed over each route between each origin-destination (O/D) pair and multiplied by the number of trips between each O/D pair. This is divided by the minimum cost summed over each route between each O/D pair, also multiplied by the number of trips between each O/D pair.

3.2.5 The stability measure demonstrates the level of flow change on links between iterations. WebTAG unit M3.1 provides the convergence criteria that traffic models should aim to achieve in order to provide stable, consistent and robust results. Table 3.5 presents the acceptable levels of convergence required for the base model.

Table 3.5 : WebTAG Convergence Measures

Measure of Convergence	Base Model Acceptable Values
Delta and %Gap	Less than 0.1% or at least with convergence fully documented and all other criteria met
Percentage of links with flow change < 1%	Four consecutive iterations greater than 98%
Percentage of links with cost change < 1%	Four consecutive iterations greater than 98%

3.2.6 Within the model, the "Assignment with ICA" methodology will be used. This assignment methodology is described in more detail in Section 4.7. As described in that section, VISUM does not generate outputs consistent with the WebTAG guidance. WebTAG advises that %GAP is used to measure convergence and this can be checked in VISUM. Additionally, GEH between turning flows in the models between each iteration has been compared and used as an indicator of the model's stability.

4. Key Features of the Model

4.1 Fully Modelled Area and External Area

4.1.1 WebTAG unit M3.1 §2.2.1 provides guidance on the requirements for the modelling stating that the geographic coverage of highway assignment models generally needs to:

- allow for the strategic re-routing impacts of interventions;
- ensure that areas outside the main area of interest, which are potential alternative destinations, are properly represented; and
- ensure that the full lengths of trips are represented for the purpose of deriving costs.

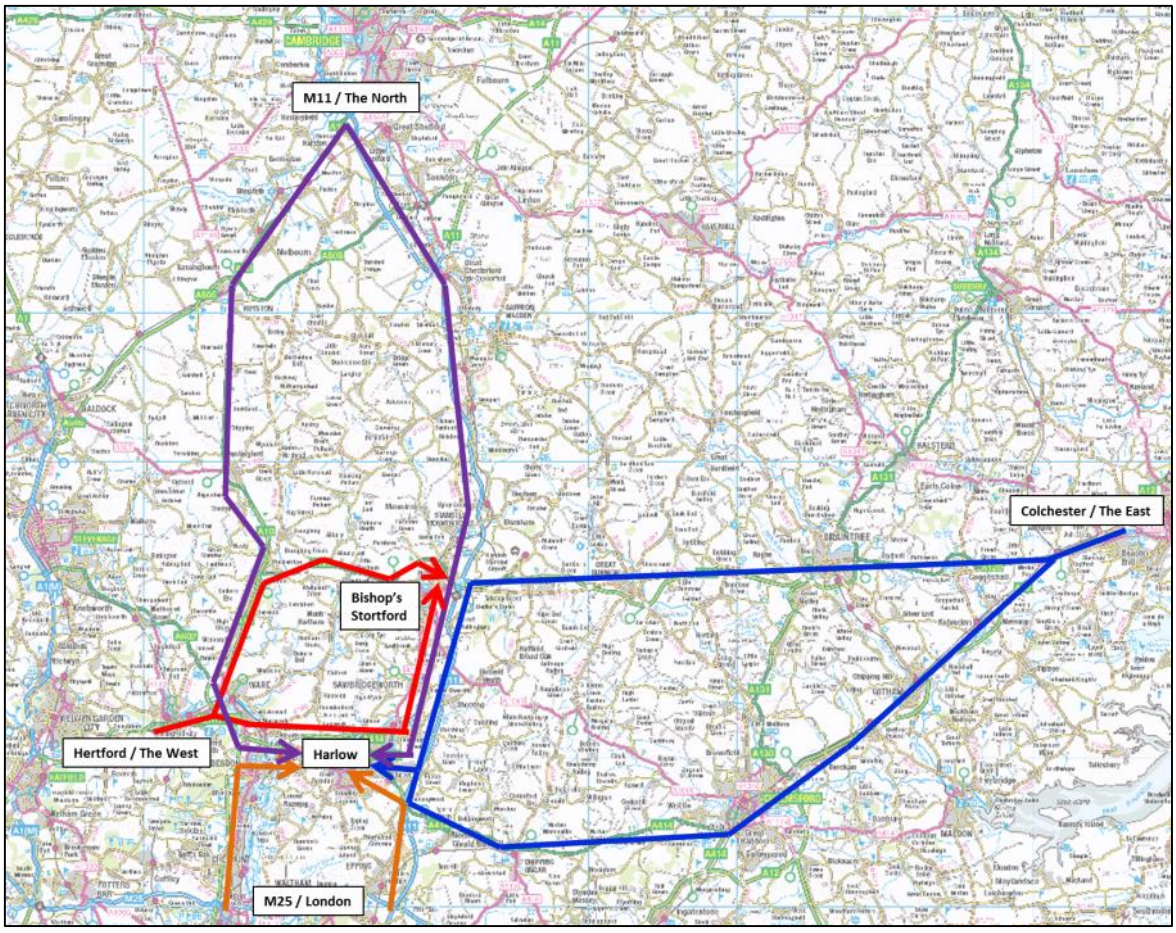
4.1.2 As outlined in Section 2.1 the primary purpose of the Harlow Transport Model will be the assessment of a M11 J7a scheme providing a secondary access into Harlow. Therefore, a key feature needs to be the accurate reflection of the strategic alternatives to an M11 J7a into Harlow and modelling these trip lengths in full.

4.1.3 Figure 4.1 below provides an outline of the longer distance strategic alternative routes considered likely to be switched between with an M11 J7a. This has been based on professional judgment. The routes are:

- to the north, the A10 versus the M11, south of Cambridge;
- to the east, the A120 from Braintree and Colchester via J8 versus via Chelmsford on the A414 through the existing J7;
- to the south the A10/A414 versus the M25/M11;
- to the west from Hertford to the M11, via A10/A120/J8 versus via the A414/J7.

4.1.4 In addition to the strategic re-routing detailed above there were also a number of more localised re-routing possibilities. These were assessed and covered by journey time survey routes. Further details can be found in Section 5.5.

Figure 4.1 : Potential Strategic re-routing associated with M11 Junction 7a



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4.1.5 In line with latest WebTAG Unit M3.1 guidance, the proposed network for the Harlow Transport Model will make use of a three stage structure with levels of detail reducing away from the centre of the study area. The breakdown of the proposed network structure is outlined below:

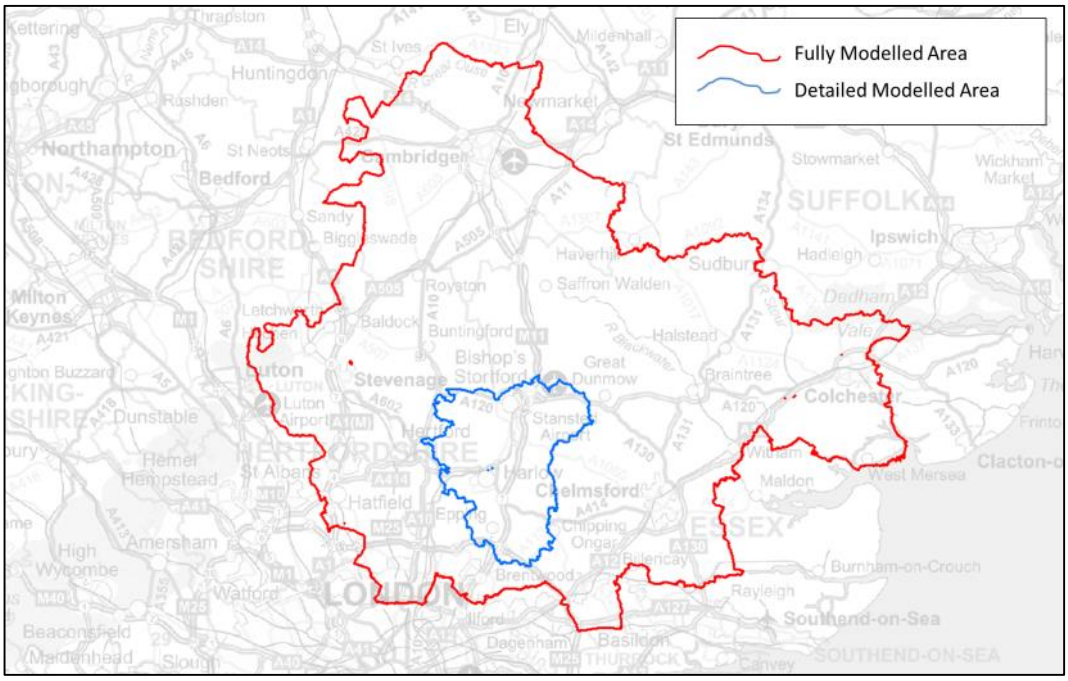
- Fully modelled area:
  - Area of detailed modelling; and
  - Rest of fully modelled area.
- External area.

4.1.6 The area of detailed modelling is characterised by where the level of impact from the scheme is certain and significant and, as such, the detail within the network and demand matrices is at its greatest. The rest of the fully modelled area is where the level of detail is not as great but capacity restraint is still modelled, also known as the buffer area, and the external area is where the level of detail is at its lowest.

4.1.7 The external area of the model needs to include any trips which may be impacted by any schemes being tested by the model. The area defined should include the origins and destinations of any trips directly to or from the fully modelled area, but also be mindful of those trips which may pass through the fully modelled area and thus be impacted by the scheme.

4.1.8 Figure 4.2 below presents the area of detailed modelling (circled in blue) and the rest of the full modelled area. Outside of this is an external model area based on a skeleton network of key roads where the impact of the scheme was deemed to be negligible. The external area covered all of the rest of Great Britain.

Figure 4.2 : Fully Modelled Area



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4.1.9 Longer distance trips that have a trip end in or pass through the detailed modelled area, were included in the mobile phone data collection. Within the fully modelled area speed flow curves and link capacities are applied to links which should ensure that long range routing is logical, reflects reality and that any long range re-routing that has an effect on the detailed modelled area is captured.

4.1.10 The main factors influencing the choice of Detailed Modelled Area were cost of mobile phone dataset, size of dataset (in terms of storage requirements of raw and processed data, which is influenced by numbers of zones and days data collected) and the processing effort required to transform from mobile phone records to trip matrices. The number of zones in the fully modelled area, and number of days data analysed were similar to those of other mobile phone datasets prepared in summer / autumn 2014, and were at the upper end of workable ranges.

4.1.11 The model development processes followed the Appraisal Specification Report and used techniques common to other studies using mobile phone data at a similar time. Movements not passing through the detailed model area were synthesised and merged with data derived from the mobile phone dataset.

4.1.12 Trips within the detailed model area were captured in detail, but other trips to, from or through the area had their remote trip end captured as cordon locations at the edge of this area. This data limitation (imposed for data confidentiality reasons) was addressed by ‘extending’ the trip from a cordon location to a representative location as follows:

- Trip ends outside this area but within the fully modelled area were synthesised along corridors radiating from the study area using a gravity model formulation. This ensured that the synthesised trips would enter/leave the detailed model area at an appropriate location;

- Additional data was obtained from Telefonica giving movements through the study area. Sampling from that large dataset allowed synthesis of trip end locations for external / external movements passing through the detailed model area.

4.2 Zoning System

4.2.1 The zoning system developed, using WebTAG unit M3.1 §2.3.1, follows the classifications as detailed in Section 4.1 above, with the smallest zones within the fully modelled area becoming increasingly coarse further away from the study area. The zoning system made use of the following administrative boundaries:

- 2011 Census Output Areas (COA);
- 2011 Census Wards;
- 2011 Census Employment Zones;
- Districts;
- Counties; and
- National Trip End Model (NTEM) Zones (which are based on COA).

4.2.2 Census Output Areas (COAs) form the basis of the zoning system within the detailed modelled area. The COAs are used to report data from the national Census (conducted every ten years in the UK) and are the finest level of spatial detail at which such data is reported. Each output area typically comprises around 100-200 households and is designed to be as socially homogenous as possible. The COA boundaries fit within (and do not straddle) local authority boundaries.

4.2.3 Within the detailed model study area the zones are generally comprised of COAs or aggregations thereof. COAs were aggregated to create homogenous zones with the same land use characteristics. In some instances, zones are based on a disaggregation of COAs in order to isolate individual pockets of land (for example, to separate large industrial land uses from residential uses). Disaggregation of COAs for land use isolation only occurred in the urban areas of Harlow, Bishop's Stortford, Sawbridgeworth and Epping. The majority of the detailed modelled area zoning was based on COA aggregation within local authority and NTEM boundaries. The detail in the zoning system has been largely influenced by the detail available from the mobile phone data collected. Following WebTAG, the integrity of the observed data has been retained rather than employing synthetic approaches.

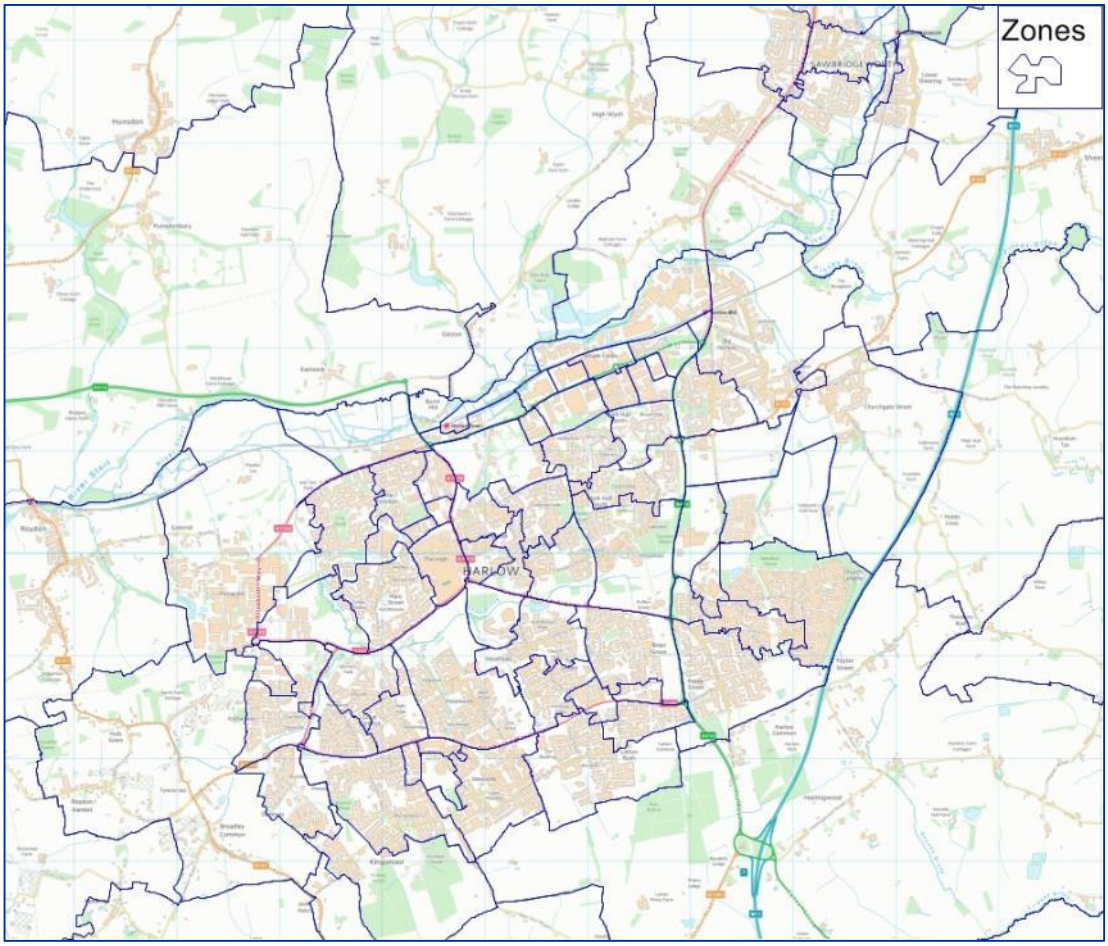
4.2.4 Outside of the detailed modelled area, where less spatial detail is required, zoning is based on NTEM zone boundaries. In the rest of fully modelled area the zones are mostly comprised of single NTEM zones, with some zones based on an aggregation of NTEM ones. In the external area of the model, NTEM zones have been aggregated to comprise each modelled zone.

4.2.5 Given the scale of the detailed modelled area, a less granular zoning structure was applied within the Harlow urban area. This would not impact upon the assessment of the scheme, yet provide advantages in terms of model run times and ease of convergence. As such there are some large trip ends (greater than 300 vehicles per hour) within the detailed modelled area. Where possible zones were given only one connector to ensure that trips load on to the correct point of the highway network. The zone construction method applied, allows for them to be readily disaggregated to individual COAs or disaggregation of COA should the need arise during local plan testing. However any re-zoning of the model would require extensive checks on validation of the modified model.

4.2.6 There is extensive growth predicted within the fully modelled area as part of the Local Plans of Harlow, Epping Forest, Uttlesford and East Hertfordshire District Councils. A review of all development sites will be undertaken after finalisation of the Uncertainty Log and before forecasting commences. Where it is deemed that the existing zone will not best represent the development in terms of traffic loading point a new zone will be created. In this case a nearby zone of similar land use will be selected for distribution patterns. Where developments sites are to be contained within existing zones the land use and distribution patterns of the existing zones will be subject to review to consider their suitability for the development sites.

4.2.7 There were 280 zones in the model; Figure 4.3 shows the zone boundaries for the Harlow district.

Figure 4.3 : Harlow Zoning



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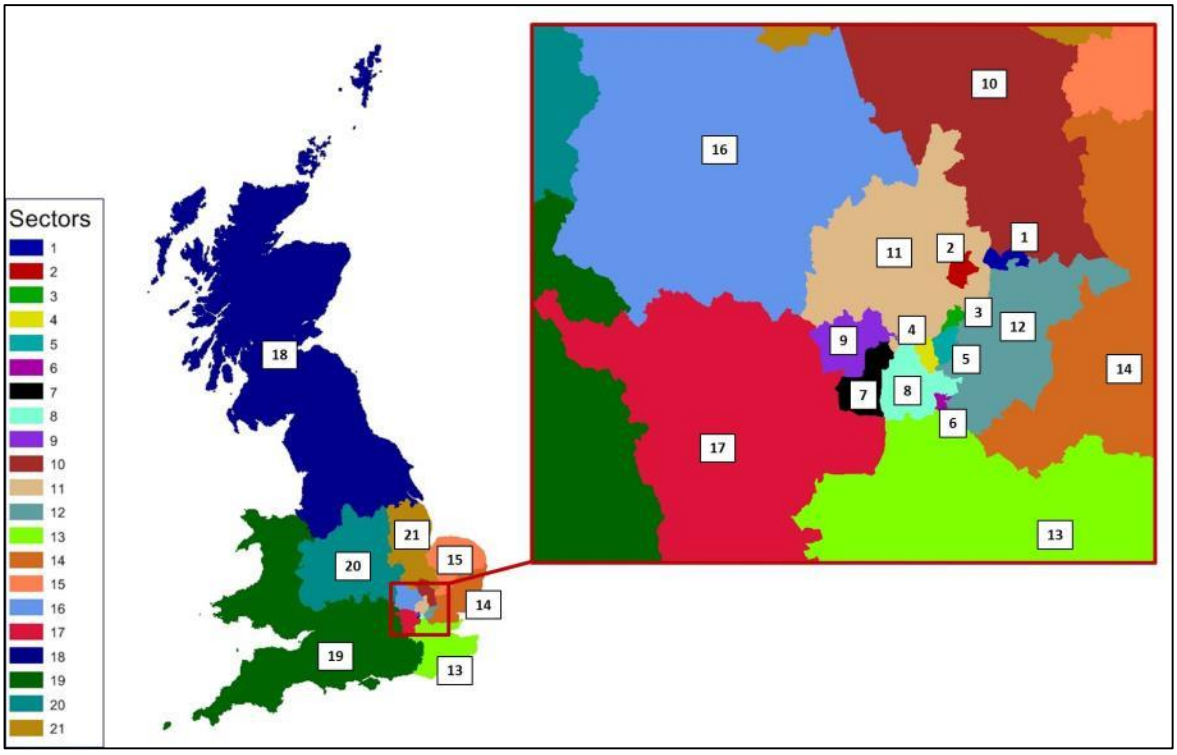
4.2.8 The full model zoning system, as well as the relationship between zones and COAs, is shown in more detail in Appendix H.

4.2.9 The zones were aggregated into a sector system in order to ease analysis and reporting. A total of 21 sectors were created. These are shown in Table 4.1 and Figure 4.4.

Table 4.1 : Sector System

No.	Area	No.	Area	No.	Area
1	Stansted	2	Bishop's Stortford	3	Sawbridgeworth
4	Harlow West	5	Harlow East	6	Epping
7	Hoddesdon & Cheshunt	8	Nazeing & Waltham Abbey	9	Hertford & Ware
10	Cambridge & Uttlesford	11	Much Hadham and rural	12	Hatfield Heath and rural
13	London & the South East	14	Rest of Essex & Suffolk	15	Norfolk
16	Luton & Stevenage	17	NW London & Herts	18	The North & Scotland
19	Wales & South West	20	The Midlands	21	Lincolnshire & Northamptonshire

Figure 4.4 : Harlow Sectors



4.3 Network Structure

4.3.1 WebTAG unit M3.1 §2.4 highlights the requirement of network structure for the area of detailed modelling, the rest of the fully modelled area and the external area. The area of detailed modelling will include "all roads that carry significant volumes of traffic" and generally "should be of sufficient extent to include all realistic choices of route available to drivers". As such, the area of detailed modelling includes all main roads, secondary roads and residential roads necessary to accurately represent route choice in the area affected by the scheme. This was determined through professional judgement and was checked by colleagues at Essex County Council. The network in the detailed and fully modelled areas is shown in Figure 4.5 and Figure 4.6 below.

Figure 4.5 : Detailed Modelled Area Network

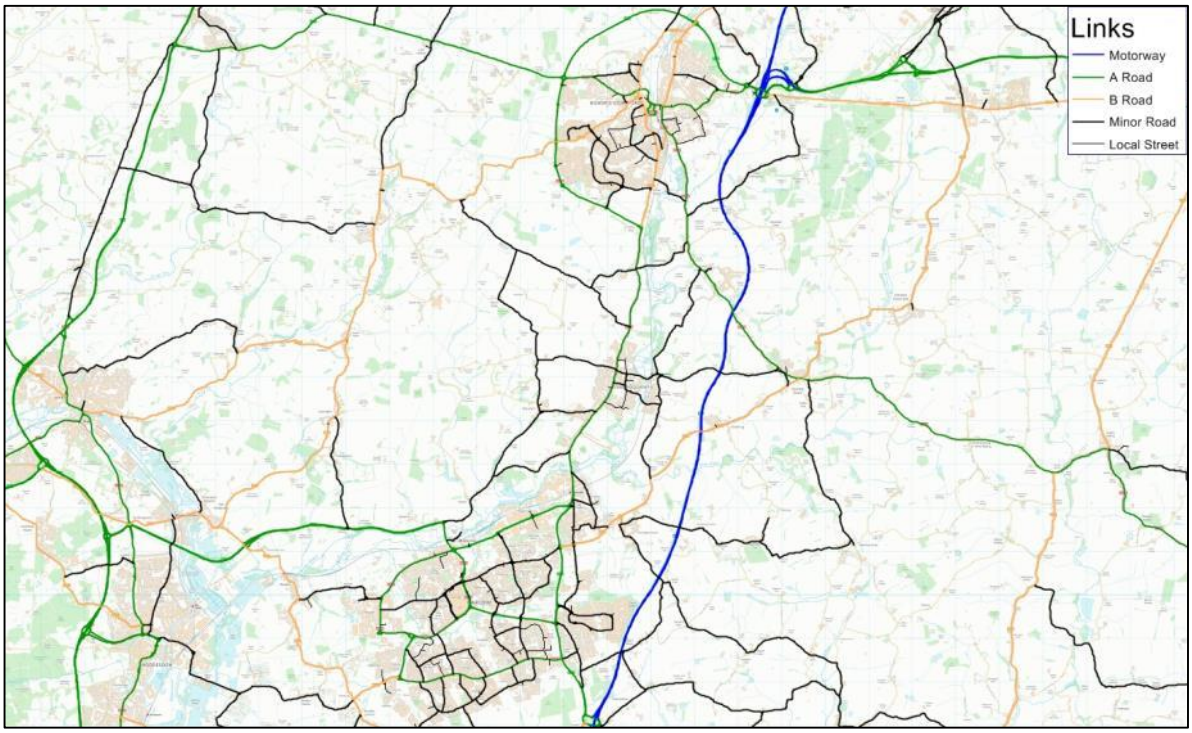


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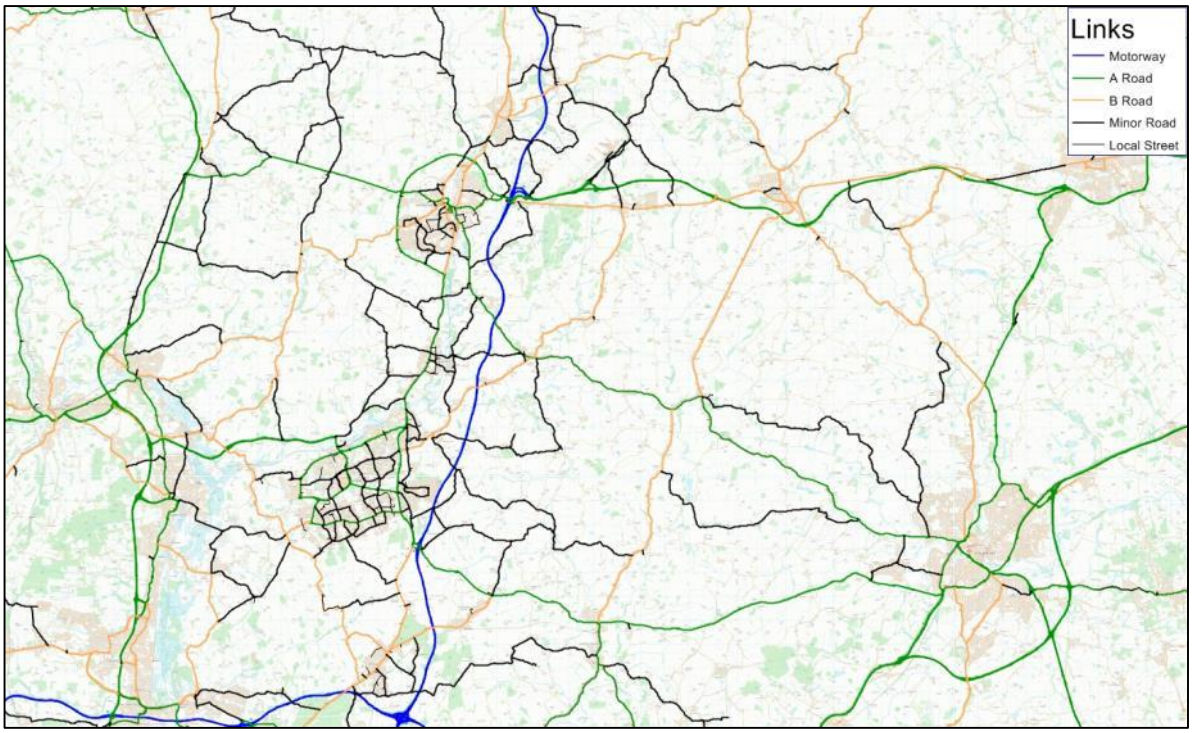
Figure 4.6 : Fully Modelled Area Network



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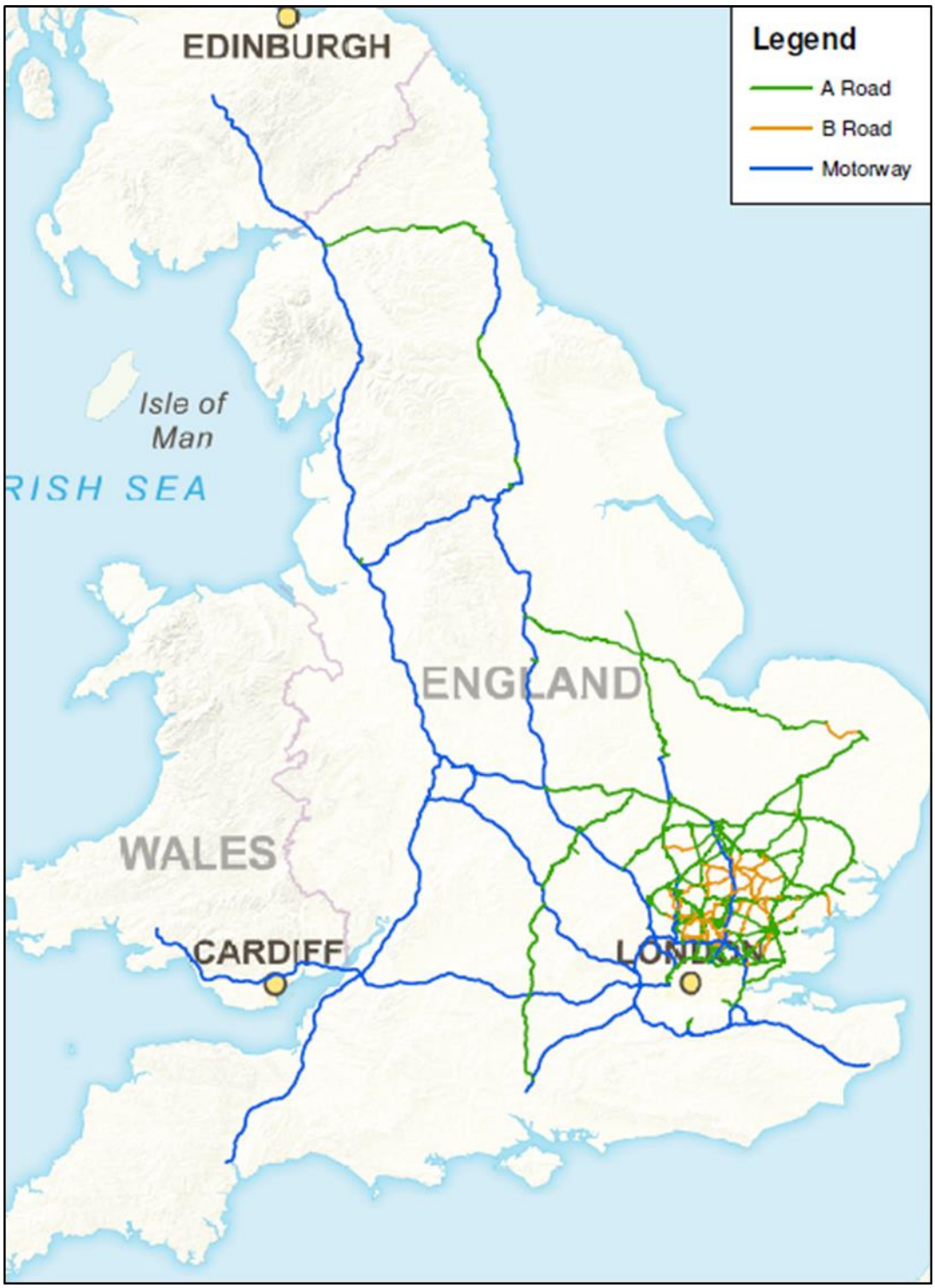
4.3.2 As can be seen above, the rest of the fully modelled area will include primary and secondary roads, and any key collector roads, to ensure all routes affected by the scheme are modelled. The level of detail matches the size of zones to ensure realistic routing and loading onto the network. The external network is shown in Figure 4.7 below.

Figure 4.7 : External Network



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4.3.3 The external model area will be coarse in nature with only a skeleton representation of the trunk road network and large modelled zones. Chapter 6 will detail the representation of speeds within the external model area.

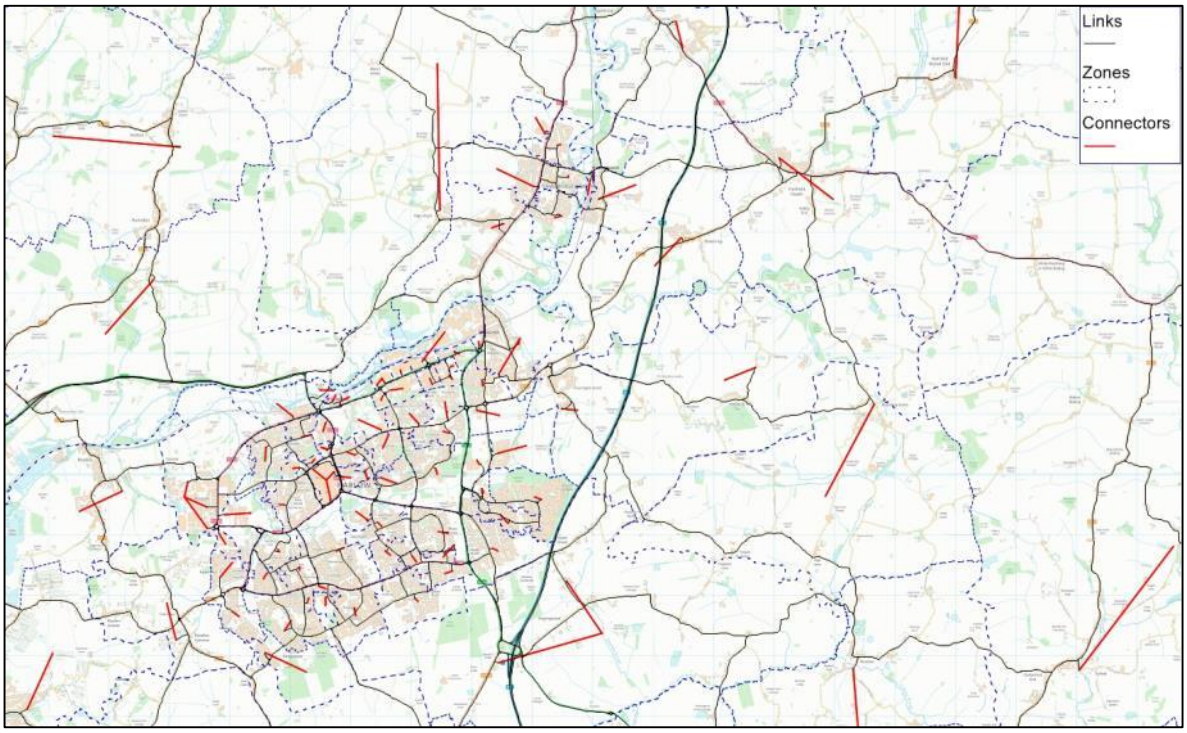
4.4 Centroid Connectors

4.4.1 Zone connectors should represent 'real' junctions within the highway network, i.e. not load directly onto links, where possible. In line with WebTAG Unit M3.1 guidance, the number of centroid connectors was minimised (which in turn helps to avoid / reduce convergence issues).

4.4.2 In general, each model zone has one centroid connector, but there are some exceptions to this where zones require multiple centroid connectors to accurately represent the loading points to / from the zone. In such cases observed data was used to apportion the share of trips into and out of the zone per connector.

4.4.3 Connectors in the Harlow and Sawbridgeworth area of the model are shown Figure 4.8 in below. Zones visible with multiple connectors are: Harlow town centre (reflecting the location of car parks), The Pinnacles (the employment area to the west of Harlow) and the area surrounding J7.

Figure 4.8 : Harlow and Sawbridgeworth Centroid Connectors



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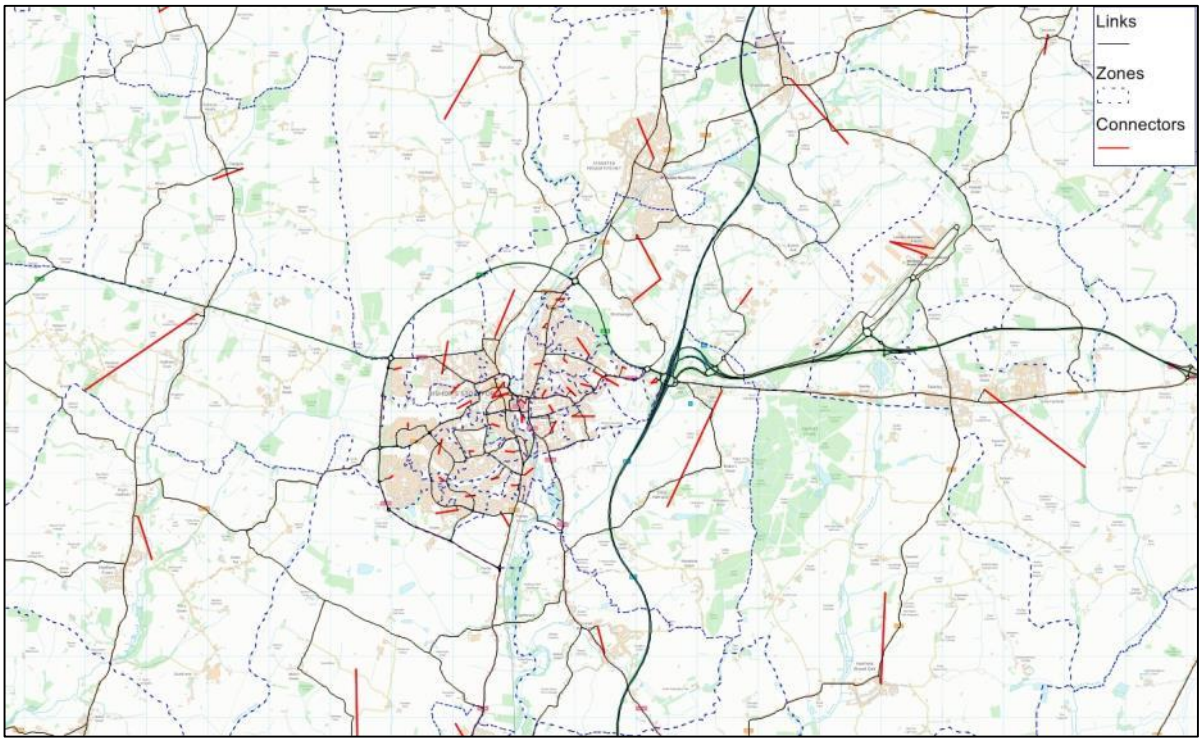
4.4.4 Connectors in the Bishop's Stortford and Stansted Airport area of the model are shown Figure 4.9. Zones visible with multiple connectors are: Bishop's Stortford town centre and Stansted Airport around the main terminal and drop-off area.

Figure 4.9 : Bishop's Stortford and Stansted Airport Centroid Connectors



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4.4.5 Where multiple zone centroid connectors have had to be used to load traffic to and from the network, the method of the zones' demand distribution to the connectors was set to a user defined proportional distribution (by shares). The method for connector shares has been applied as a proportion for each single O-D pair from and to that zone. Table 4.2 details the loading proportions used for each multi-connector zone in each modelled peak period.

Table 4.2 : Connector Shares

Zone	AM		IP		PM	
	Origins	Destinations	Origins	Destinations	Origins	Destinations
1	33/33/33%	33/33/33%	33/33/33%	33/33/33%	33/33/33%	33/33/33%
19	50/50%	50/50%	50/50%	50/50%	50/50%	50/50%
44	80/13/7%	33/33/33%	33/33/33%	33/33/33%	33/33/33%	33/33/33%
75	50/50%	50/50%	50/50%	50/50%	50/50%	50/50%
149	60/40%	70/30%	60/40%	70/30%	60/40%	70/30%

4.4.6 Zone 44 (primarily representing The Pinnacles Industrial Estate in Harlow) contains 3 connectors, each representing a unique access/egress from the industrial park. The shares for these connectors were set in line with count data available for the roundabouts near The Pinnacles.

4.4.7 The loading node(s) where the connector(s) joined the road network was selected, based upon professional judgement, as the most representative place for demand to enter and exit the network. Spiggots (links that connect the loading node to the zone connector) have been coded so that zones are not connected directly on to the network. This allows for the modelling of 'real' junctions as entry points for traffic into and out from the modelled network.

4.4.8 The proportions of demand allocated to the different connectors to/from zone 149 have been determined using professional judgement. Traffic count data in the locality (sites B6/D3, D4 and B7) contributed to the selection of proportions. For other zones, splits were not used, and traffic uses the lowest generalised cost connector for its route. These loading methods and proportions will need to be reviewed during any forecasting work e.g. work on Local Plans.

4.5 Time Periods

4.5.1 The highway assignment model was built to represent three modelled time periods. The modelled hours were derived by analysis of traffic counts at 16 sites around Harlow and Bishop's Stortford. These counts were all carried out in neutral weeks and are ATCs collected over a two week period. Most counts were carried out in 2014, for full details on the dates of collection for specific locations see Appendix B. The count sites presented below in Figure 4.10 have been used to assess hourly variation in traffic.

Figure 4.10 : Traffic Count Location for Time Period Selection

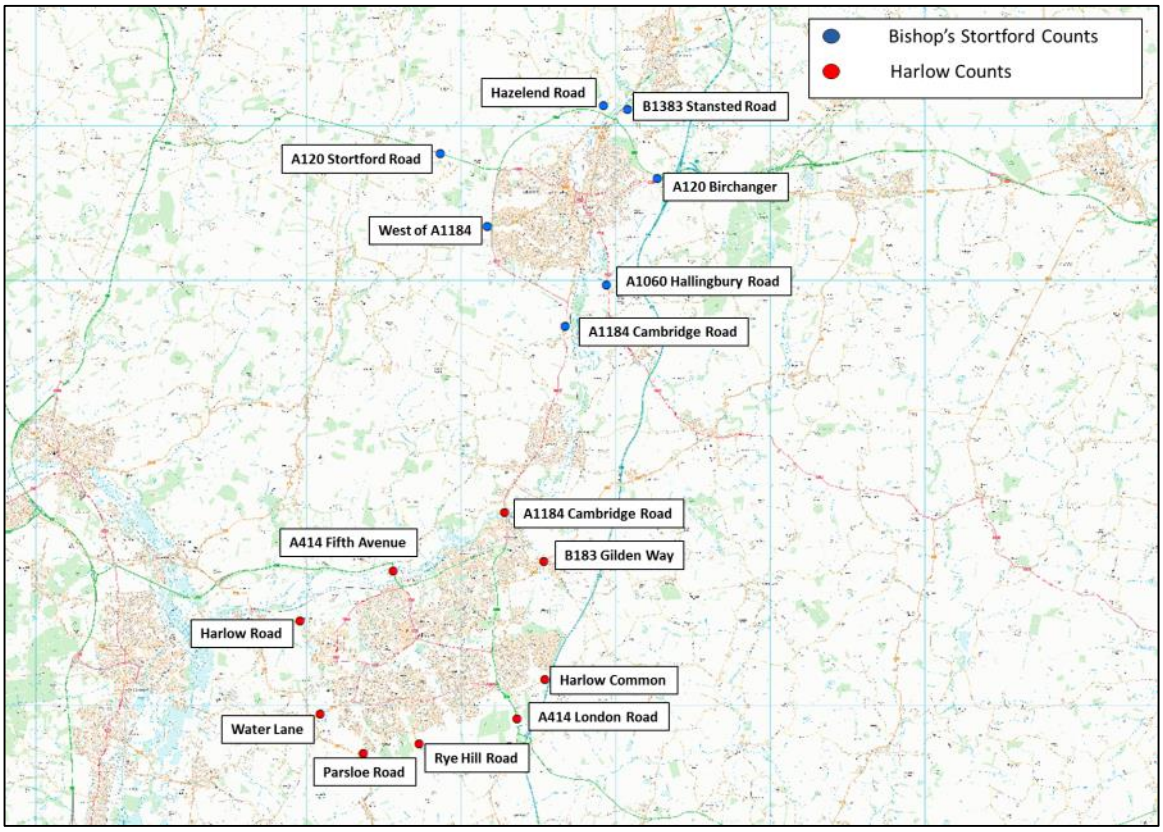

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Figure 4.11 : Daily traffic flow variation at Harlow count sites

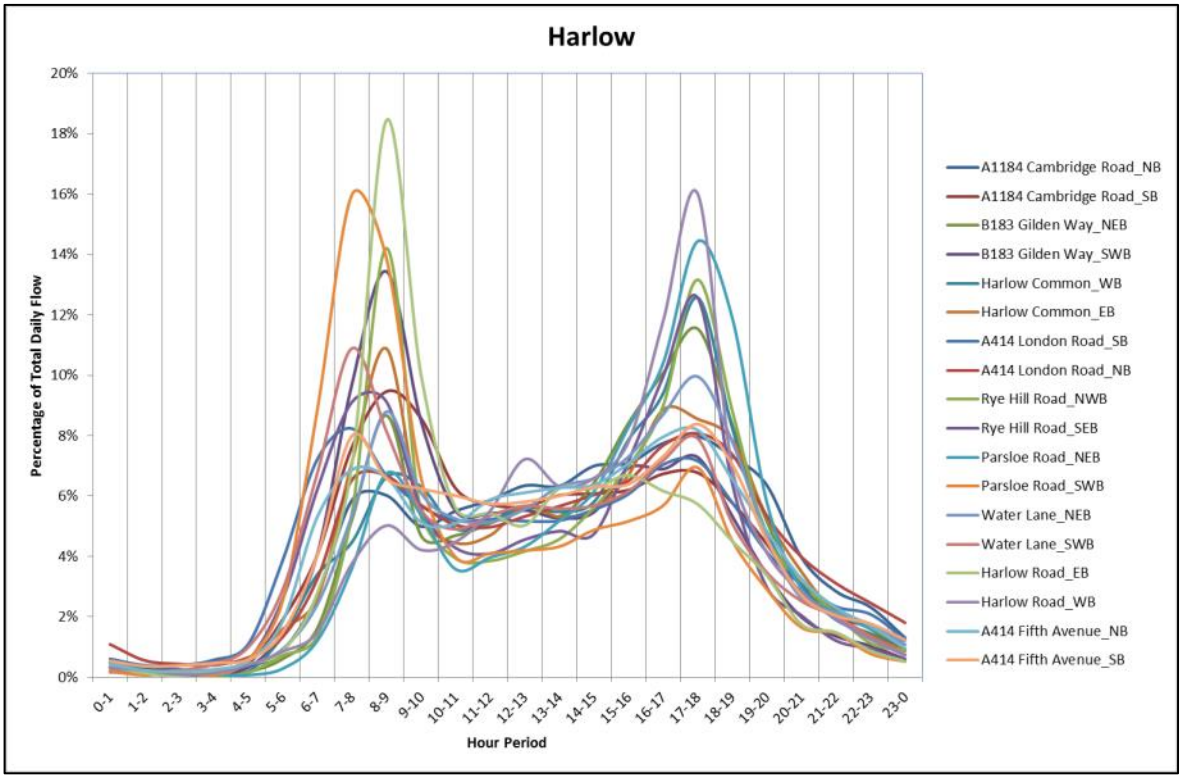
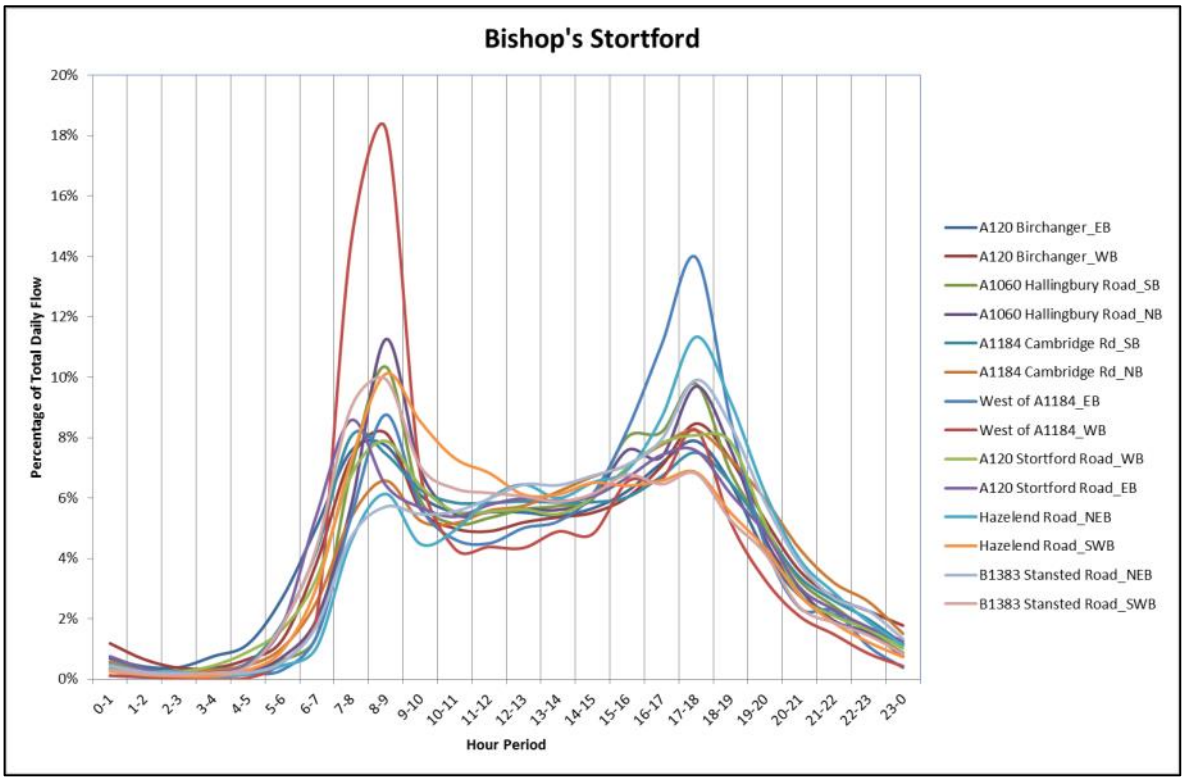


Figure 4.12 : Daily traffic flow variation at Bishop's Stortford count sites



4.5.2 Analysis of this data shows that, in line with WebTAG unit M3.1 guidance, the following time periods should be assessed:

- AM peak hour between 08:00 and 09:00;
- Inter-peak hour between 11:00 and 12:00; and,
- PM peak hour between 17:00 and 18:00.

4.5.3 The inter-peak hour selection was based upon the availability of mobile phone data for that specific hour (11:00 – 12:00). Mobile phone data was not collected for other traditional inter-peak hours.

4.5.4 It is considered that both the costs of an off-peak model (with approx. 2% of daily flow each hour) and a weekend model outweigh their separate values and that these periods and the shoulder peaks can be adequately represented through annualisation factors in future appraisal.

4.5.5 This level of detail and the time periods chosen provide a suitable basis for the calculation of required AADTs and AAWTs for noise and air quality modelling, and enable demonstration of scheme impacts required during consultation / engagement with other parties. The peak hour time periods are also most useful to ECC for development planning, policy appraisals, and development mitigation testing.

4.6 User Classes

4.6.1 The segmentation of demand suggested by WebTAG unit M2 is a minimum of commute, employers business and 'other' trips, with segmentation by car available as a minimum ‘car available’ and ‘not available’. The following journey purpose segmentation is used within the demand model:

- Home based work;
- Home based employers business;
- Home based other; and
- Non-home based other.

4.6.2 The two standard minimum car availability classes have been used:

- No car available; and
- Car available

4.6.3 Within the assignment model, five user classes have been used. These each have different values of time within the assignment. They are:

- Car employers’ business;
- Car commute;
- Car other;
- Light Goods Vehicles (LGVs); and
- Heavy Goods Vehicles (HGVs).

4.6.4 Each user class has a PCU factor of 1, except HGVs, which will have an average PCU factor of 2.0 applied. This is to reflect the greater size of HGVs in comparison with cars, with the assumption that each HGV is equivalent to two cars within the assignment.

4.6.5 WebTAG Unit M3.1 Appendix D, Chapter 7 states that a PCU factor of 2.5 should be used on motorways and all-purpose dual carriageway routes, with a factor of 2.0 being applied on all other roads. However, within the assignment model, a global PCU factor is required, so a PCU factor of 2.0 has been used.

4.6.6 Table 4.3 presents the correspondence between the purpose, user classes and vehicle classes.

Table 4.3 : Purpose / User Class / Vehicle Class Correspondence

Purpose	User Class (UC)	Vehicle Class (VC)
Home Based Work (HBW)	UC1	VC1
Home Based Employers' Business (HBEB)	UC2	
Home Based Other (HBO)	UC3	
Non-Home Based Other (NHBO)		
LGV	UC4	VC2
HGV	UC5	VC3

4.7 Assignment Methodology

4.7.1 The assignment method used in VISUM is known as "Assignment with ICA" which includes flow metering and blocking back. ICA is 'Intersection Capacity Analysis', it applies the principles of the Highway Capacity Manual (HCM 2010)[10].

4.7.2 The "Assignment with ICA" method is an iterative process for which, within each iteration an equilibrium assignment, which does not include flow metering, is run to convergence, before flow metering and blocking back is then applied. Subsequent iterations then consider the delay caused by flow metering and blocking back when choosing routes. The process therefore includes the "inner iterations" of the equilibrium assignment and the "outer iterations" of the assignment with flow metering and blocking back. As identified in Section 3.2, WebTAG specifies a number of variables for measuring convergence, but of these, only %GAP is reported by VISUM, and that only for the inner iterations. For the outer iterations, the GEH differences between turning flows between iterations have been used as an indicator of model convergence.

4.8 Generalized Cost Formulations and Parameter Values

4.8.1 Within the assignment, two parameters are defined for each user class to calculate generalised cost. Generalised cost combines journey times, journey distances and any tolls included in the model into a standard unit of generalised time based on these two parameters.

4.8.2 The two parameters are the pence per minute (ppm) and the pence per kilometre (ppk) associated with each user class. They are used in the following formula to determine generalised cost:

$$GeneralisedCosts_{minutes} = JourneyTime_{minutes} + \left(\frac{ppk}{ppm}\right) * JourneyDistance_{km} + \left(\frac{1}{ppm}\right) * Toll_{pence}$$

[10] "Highway Capacity Manual (HCM) 2010", US Transportation Research Board, Volume 3

4.8.3 Within the base year highway model there are no link tolls present. However, the functionality is retained such that link tolls could be added to the highway network as part of any potential testing of pricing policies on the highway network in a given forecast scenario.

4.8.4 The values of the ppm and ppk parameters used for the assignment are based on the latest WebTAG Unit A1.3 guidance (November 2014), linked to an average network speed (in Harlow) obtained from TrafficMaster. The values of ppm and ppk were calculated using a DfT audited spreadsheet, a methodology which Jacobs have used and developed elsewhere.

4.8.5 The calculated values for ppm and ppk for 2014 are given in Table 4.4 below. These have been derived from perceived costs. The input to VISUM is also given; the format required being pence per second and pence per metre.

Table 4.4 : Generalised Cost Parameters

Time Period	User Class (UC)	Pence per minute (ppm)	Pence per kilometre (ppk)	Pence per second	Pence per metre
AM	UC1	13.52	8.44	0.225	0.008
	UC2	45.84	16.53	0.764	0.017
	UC3	17.25	8.44	0.287	0.008
	UC4	20.64	15.91	0.344	0.016
	UC5	41.80	56.52	0.696	0.057
IP	UC1	13.42	8.44	0.224	0.008
	UC2	44.78	16.53	0.746	0.017
	UC3	17.93	8.44	0.299	0.008
	UC4	20.64	15.91	0.344	0.016
	UC5	41.80	56.52	0.696	0.057
PM	UC1	13.23	8.44	0.220	0.008
	UC2	44.07	16.53	0.735	0.017
	UC3	18.45	8.44	0.308	0.008
	UC4	20.64	15.91	0.344	0.016
	UC5	41.80	56.52	0.696	0.057

4.8.6 Following an initial review of routing within the base model the Value of Time (VoT) within the generalised cost formulation for HGVs was adjusted. The value for HGV VoT was doubled in line with the recommendation in WebTAG Unit M3.1; Paragraph 2.8.8 states that: “The value of time given in TAG Unit A1.3 for HGVs relates to the driver’s time and does not take account of the influence of owners on the routeing of these vehicles. On these grounds, it may be considered to be more appropriate to use a value of time around twice the TAG Unit A1.3 values”.

4.9 Relationships with Demand Models and Public Transport Assignment Models

4.9.1 A WebTAG compliant business case for a scheme of this scale and the level of congestion in the base year requires the development of a Variable Demand Model. The methodology to be applied in VDM construction has been included in the *Appraisal Specification Report (Technical Note – Variable Demand Modelling), February 2014*.

4.9.2 As explained in 2.2.5, given the scope of the proposed scheme, a public transport model is not considered necessary.

5. Calibration and Validation Data

5.1 Model Data Sources

5.1.1 An array of survey data was collected in order to provide a complete picture of traffic conditions in the base year. The data sources used are described in turn below. Further information on all the data collected to build the model can be found in the Data Collection Report[11].

5.2 Traffic Counts for Matrix Estimation

5.2.1 In order to improve and understand how well the model replicates observed traffic flows, it is necessary to both use traffic counts in matrix estimation and compare modelled flows against traffic counts. To this end, several traffic counts have been undertaken within the study area.

5.2.2 Traffic counts for matrix estimation have been taken from a number of sources:

- ECC's continuous Automatic Traffic Count data collection programme (ATCs);
- Hertfordshire County Council's continuous data collection programme (ATCs);
- Highways Agency's HATRIS dataset (PCS / TRADS);
- Historic or newly collected temporary ATC sites; and
- One Manual Classified Count (MCC) where ATC data was not available.

5.2.3 The majority of counts were undertaken in 2014, however some counts from 2012 and 2013 were used where 2014 data for a specific location was not available. New traffic counts commissioned specifically for this model were carried out in the first two weeks of July 2014. Analysis undertaken suggests that there is no significant variation between this count data and that from neutral months.

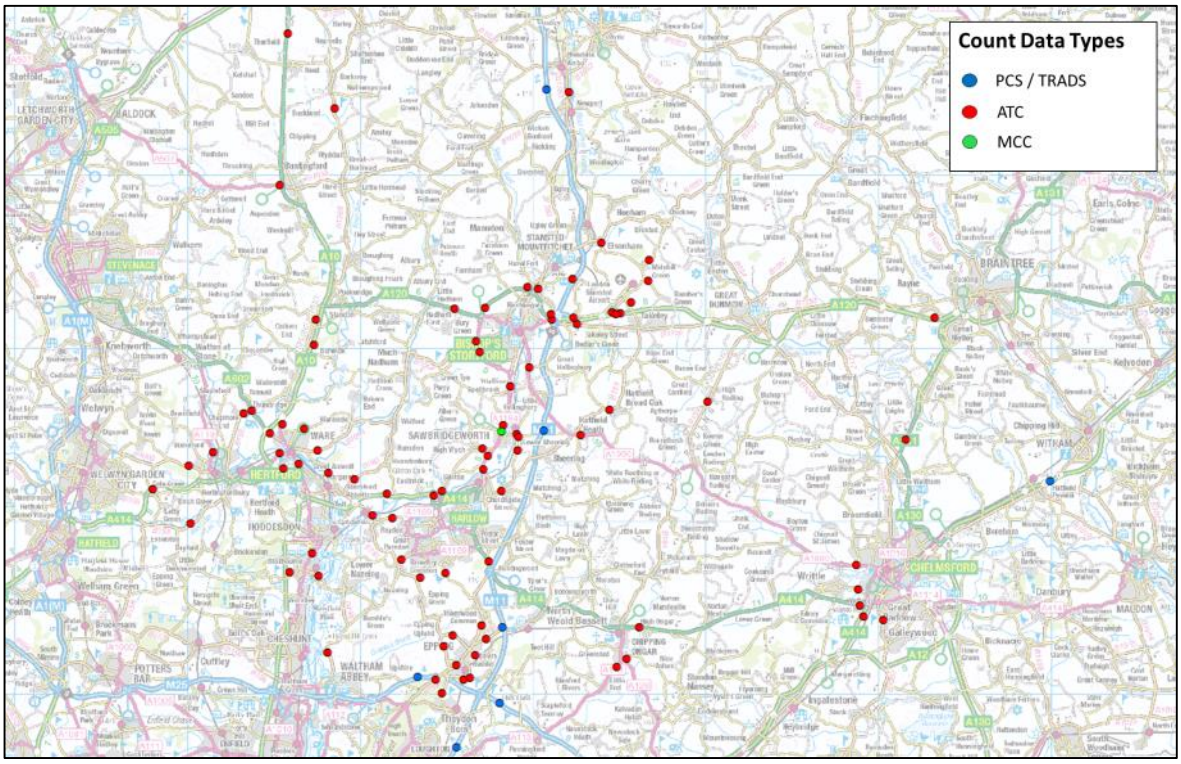
5.2.4 In order to ensure that the 2012 and 2013 counts were representative of a 2014 forecast year, the change in traffic levels between these years was assessed for each road type (Motorway, A road, B road and other). This change was established by using a set of samples, one for each road type, of permanent count sites that had data for whole 12-month periods for 2012, 2013 and 2014. Factors were calculated from this dataset based on the change in flows between the date of the count and July 2014 traffic flows and applied. Factors, calculated in the same way, were also applied to 2014 counts that were not collected in July to account for seasonality.

5.2.5 All counts were then checked for consistency of flows. It was found that there were a small number of counts that were inconsistent with counts at nearby locations, and these were therefore excluded from the dataset. Furthermore, it was found that there were a small number of days with count collection which were inconsistent and should be excluded from calculations.

5.2.6 The traffic counts used in matrix estimation are illustrated in Figure 5.1 below.

[11] Data Collection Report, B3553F05/REP/45, 1, 22 March 2016.

Figure 5.1 : Calibration Traffic Count Sites



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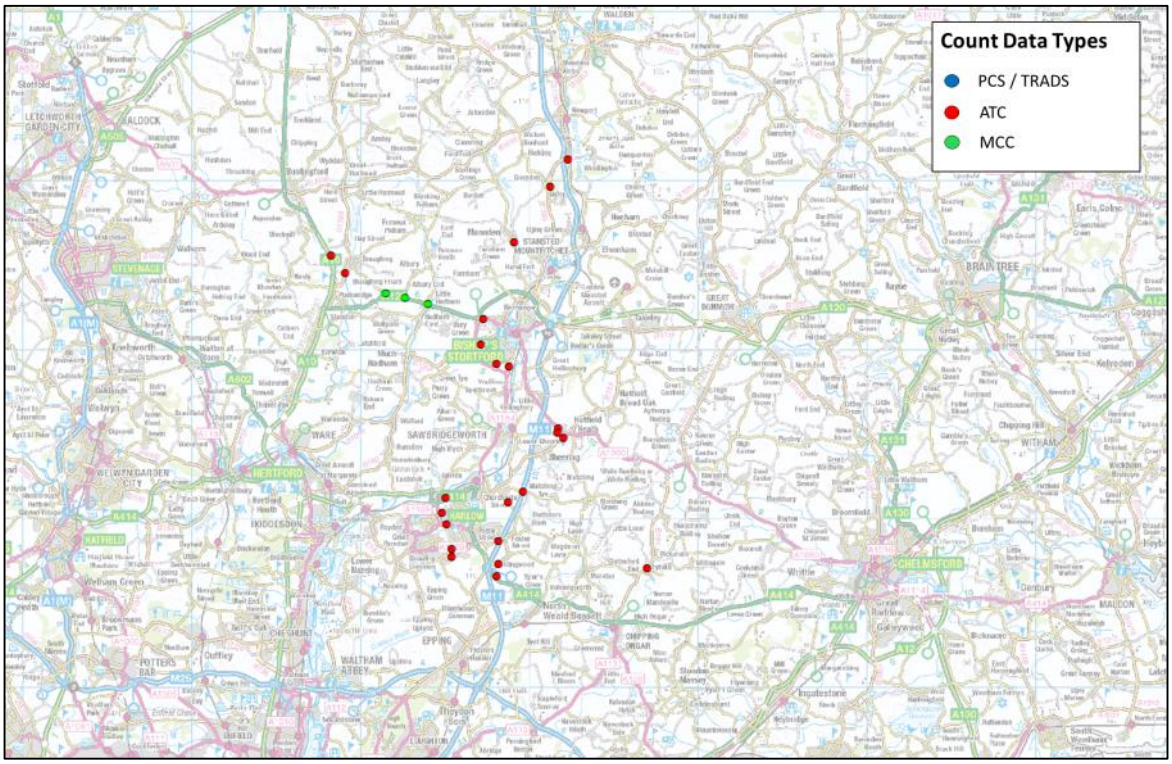
5.2.7 A full list of calibration traffic counts can be found in Appendix B.

5.3 Traffic Counts for Validation

5.3.1 Counts were also obtained for independent validation of the traffic model, and as with calibration counts, flows were factored to July 2014. A small number of validation counts are one-day manual classified counts, although these are in locations where traffic flows are low (below 100 vehicles). The location of validation count sites are shown in Figure 5.2 below.

Figure 5.2 : Validation Traffic Count Sites



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5.3.2 A full list of traffic counts used in validation can be found in Appendix B.

5.4 MCCs for Calibration and Validation

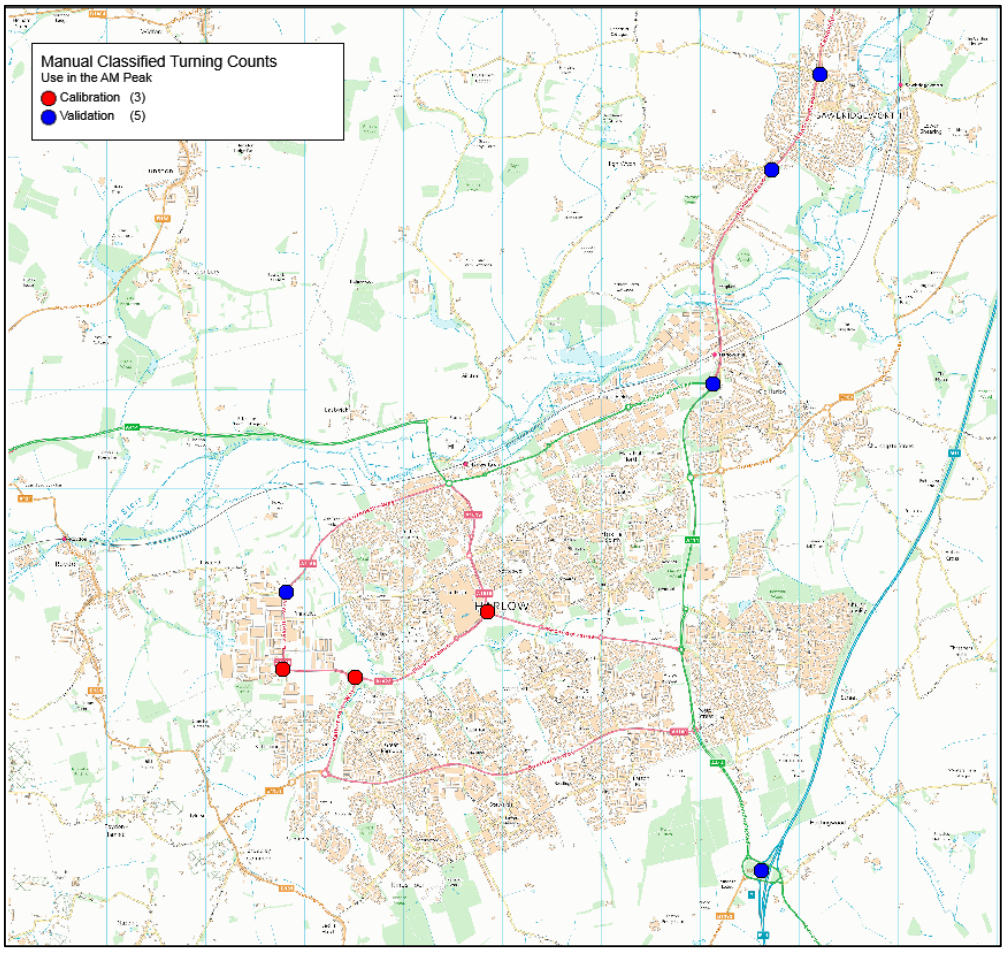
5.4.1 Additional Manual Classified Counts (MCCs) were provided for turning movements across eight sites covering Harlow Town Centre, M11 Junction 7, and Sawbridgeworth. The purpose of these counts was to aid the examination of local route choice in Harlow Town Centre.

5.4.2 Five of the sites were kept purely for additional independent flow validation at the turning level but it was deemed beneficial to incorporate data from three of the sites into the matrix estimation calibration procedure in order to improve modelled flows specifically along the A1025 corridor.

5.4.3 The locations of the MCCs (and whether they were used for independent validation or for calibration) are shown in Figure 5.3.

5.4.4 A full list of MCCs used in calibration and validation can be found in Appendix B.

Figure 5.3 : Manual Classified Turning Counts



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5.5 Journey Time Surveys for Validation

5.5.1 Journey time data is used to check the delays and travel times calculated by the model. Journey time data has been taken from TrafficMaster. This dataset is made available to local authorities and is based on data gathered using satellite navigation devices installed in cars and other vehicles. It specifies travel times for links in the Integrated Transport Network (ITN). Times along a set route are collated by aggregating the times for each of the ITN links along the route.

5.5.2 TrafficMaster data was taken from the most recent dataset available - the period covering September 2012 to August 2013, weekdays only.

5.5.3 Each journey time route was subdivided into a number of timing points located at key points along the route. An average time for each section of the route was calculated for each time period, the summation of which provided the total route time to which the model output has been compared. Graphs showing the journey time along each route by direction through the timing points have also been produced.

5.5.4 Data was collected along 15 journey time routes, however after a review of the dataset Journey Route 14 (M25 Junction 25 to Junction 28) was removed due to the presence of roadworks during the surveyed time period. This would lead to an unrealistic journey time validation so it was decided that route 14 would not be included in the validation results.

5.5.5 The routes along which journey time data was collated are listed below in Table 5.1 and then are illustrated in Figure 5.4.

Table 5.1 : Journey Time Survey Routes

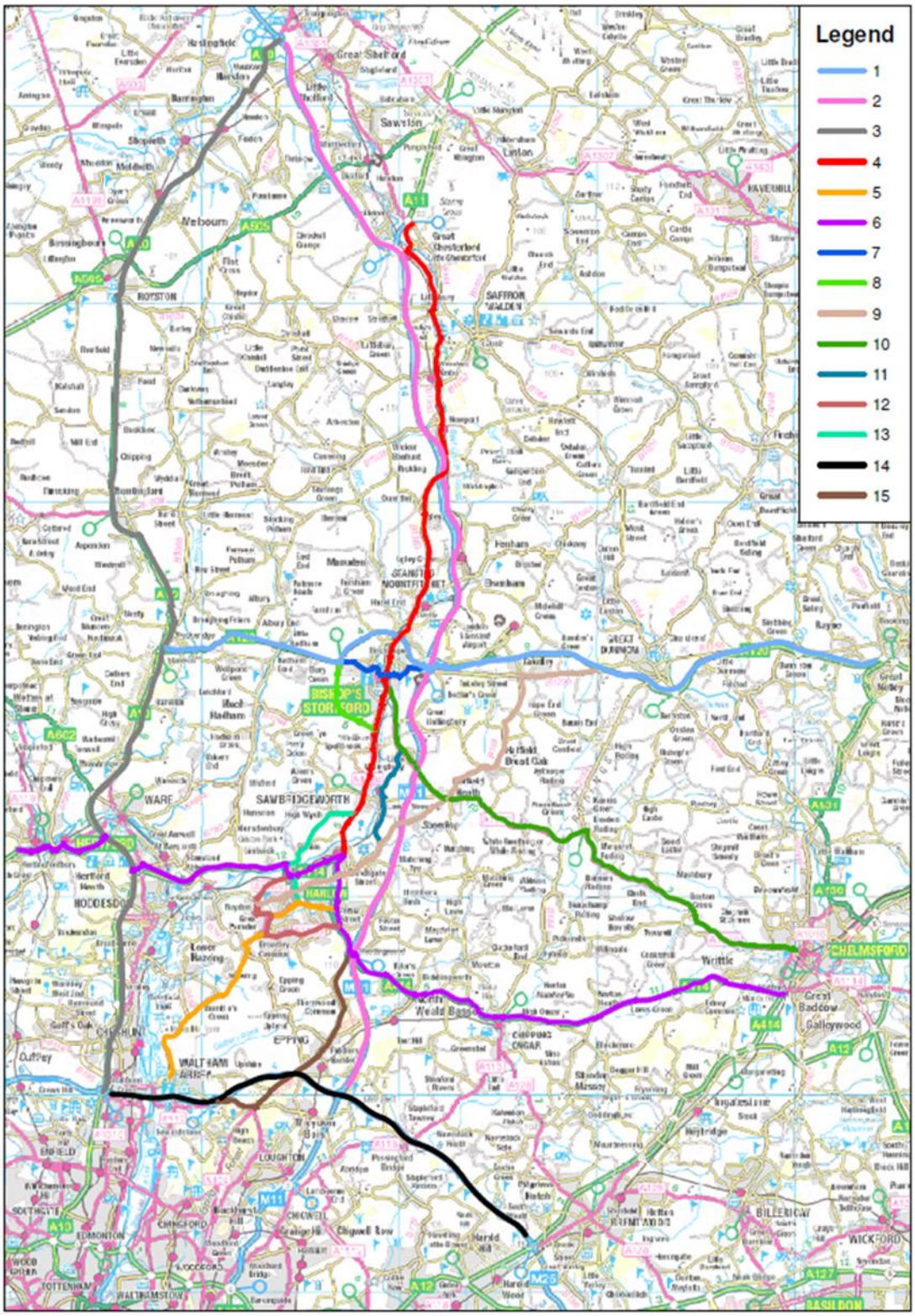
No	Description	Directions	Method
1	A120 Puckeridge to A12	EB & WB	TrafficMaster
2	M11 Junction 6 to Junction 11	NB & SB	TrafficMaster
3	A10 from M25 Junction 25 to M11 Junction 11	NB & SB	TrafficMaster
4	A414 to A11 / M11 J9a via B1383 and A1184 Bishop's Stortford (old A11)	NB & SB	TrafficMaster
5	Harlow to Waltham Abbey via Crooked Mile Route	NB & SB	TrafficMaster
6	A414 from west of Hertford to A12 at Chelmsford	EB & WB	TrafficMaster
7	A1250 through Bishop's Stortford (A120 to A1184)	EB & WB	TrafficMaster
8	A1184 Bishop's Stortford south-west By-pass from A120 to B1383	NB & SB	TrafficMaster
9	B1256 from A120 through Takeley then B183 to Harlow via Hatfield Heath and Sheering	EB & WB	TrafficMaster
10	A1060 from A1016 Parkway (Chelmsford) to Bishop's Stortford	EB & WB	TrafficMaster
11	Sawbridgeworth Road, Hallingbury Road, Sheering Lower Road	NB & SB	TrafficMaster
12	A1169 Southern Way, Katherine's Way, A1169 Elizabeth Way (A414 to A414)	ACW & CW	TrafficMaster
13	High Wych Road between A1184 and A414	NB & SB	TrafficMaster
*14**	*M25 Junction 25 to Junction 28*	*ACW & CW*	*TrafficMaster*
15	B1393 / A121 Hastingwood to Waltham Abbey (old A11)	EB & WB	TrafficMaster

**not considered in final validation results*

5.5.6 Many of the journey time validation routes detailed are above the WebTAG recommended length of 15km, however each journey time route is broken into smaller sections. Consequently, the reporting of journey time validation displays the results for grouped sections to make up routes of less than 15km in length, as well as the results for the full journey time routes.

5.5.7 The journey time validation results are presented in Section 11.5.

Figure 5.4 : Journey Routes



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5.5.8 Detailed maps of each journey time route and the location of individual timing points can be found in Appendix E.

6. Network Development

6.1 Network Basis

6.1.1 Network data geometry and classification has been taken from the Ordinance Survey dataset, the Integrated Traffic Network (ITN), which provides the following information:

- Link lengths;
- Road classification - Motorway, A road, B road, minor road, local street, alley, pedestrianised street, private road – publicly accessible, private road – restricted access;
- Road link types - Dual carriageway, single carriageway, slip road, roundabout, traffic island, traffic island at junction, enclosed traffic area; and
- Routing information - No turn, mandatory turn, no entry, access prohibited to (specified vehicle types), access limited to (specified vehicle types), height restrictions, fords, mini roundabouts, traffic calming, gate, tolls, bridge over road, firing range, through route, severe turn.

6.1.2 The network was loaded into VISUM and converted into a series of links and nodes appropriate for modelling.

6.1.3 All of the above characteristics of the network were sense checked using Google Earth / Street View and local knowledge of the road network. Some roads were removed within dense urban areas of network, as well as some rural roads that were deemed redundant. Unnecessary nodes and short links were removed on remaining road links to improve network simplicity.

6.1.4 Within the detailed modelled area, junction modelling is required where junction capacities have a significant impact on drivers' route choice, and where delays are not adequately represented by speed/flow relationships applied to network links. Care must be taken to specify realistic capacities throughout the fully modelled area and in the choice of turning movements for which it is necessary to specify individual turn capacities.

6.2 Speed-flow curves

6.2.1 Speed-flow curves describe the relationship between the level of traffic on a link and the speed that is possible for that level of flow. As the level of traffic increases, delays become more marked and the speed decreases until the road reaches its capacity and a speed at capacity is reached.

6.2.2 The exact nature of this relationship is dependent upon location specific characteristics:

- For rural roads, speed-flow curves are defined by link geometry only;
- For urban links, speed-flow curves are influenced by the level of development and concentration of junctions along the road.

6.2.3 In urban areas, within the detailed modelled area, speed flow curves have not been used, but they have been used away from urban areas on all other links within the detailed modelled area.

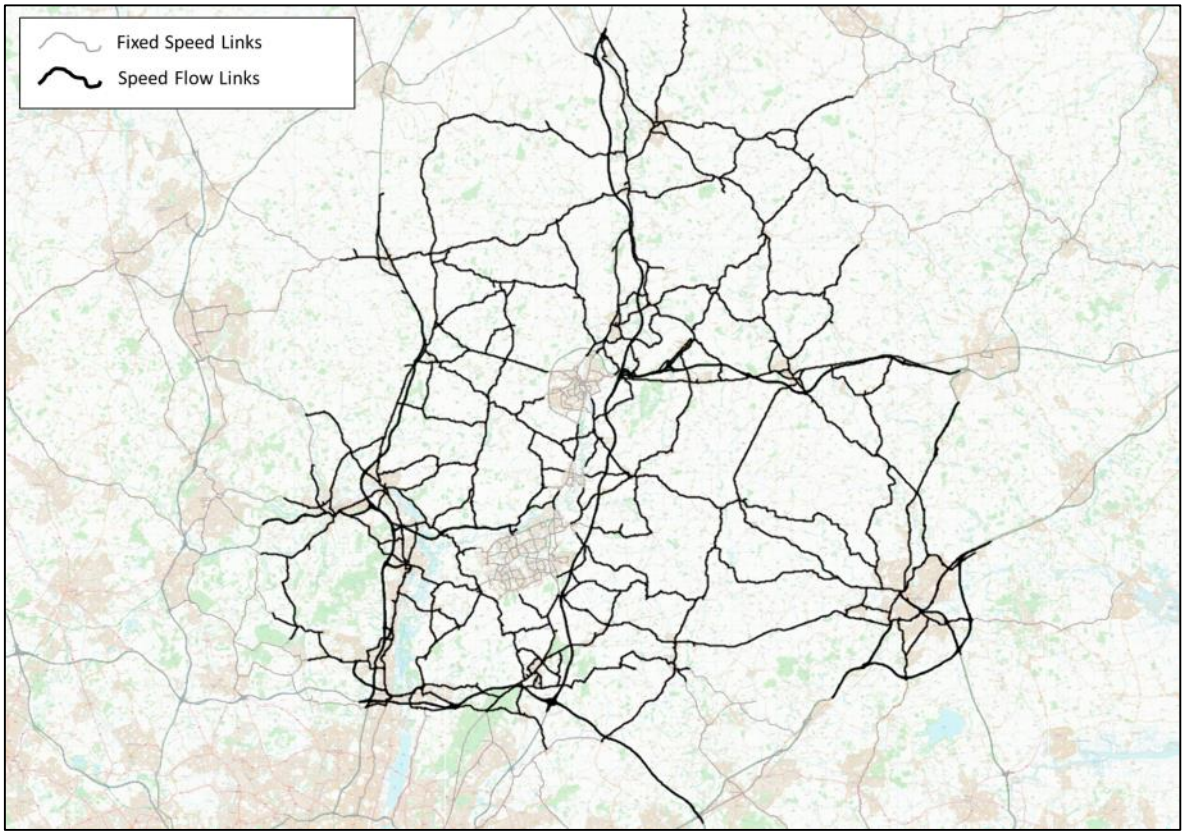
6.2.4 Outside of the area of detailed modelling and within the rural areas of the detailed modelled area, a set of rest of fully modelled area speed-flow curves have been developed that also account for junction delays. These have been used in the absence of any detailed junction coding outside of the detailed modelled area. Some major intersections in the rest of fully modelled area which affect route choice have been coded in detail.

6.2.5 Outside of the fully modelled area, in the external network, speed flow curves have not been used as links represent multiple roads. Also the model does not need to simulate delay at this distance away from the detailed modelled area.

6.2.6 The A120 around Bishop's Stortford is coded as fixed speed links with unlimited capacity. It is acknowledged that this coding is not consistent with other areas of the model, although the model does adequately represent those links. The model has used identical fixed speed curves across time periods on the external network.

6.2.7 The geographical extent of the links with speed-flow curves is detailed in Figure 6.1 below:

Figure 6.1 : Extent of Speed Flow Links in the Modelled Network



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6.2.8 For the links with speed-flow curves the parameters governing speeds, capacities and the relationship between speed and traffic flow were derived from Appendix D of WebTAG unit 3.1 Section 2. The link characteristics described in the manual have been translated into parameters appropriate for use in the VISUM model. A total of 24 different link types, which use speed-flow curves, have been drawn up to accommodate all different combinations of urban/suburban/rural, levels of development, road widths, number of lanes, and vehicle restrictions. For each link type, the speed-flow curve, or in VISUM parlance, a "Volume-delay function" has been defined. The Volume-delay functions within VISUM were adjusted to fit the speed-flow curves defined in Tag Unit M3.1 Appendix D.

6.2.9 The A1184 through Spellbrook area has been coded to add delay to the route. This reflects the reduced capacity on this route, which it was found impossible to model any other way. Sensitivity tests have been run to understand the effect of this coding. The tests increase demand uniformly across the model by 15% and 30% to see effects on delays. These show no change in journey time through Spellbrook in any time period.

6.2.10 The full list of link types, along with free flow speed, capacity, and parameters for the volume-delay function is given in Appendix A. Volume-delay function graphs can also be found in Appendix A.

6.2.11 For HGV's, the volume-delay functions are adjusted such that HGVs have a maximum speed of 96km/h (60mph). This is achieved within VISUM by setting a maximum speed limit for the HGV user class for each link type.

6.3 Capacity Restraint Mechanisms & Urban Speeds

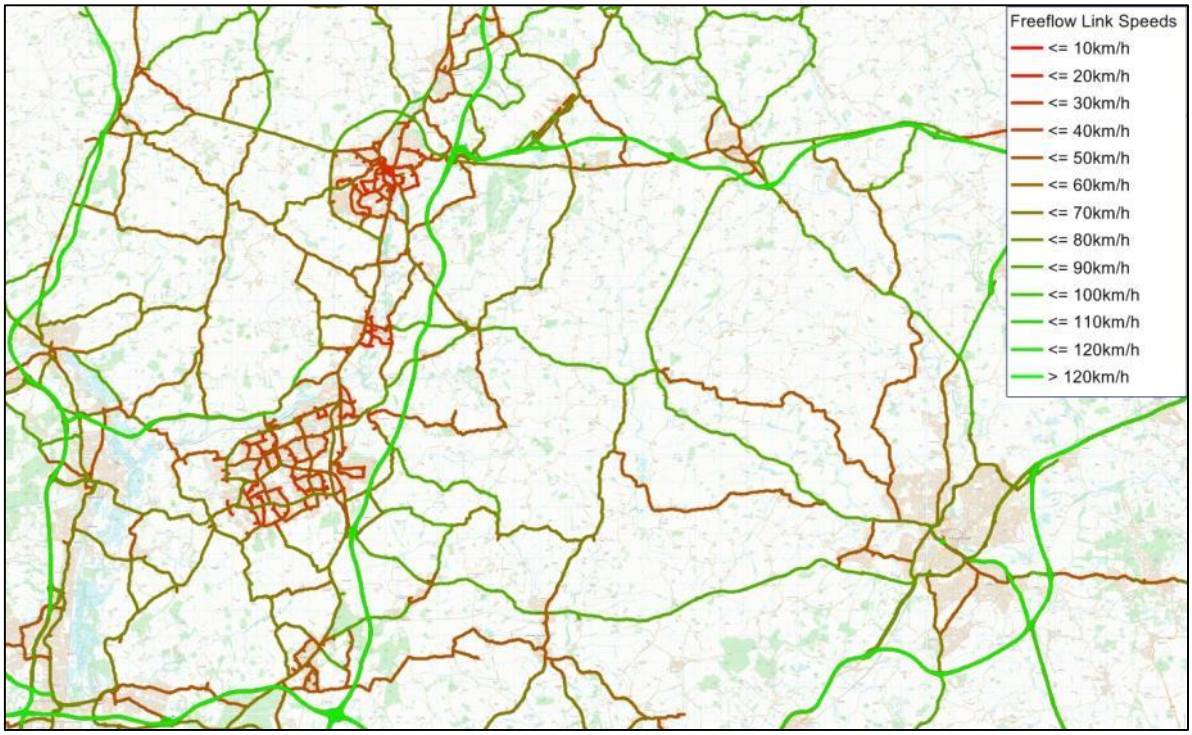
6.3.1 Two key features of the VISUM model are "blocking back" and "flow metering". The former ensures that delays at one junction, that affect the previous junction, are also taken into account, and flow metering ensures that the capacity of either existing roads, or any new roads, is not higher than its actual capacity.

6.3.2 WebTAG unit M3.1 §2.9.5 advocates the use of fixed speeds, calibrated to effective cruise speeds (rather than speed limits) within the urban areas where junctions are modelled. Thus the cruise speeds have been coded such that they reflect any impedance (such as traffic calming or parked cars) that would slow down traffic and any other local factors that might reduce the average speed of traffic (such as the presence of pedestrian crossings or junctions not represented within the model).

6.3.3 Cruise speeds have been derived through the use of the ITN's TrafficMaster dataset, from freeflow travel times by link type within the urban area. Freeflow travel times have been taken from an off peak hour, 20:00 to 20:59. Figure 6.2 presents representative speeds from the TrafficMaster dataset.

6.3.4 The TrafficMaster data was taken from the most recent dataset available - neutral months in the period covering September 2012 to August 2013, weekdays only.

Figure 6.2 : ITN Trafficmaster Freeflow Speeds



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6.3.5 This cruise speed methodology was applied to links within the urban areas of the detailed modelled area, where speed-flow curves were not deemed appropriate.

6.3.6 Link lengths were automatically calculated within VISUM based on the scale lengths of the polylines representing the modelled links.

6.4 Junctions Modelling

6.4.1 All junctions are explicitly modelled within the detailed modelled area, as will any other significant junctions which impact on routing via the M11 in the proposed location of J7a. Junction modelling will be calculated within VISUM based on the following guidance documentation:

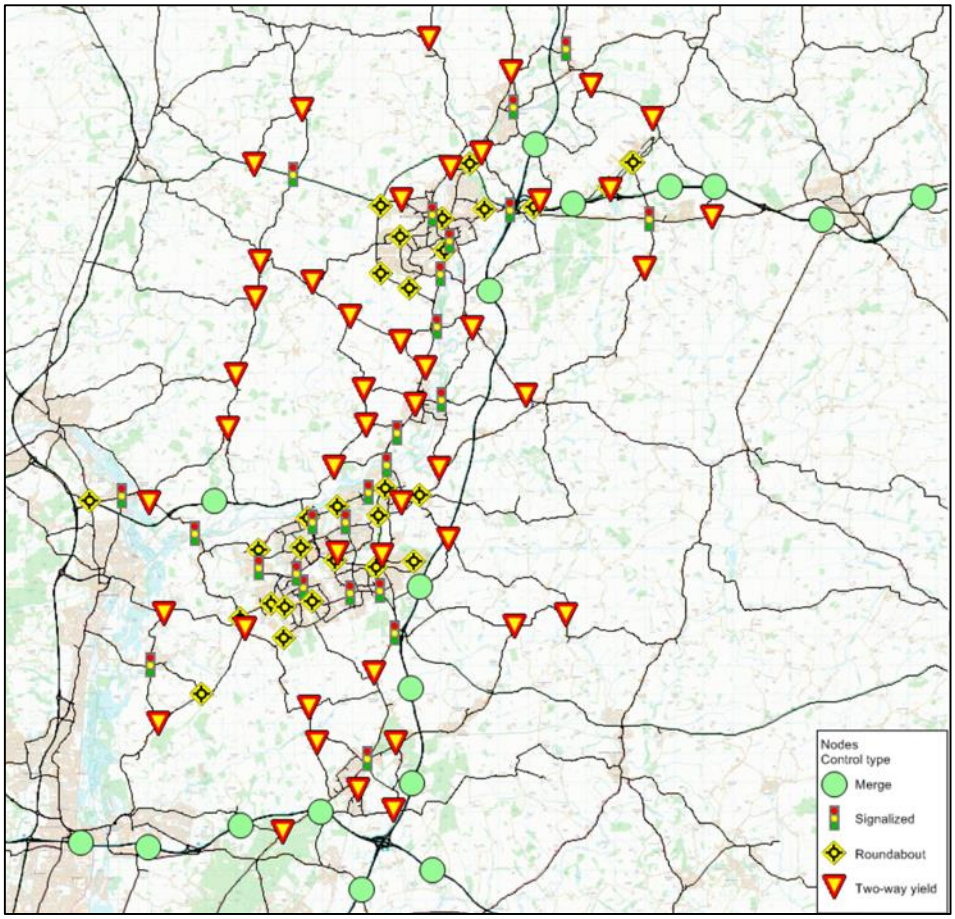
- Signalised Junctions – HCM 2010;
- Roundabouts – TRL/Kimber 2010 ;
- Merge Modelling - TRL CR 279; and
- Priority Junctions – HCM 2010.

6.4.2 These require geometric information as well as signal timings to provide saturation flows within VISUM's Intersection Capacity Analysis (ICA) Modules. To ensure a systematic approach to junction coding across the model Jacobs' junction modelling tool has been used.

6.4.3 This tool uses information about the junction type, lanes, turns and flares as input to visually display the junction setup and emphasise relevant coding parameters that have to be applied in VISUM. All required geometric measurements will be made using online aerial photography. Although geometric information is required mainly for roundabouts, it may be applied to other junctions during calibration as well.

6.4.4 Signal timings have been obtained from ECC and neighbouring authorities to accurately reflect junction delays throughout the urban areas. The locations of all coded junctions, including traffic signals are presented in Figure 6.3.

Figure 6.3 : Coded Junctions by Type



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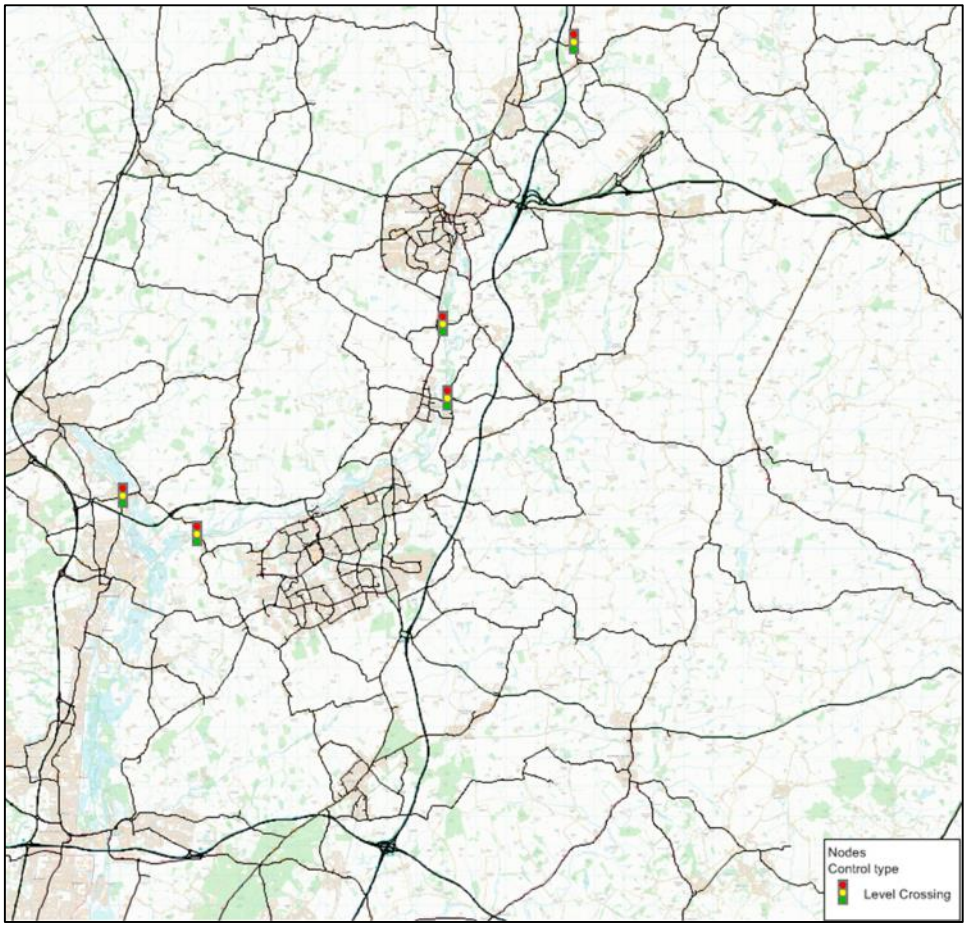
6.4.5 Within the fully modelled area there are five level crossings, which could impact upon route choices. These have been coded as traffic signals with timings derived from averaged down times across each modelled time period. Surveys to determine down times were commissioned by Essex County Council and cover the period between 7am and 7pm for the 24th July 2014. Data was collected at Roydon, Stansted Abbotts and Sawbridgeworth level crossings. Spellbrook level crossing was not surveyed but would be expected to have a similar down time pattern to that of Sawbridgeworth. Existing historic survey data was also used for the Elsenham level crossing.

6.4.6 The locations of these level crossings are shown in Figure 6.4 below:

Figure 6.4 : Coded Rail Level Crossings



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6.4.7 For motorway merges a volume delay function was applied to produce delay. The guidance given in TAG M3.1 Appendix D.9 was followed with a node created 0.5-2km downstream of the merge. A Lohse function was used within VISUM to produce the delay given by:

$$Delay\ (secs\ per\ vehicle) = 227 \times \left(\left(\frac{downstream\ flow}{average\ capacity} \right) - 0.75 \right)$$

6.4.8 Pre-calibration checks on the link and junction coding were carried out following WebTAG unit M3.1 guidance. This process is outlined in Chapter 8.

7. Trip Matrix Development

7.1 Overview

7.1.1 Two types of trip matrices were created: observed, based on mobile phone data; and synthetic, using demographic data to synthesise likely movements not observed in the mobile phone data collection process. The two sets of matrices were then merged together into a single prior matrix set which was then subjected to matrix estimation techniques to produce the final demand used in the model.

7.1.2 Each stage of the trip matrix development is described in detail in the following sections.

7.2 Mobile Phone Data

Overview

7.2.1 Mobile phone signal data was used to develop observed origin-destination trip matrices. This data was obtained from Telefonica, a supplier of anonymised phone data from O2 subscribers.

7.2.2 O2 has the largest market share of mobile operators in the UK with a 22.4% share of the market, providing a robust sample of traffic movements within the study area[12].

7.2.3 Anonymised data was collected between 24th June and 17th July 2014. To be representative of mid-week travel, only data for each Tuesday–Thursday in the four week period were used in the derivation of matrices.

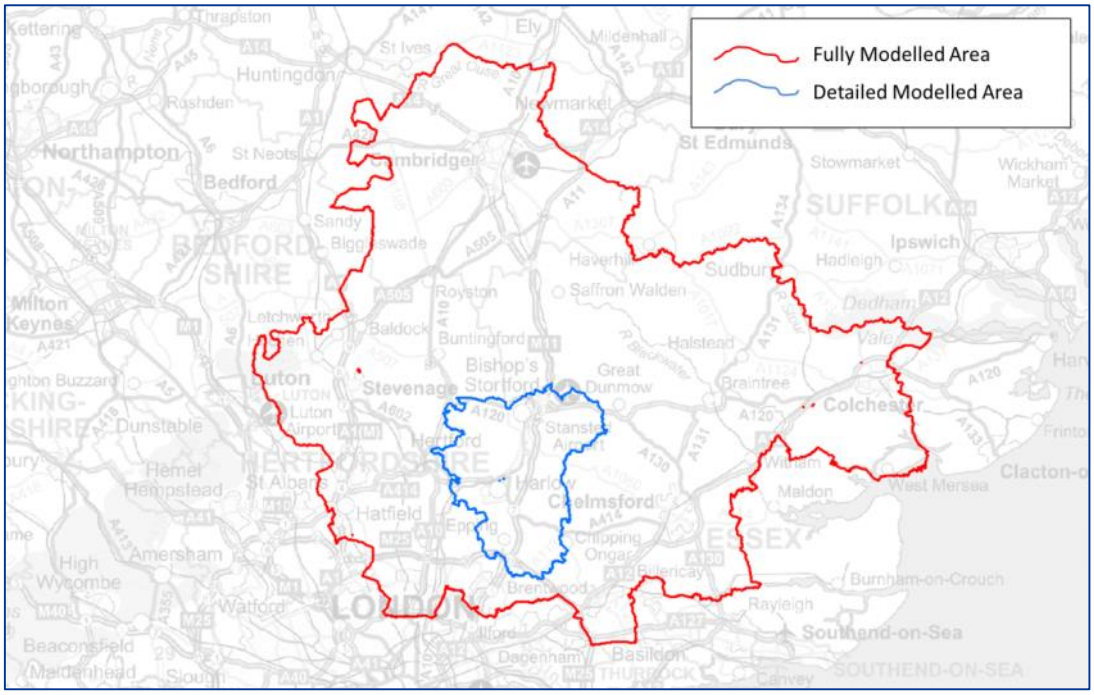
7.2.4 Data was supplied by Telefonica anonymised giving phone movement (trip) record which was then processed and aggregated for all hours of the 24 hour period for each day of the data collection period. The mobile phone trip data processing is explained in the following sections.

Data Collection

7.2.5 The area of mobile phone data collection is equivalent to the fully modelled area, with only the trips passing through the detailed model area recorded. The extent of the detailed modelled area and fully modelled area is shown in Figure 7.1 below.

[12] http://www.statista.com/statistics/375986/market-share-held-by-mobile-phone-operators-united-kingdom-uk (Last Accessed: 19/08/2015)

Figure 7.1 : Extent of Detailed and Fully Modelled Area



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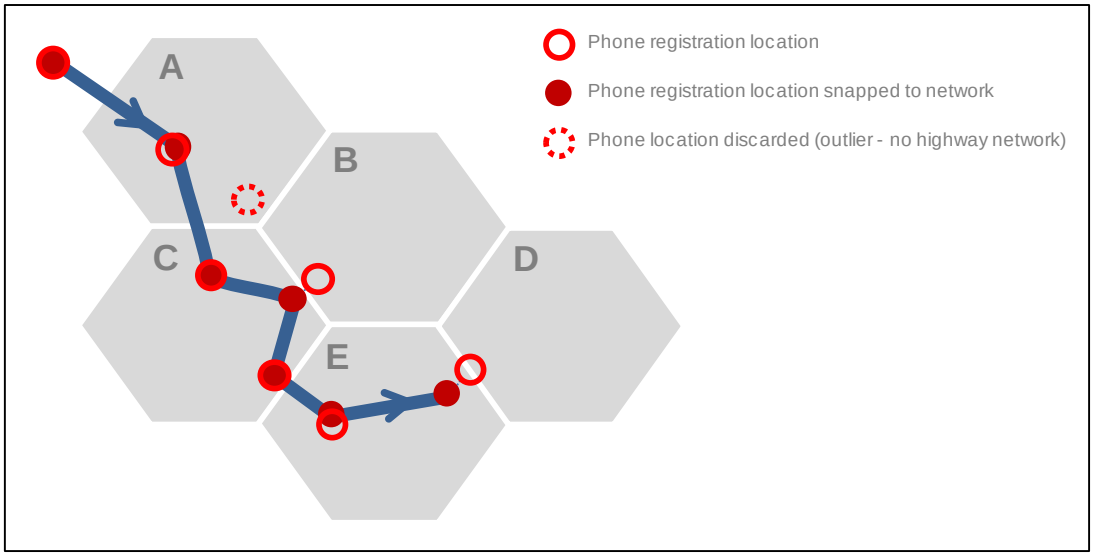
7.2.6 The methodology applied is based on tracking phone movement data in and across the mobile network cells and then matching these to the road or public transport network using strategic model network data. 'Snapping' to the road or public transport network greatly improves the traceability of trips through the cell network (which might occasionally be ambiguous) and provides additional geolocation accuracy than from mobile data alone.

7.2.7 As an example, trips on the edge of a cell may connect to a different cell or change frequently between a number of closely spaced cells. In Figure 7.2 below, a trip may be recorded as passing through cells A, B and E when the actual route was via A, C and E. Similarly, the final location of the trip may be recorded as cell D when the actual end point is cell E.

Figure 7.2 : Snapping Process



7.2.8 'Snapping' to the network helps validate the mobile phone signal data and provides additional geolocation accuracy, particularly in rural areas where cell spacing is large. Each mobile phone is given an anonymous identifier by the phone operator (for a 24hr period from midnight) and its movement is monitored spatially through each day.

7.2.9 By tracking distance over time, the speed profile for each phone can be derived. A change in phone ID location with an estimated speed of above 4kph between recorded locations triggers that an actual trip is being made and the above data then allows individual trip movements to be tracked across the cell network. It safe to assume that anything discarded through this process is either a walking trip or an anomaly of the cell system, which does not represent an actual trip.

Mode and Vehicle Type Identification

7.2.10 The second stage in the process is to identify the mode of travel of each trip throughout the day. For this study, the emphasis was to derive highway modes and journeys, relevant to the VISUM model network.

7.2.11 All rail trips through the study area had to be removed from the dataset. To do so, mobile phone data movements were mapped to a rail network GIS file. Where a straight line movement matched a rail line, this part of the trip chain was allocated as a rail journey. Bus journeys were identified based on route information, movement analysis, phone signal grouping and speed profiles. Journeys by other modes (e.g. walking or cycling) were identified based on the cluster analysis of the speed profiles described below.

7.2.12 The emphasis for this study was to ensure the accurate identification of highway modes through the elimination of rail and other public transport trips and non-motorised movements.

7.2.13 In a separate process, vehicle identification was undertaken. Speed and trajectories were analysed by 15 minute period. Two filters helped classify the data based on speed trajectory. A speed above 4kph triggered that an actual trip was being made (explained above); a speed in excess of 15kph qualified the data as a motorised highway movement. If the speed in the first 15 minute period remained between 4kph and 15kph but the trip continued into a second or third time period, the trip was re-examined in the following two periods. A speed in excess of 15kph in any interval indicated a motorised trip. Where the speed remained below 15kph throughout the 45 minute analysis period then the trip was considered to be non-motorised.

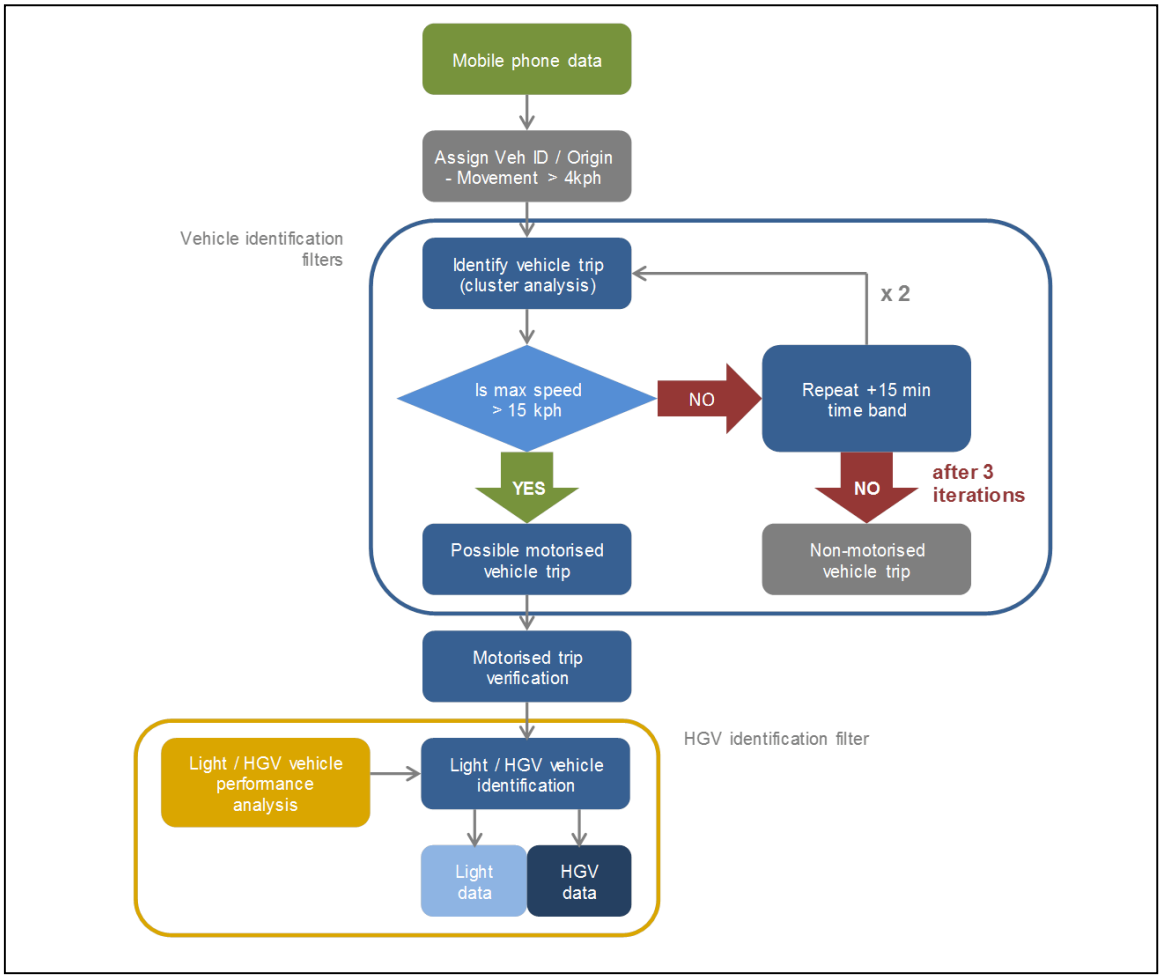
7.2.14 Once a trip was identified as a motorised movement, it was then reviewed over its entire journey to verify this mode. For example, a car can be slowed down to the speed of a pedestrian / cyclist in a congested network but will have a higher speed where congestion is relieved. Conversely a cyclist may exceed speeds of 15kph downhill sections of their journey but will be slower throughout most of the trip. Overall end to end speed profiles were therefore used to verify that speeds (maximum, minimum and median speed) were appropriate for the motorised trip.

7.2.15 A filter was applied to each identified motorised movement in order to distinguish between cars and HGVs. A speed-space cluster analysis was undertaken, using known vehicle speed-space profiles, to distinguish between car / LGV and HGV trips. Light vehicle matrices have been split between LGV and cars based on MCCs, with the former being assumed as comprising entirely in-work trips.

7.2.16 The data extracted for this project was derived from the database owned by INRIX, and used their procedures (covered by their intellectual property rights) to infer vehicle types. The database is no longer available to us for further work. More work on this approach has been undertaken in the TIS (Trip Information System) study for Highways England, both in the delivery of the interim matrices and in the development of the methodology for the core database due to be issued in mid-2016.

7.2.17 The process of trip identification is shown in Figure 7.3 below.

Figure 7.3 : Mode Identification Process



Identification of Trip Chains and Final Destinations

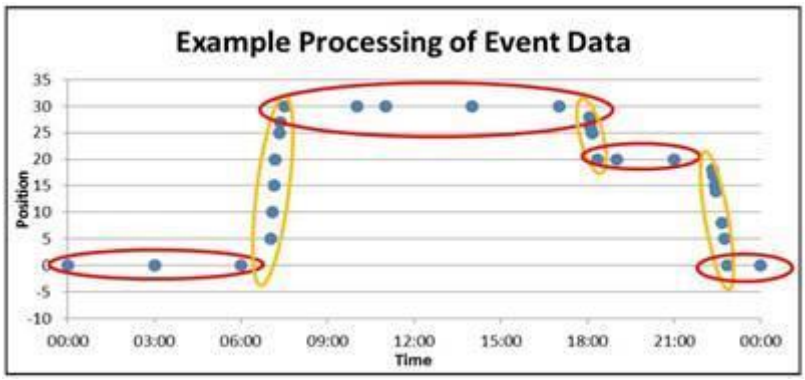
7.2.18 Each vehicle journey was next tracked over its entire journey to validate the trip routing against the VISUM network and to assign origin and destination zones.

7.2.19 Observed trip IDs were already assigned to a 24 hour period. Each vehicle journey (now identified as motorised and Light or HGV) was traced through the mobile cell system. A journey was assigned an origin location when it was confirmed as a valid movement with a speed exceeding 4kph.

7.2.20 Its movement was then followed to the next cell. The trip was checked to ensure that it was a valid registration event (and not noise as phones may switch intermittently between mobile cells) and its status updated. Once confirmed as being a valid trip, all information was updated including the new cell reference, location and time of the registration event and the process repeated. All registration events were then 'snapped' to the network, as explained above.

7.2.21 Registration events were tracked throughout each journey, often across a whole day period. Figure 7.4 demonstrates the profile of registration events (represented by a blue dot) for an example device. Events circled in red make up stationary periods, whereas events circled in yellow form trips.

Figure 7.4 : Processing of Event Data



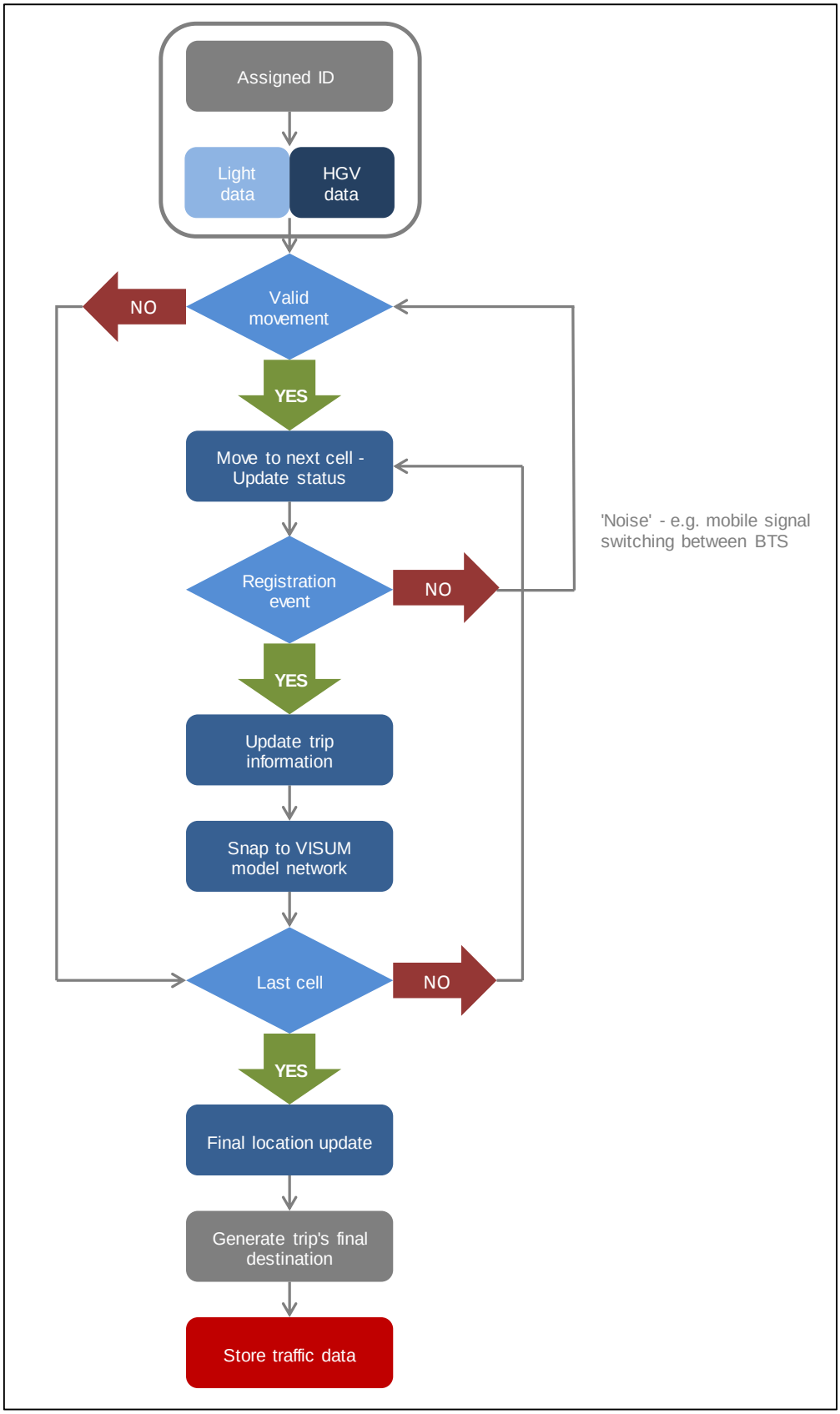
7.2.22 Tracking each device enabled break points to be identified based on the duration of the stationary position. If the stationary duration was less than or equal to 15 minutes then the following stage of the trip was assumed to be part of a trip chain. If the stationary duration was more than 15 minutes, then the stationary location was allocated as its final destination. Stages of trip chains were collated to form one trip, starting at the origin of the first stage and ending at the destination of the final stage.

7.2.23 Extensive work developing the TIS (Trip Information System) for Highways England has reviewed this 15 minute threshold and concluded that the most appropriate value is 15 minutes, as used for the Harlow dataset. The data extracted for this project was derived from the database owned by INRIX, and used their procedures (covered by their intellectual property rights) to define the 15 minute dwell time threshold. As the mobile phone data is no longer available we are unable to process using different thresholds, but we could run sensitivity tests in response to new questions.

7.2.24 It should be noted that trip chain analysis was only applied to internal-internal (fully modelled area to fully modelled area) trip movements (where the full length of the trip can be analysed).

7.2.25 The trip tracking process is shown in Figure 7.5 below.

Figure 7.5 : Trip Tracking Process



7.3 Trip Matrices from Mobile Phone Data

Trip Types and Extent of Observed Mobile Phone Data

7.3.1 The mobile phone data was split into trips by vehicle types using the methodology detailed above.

7.3.2 Trip purposes were inferred from Valuation Office data at zone level to estimate likely origin and destination purposes and trip chains. These were grouped into commuting, business and other trips. Verification of purpose splits was undertaken against NTEM proportions. It was ensured that they matched within acceptable levels.

7.3.3 The next step was to process this data to produce trip matrices by time period, trip purpose and mode (lights / HGVs).

7.3.4 The origin and destination of each trip was given a location identifier:

- internal – within the fully modelled area; and
- external – outside the fully modelled area.

7.3.5 This resulted in four types of trips based upon their origin and destination locations. This is given in Table 7.1.

Table 7.1 : Mobile Phone Trip Categories

Trip Type	Description
II	Internal to internal – trips wholly contained within the fully modelled area
EI	External to internal – trips from outside the fully modelled area to the fully modelled area
IE	Internal to external – trips from inside the fully modelled area to outside fully modelled area
EE	External to external – trips from outside the fully modelled area to outside the fully modelled area

7.3.6 For the E (external) end of a trip the specific trip end zone was not determined through the process outlined in the previous section. It was produced using a mobile phone network matrix containing all trips to establish the correct levels of trips for each external zone. This full matrix was provided by Telefonica and contained anonymised data, from which trip levels could not be determined, but a distribution of trips could be.

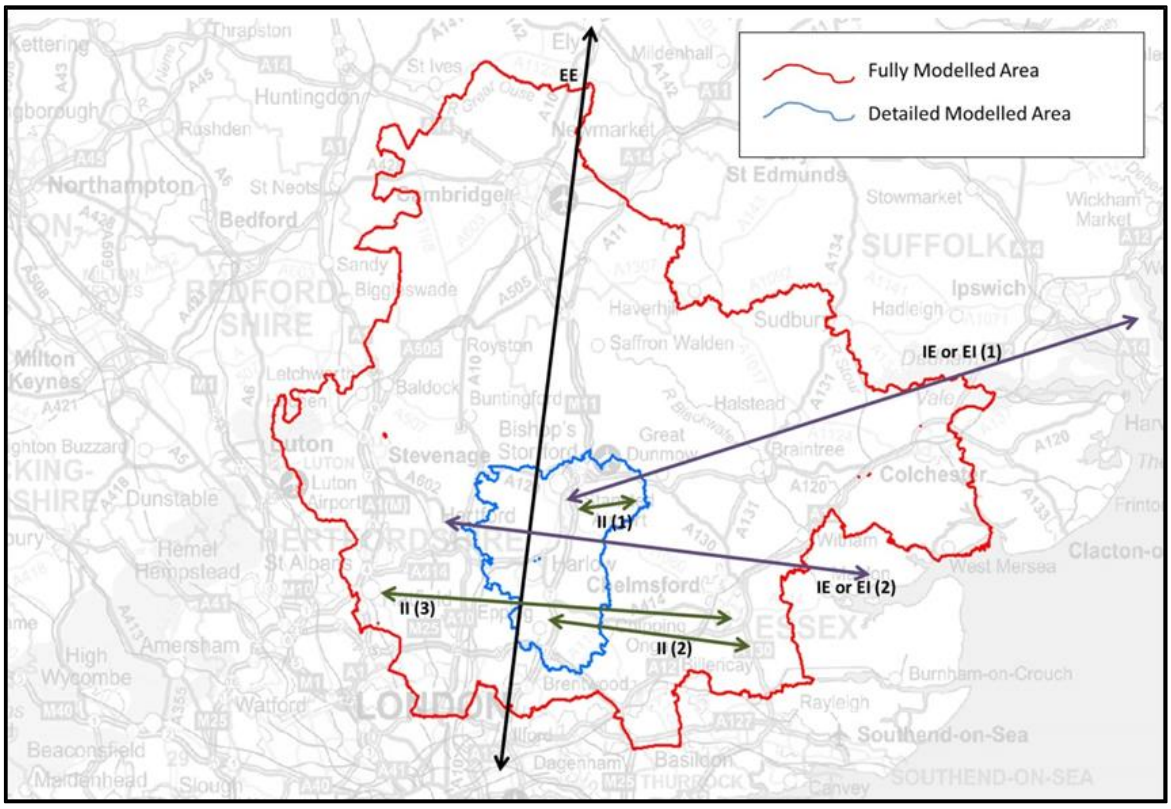
7.3.7 Trips are only observed if they pass through the detailed modelled area (see Figure 7.1), which covers the primary area of influence of the scheme, including the settlements of Bishop's Stortford, Sawbridgeworth, Harlow and Epping, as well as Stansted Airport. The M11 motorway runs down the centre of this area. Mobile phone trips within this area are fully observed.

7.3.8 The rest of the fully modelled area forms a ring around the detailed modelled area including a wider area of influence, see Figure 7.1. This area and the detailed modelled area combine to form the fully modelled area. There is less detail in the rest of the fully modelled area regarding what mobile phone trips are observed, with only trips that originate or end in the detailed modelled area, or pass through the detailed modelled area being observed. Trips within the rest of the fully modelled are not travelling through the detailed modelled area were synthesised using a process detailed within Section 7.4.

7.3.9 The external area makes up the rest of the model's extent, which is the entirety of Great Britain. As with the rest of fully modelled area, only trips that originate or end in the detailed modelled area, or pass through the detailed modelled area are observed.

7.3.10 Figure 7.6 below demonstrates the possible origin and destination of the different trip types.

Figure 7.6 : Origin Destination Possibilities for Observed Mobile Phone Trip Types



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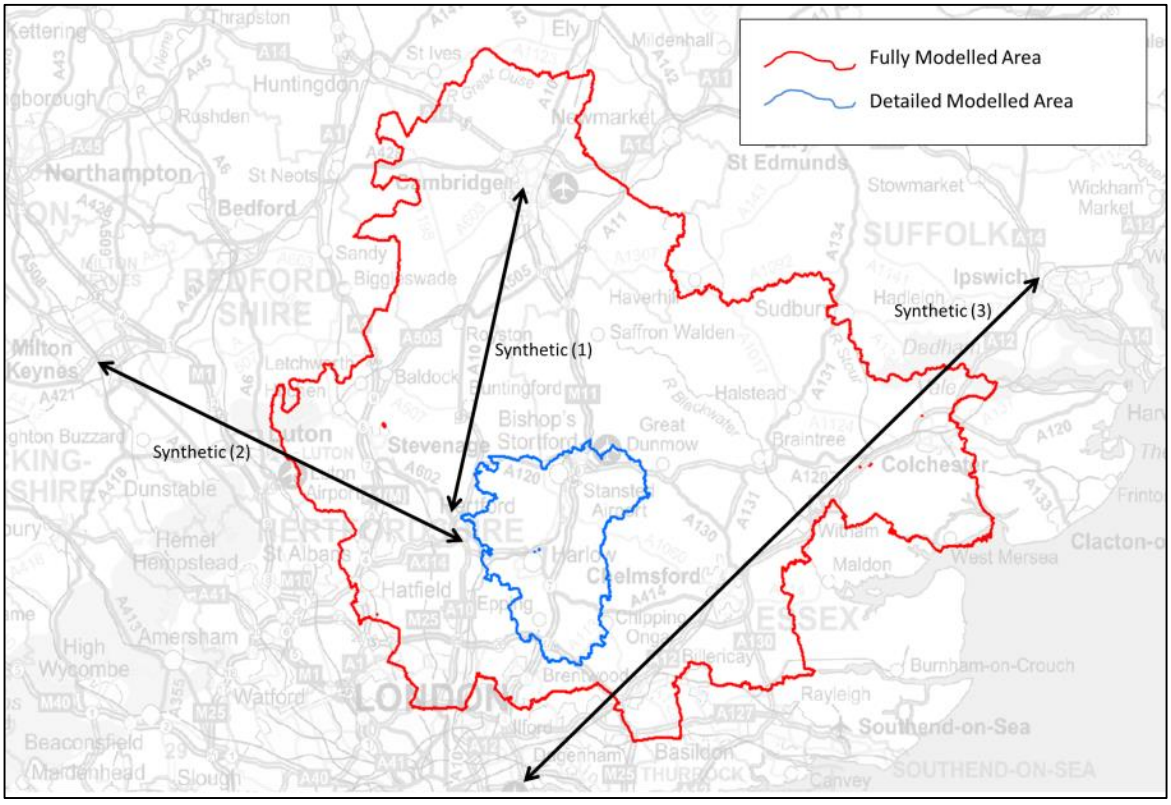
7.3.11 The trips synthesised fall into three categories, and are displayed in Figure 7.7:

- Synthetic (1) – Rest of fully modelled area to rest of fully modelled area
- Synthetic (2) – Rest of fully modelled area to External (or vice versa)
- Synthetic (3) – External to External

Figure 7.7 : Origin Destination Possibilities for Synthetic Trip Types



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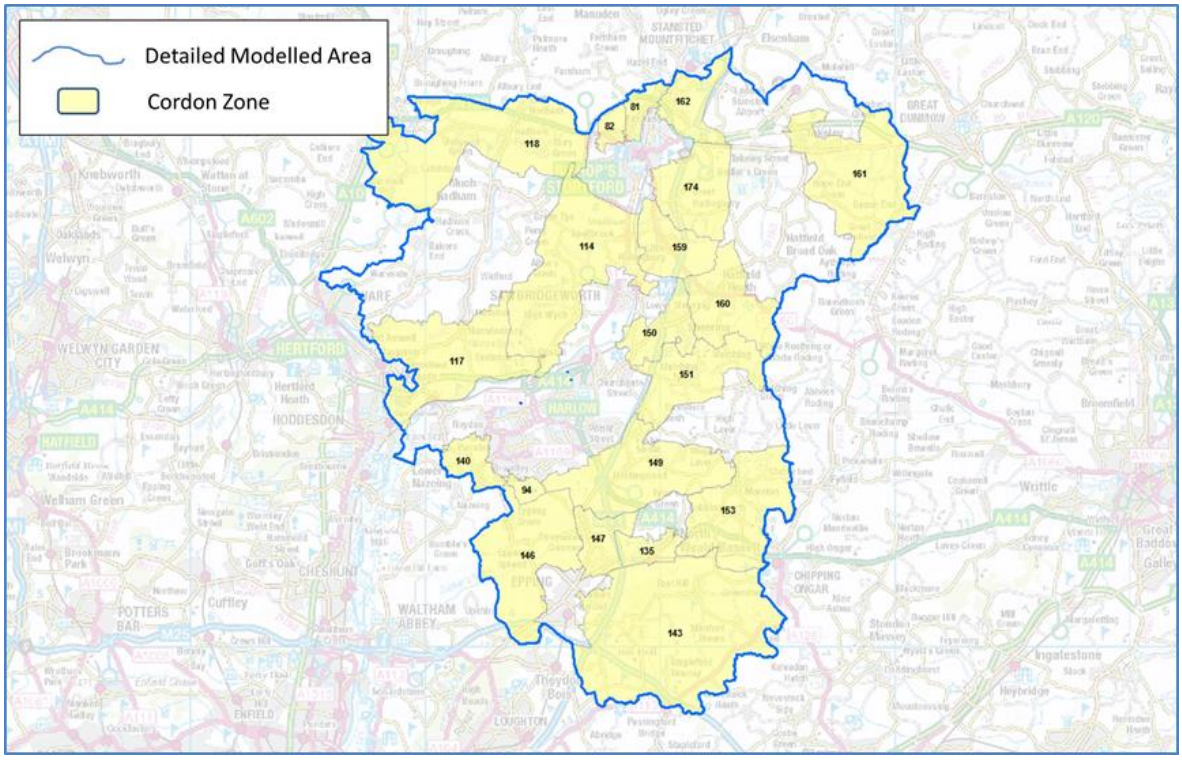
7.3.12 All observed trips have passed through a cordon surrounding the detailed modelled area. As with an RSI cordon, it is also important to model trips outside the cordon to ensure that the model reflects the routing and delays approaching the detailed model area. Additional trips from the rest of the fully modelled area to the rest of the fully modelled area have been infilled synthetically. This is described later.

7.3.13 When a trip enters or leaves the detailed modelled area it is recorded as having started or ended in a cordon zone. These are zones which form the boundary of the detailed modelled area and on are the strategic routes to/from the study area. Figure 7.8 displays the location of cordon zones.

Figure 7.8 : Location of Cordon Zones



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7.3.14 Information about where in the rest of the fully modelled area or external area a trip has come from or is going to is not obtained during mobile phone data collection. This is to ensure that the system is closed and therefore, that all trips within the modelled periods are in the study area in the given hour and that the longer trips (over an hour) do not need to be adjusted to account for whether they appear in the current hour or preceding hour. However, as a result, trip data from processing only provides partial trips for all trip types, except II[1] trips. (II[1] trips are those shown in Figure 7.6 that originate and end within the detailed modelled area.)

7.3.15 Trips originating from outside the detailed modelled area (rest of the fully modelled area or external area) to within the detailed modelled area will be designated as having an origin of the cordon zone where the trip enters the detailed modelled area. The destination zone will be the specific zone in which the trip ends. The ultimate consequence of this is that some of the trips within the cordon zones must be proportioned out to rest of the fully modelled area and / or external zones in order to get a fully distributed trip matrix.

Distribution of Trips from Cordon Zones

7.3.16 The following trip types (as illustrated in Figure 7.6) will have been observed with at least one trip end in a cordon zone:

- II[2] – one trip end in detailed modelled area and one in the rest of the fully modelled area;
- II[3] – both trip ends in the rest of the fully modelled area;
- IE or EI[1] – one trip end in detailed modelled area and one in external area; and
- IE or EI[2] – one trip end in rest of the fully modelled area and one in external area.

7.3.17 The first step in apportioning trips out from the cordon zones is to form relationships between the cordon zones and where trips may come from to pass through them. This was done through professional judgement and assessing the nature of the road layout and zoning. Trips were dealt with on a sector basis to ensure that trips were split in a realistic fashion, and to make sure that trips do not by-pass the fully modelled area when assigned. As such, tables of rest of the fully modelled area zones to cordon zone to internal sectors were created; the table for cordon zone 140 is shown below in Table 7.2. It was decided for each rest of the fully modelled area zone to internal sector combination whether trips would be likely to pass through the cordon zone, and as such whether trips should be apportioned to this combination.

7.3.18 The internal sectors referred to above are defined as the sectors, or part of sectors, that fall within the detailed modelled area. The internal sectors are:

- Sectors 1 to 6 (full)
- Sectors 8, 11 & 12 (only partial)

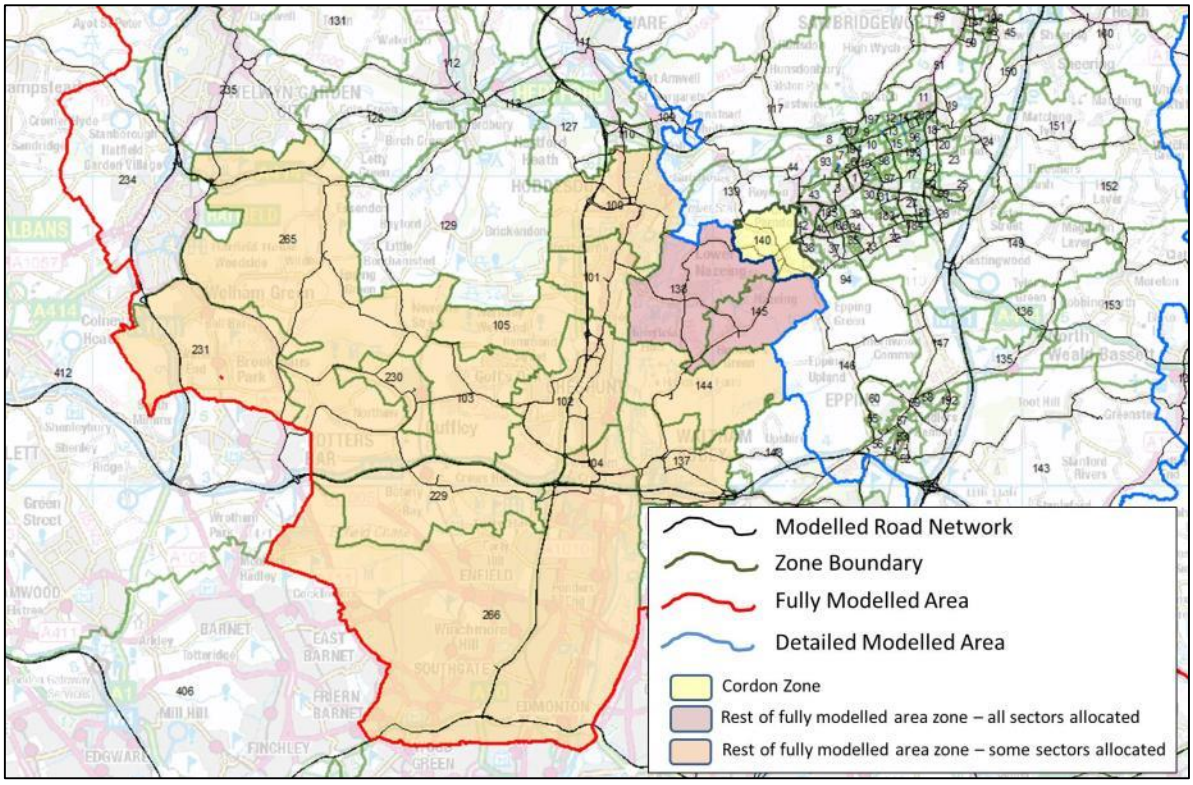
7.3.19 For a map of the sector system for the Harlow Transport Model see Figure 4.4.

7.3.20 Below in Table 7.2 is an example for zone 140, to the south-west of Harlow, showing the rest of fully modelled area zones to internal sectors associated with this cordon zone. The ones in the table refer to fully modelled area zone to internal sector combinations that should have trips assigned to them, whereas the zeros refer to those combinations which are not deemed realistic. Any rest of fully modelled area zones with a full complement of zeros for the cordon zone 140 combinations are excluded from this table. This is shown diagrammatically in Figure 7.9.

Table 7.2 : Combination Table for Cordon Zone 140

Cordon Zone - 140	Internal Sector								
Rest of the fully modelled area zone	Airport (1)	Bishop's Stortford (2)	Sawbridge -worth (3)	Harlow North (4)	Harlow South (5)	Epping (6)	Nazeing (7)	Rural West (11)	Rural East (12)
100	0	0	0	0	1	0	1	0	0
101	0	0	0	1	1	0	1	0	0
102	0	0	0	1	1	0	0	0	0
103	0	0	0	1	1	0	0	0	1
104	0	0	0	1	1	0	0	0	1
105	0	0	0	1	1	0	0	0	1
137	0	0	0	1	1	0	0	1	0
138	1	1	1	1	1	1	1	1	1
140	1	1	1	1	1	1	1	1	1
144	0	0	1	1	1	0	1	1	1
145	1	1	1	1	1	1	1	1	1
229	0	0	0	1	1	0	0	0	0
230	0	0	0	1	1	0	0	0	0
231	0	0	0	0	1	0	0	0	0
265	0	0	0	1	1	0	0	0	0
266	0	0	0	1	1	0	0	0	0

Figure 7.9 : Location of Rest of the Fully Modelled Area Zones for Cordon Zone 140



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7.3.21 For some rest of fully modelled area zones all trips would have to pass through only one cordon zone, Figure 7.9 shows zones 138 and 145 as examples of this. For most rest of fully modelled area zones, trips will access the detailed modelled area through a range of different cordon zones depending upon the individual trip's final destination. Once all rest of fully modelled area zone to internal sector movements had been assigned a cordon zone point of entry some sense checks were carried out. It was ensured that combinations (rest of fully modelled area zone to internal sector) were not associated with multiple cordon zones, unless necessary. It was also important to ensure that all rest of fully modelled area zone to internal sector combinations were associated with a cordon zone.

7.3.22 Once all rest of fully modelled area zone to internal sector combinations had been assigned to cordon zones, it was necessary to begin apportioning trips from the cordon zone. This process used the full list of rest of fully modelled area zone – cordon zone – detailed modelled area sector combinations to apportion trips from the cordon area and populate the rest of fully modelled area zones.

7.3.23 To determine how many trips were assigned to each rest of fully modelled area zone a combination weighting system was set up. This involved weighting rest of fully modelled area zones and cordon zones against each other using a gravity model based upon jobs and population statistics obtained from NTEM data. Additionally, distance weightings were placed upon this to ensure that zones in closer proximity to the detailed modelled area were allocated more trips. The distance weighting was based upon a distance from Sawbridgeworth, which roughly represents the centre of the detailed modelled area.

7.3.24 This process was carried out in the same way for EI and IE trips, instead using the relationships established between external zones, cordon zones and internal sectors.

7.3.25 This process involved an iterative approach to assigning fully modelled area zone to internal sectors to cordon zones. Alterations were required to ensure that the levels of trips in each zone outside of the detailed modelled area were rational. Sense checks were carried out on initial assignments of the matrices at this stage to ensure:

- No trips were passing through the network without passing through the detailed modelled area;
- All zones had trips assigned to them; and
- That cordon zone trip levels had been reduced to levels expected based upon land use data.

Assigning external through-trips to the zone system

7.3.26 For 'EE' trips, those which go from an external to another external zone via the detailed modelled area, assigning zone pairings was completed using an alternative method. For these trips the processed data identified which cordon zone the trip passed through to enter the detailed modelled area and then which cordon zone it passed through to leave.

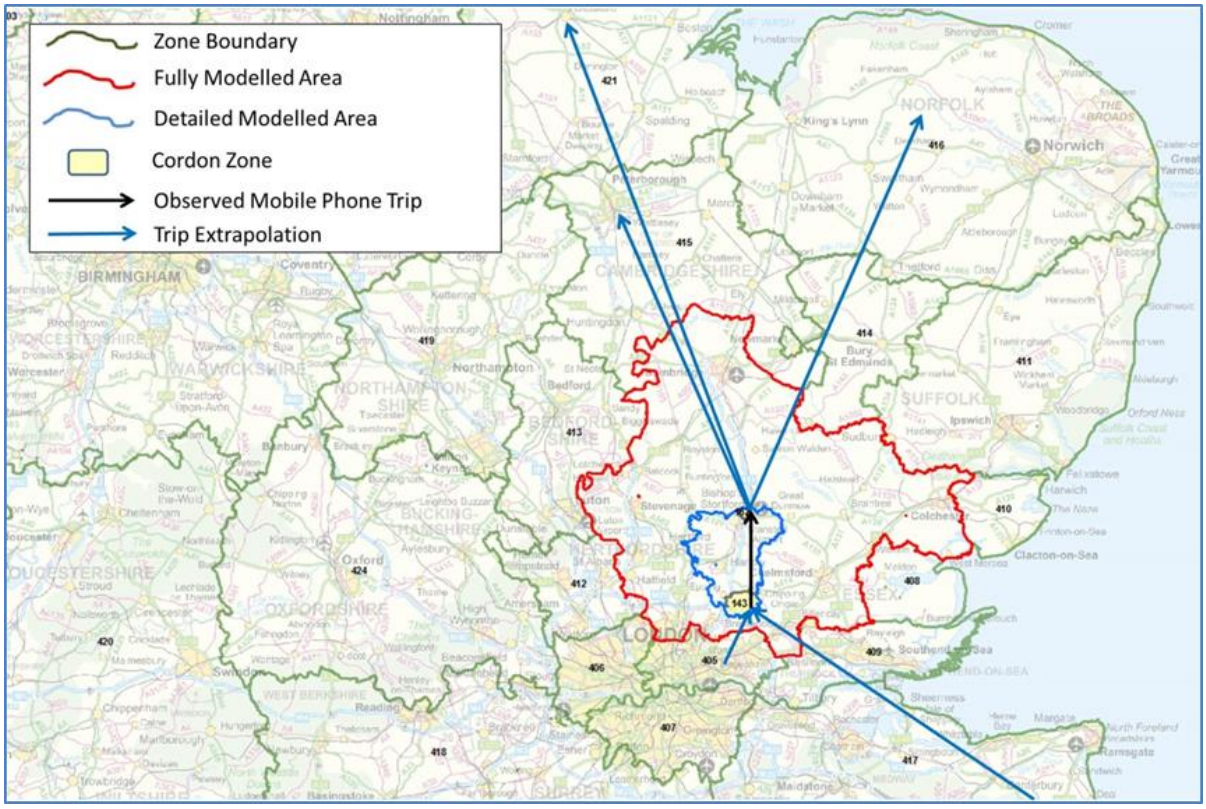
7.3.27 To determine what zone pairs trips should be allocated to from cordon pairings a 'select link analysis' was carried out on the network. This was undertaken on the full matrix used for weighting external trips, which is discussed in 7.3.6. Select Link matrices were extracted for each cordon zone pairing and then O/D pairs filtered to only include EE zone pairs. Trips between EE zone pairs, which made up more than 5% of EE trips via the selected cordon – cordon zone were retained as zone pairs to have trips assigned to them. The number of trips assigned to each zone pair was determined from trip distribution in the full matrix, which was used for the select link analysis.

7.3.28 Below is an example of how EE trips between zones 143 and 162 may be reallocated. For this example, the following zone pairings were identified from the 'select link analysis':

- Zone 405 to Zone 415
- Zone 405 to Zone 421
- Zone 417 to Zone 415
- Zone 417 to Zone 416

7.3.29 Figure 7.10 spatially demonstrates the location of EE zone pairings used for Cordon Zone 143 to Cordon Zone 162.

Figure 7.10 : EE extrapolation for Trips between Cordon Zones 143 and 162



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Adding car trips associated with rail journeys

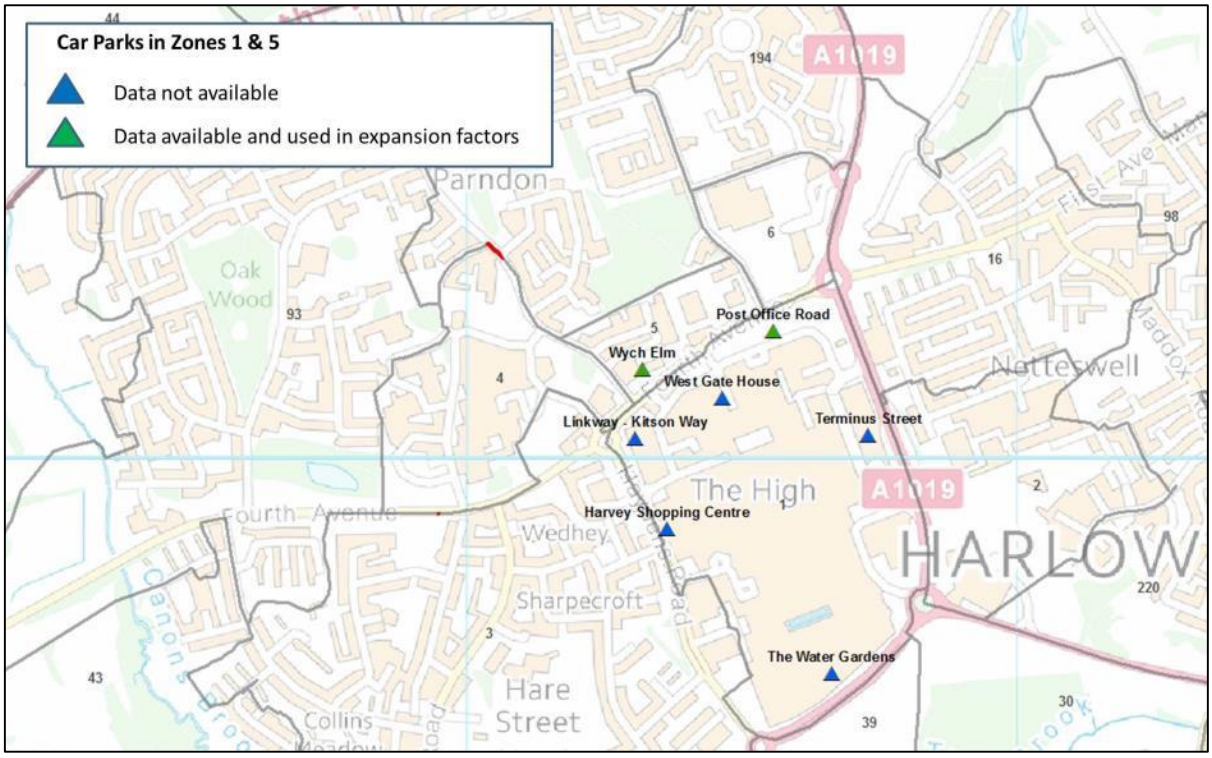
7.3.30 Rail trip matrices were produced as part of the initial collection and processing of mobile phone data, however these matrices did not separate out the rail and car legs of these journeys. In order to split out rail and car legs modal transfer was assumed to take place at rail station zones. The station zone selected for the location of the transfer for each journey was chosen by creating catchment areas for each rail station. These station catchments were calculated based upon distance, time and impedance skims, between each zone and rail station, extracted from an interim version of the model.

7.3.31 This process was carried out both for trips starting with a rail trip and those starting with a car trip. The car trips were then totalled together to create car trip matrices associated with travel to and from rail stations. After these matrices were finalised they were added to the prior matrices already created from the stages of processing above.

Trip expansion for car park zones in Harlow

7.3.32 After undertaking a series of sense checks on the matrices produced to this point, it was noticed that zones in the town centre of Harlow had a lower level of trips than expected. This was particularly the case with zone 1 and zone 5, which are mainly made up of large car parks. Zone 1 contains the town centre itself and all of the major car parks used for shopping and office parking. Zone 5 contains the Wych Elm car park used for access to the town centre and also the hospital. To rectify this issue factors were applied to trips in these zones. Factors were determined by car park entry and exit data obtained from Harlow Council. Data was collected for council operated car parks within these zones and covered the period from the 23rd June 2014 for three weeks; this is consistent with the period of phone data collection. The location of these zones and car parks within them is shown in Figure 7.11.

Figure 7.11 : Harlow Town Centre Car Parks



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Synthetic infill for zones outside of the fully modelled area and selected 'unobserved zones'

7.3.33 The mobile phone data obtained only includes trips that pass through the detailed modelled area. For trips outside of this area, but within the fully modelled area, we were required to infill using a synthetic trip matrix. Additionally, some zones within the detailed modelled area had zero or very few observed trips and so, where appropriate, it was decided to also infill trips in these locations with synthetic data. Zones within the detailed modelled area that have synthetic infill are listed below:

- Zones 41 & 44 – representing The Pinnacles (industrial estate) in Harlow
- Zones 6, 22, 34, 61 & 213 – all representing supermarkets in Harlow and Bishop's Stortford

7.3.34 The synthetic matrix building process is described in Section 7.4.

7.4 Synthetic Matrix Creation

7.4.1 A synthetic matrix, in this context, is one that has been constructed using demographic information associated with the model area and has not been modified by traffic survey data (mobile phone data and traffic counts).

7.4.2 The synthetic matrix development was carried out using the following tools and procedures within the OmniTRANS software program:

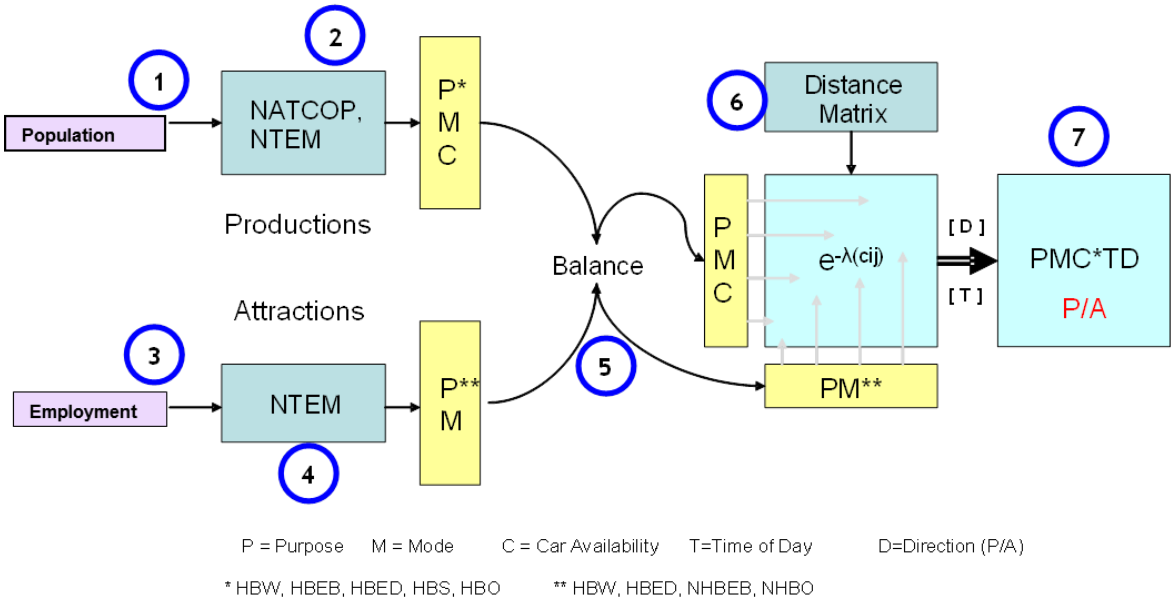
- Synthetic Trip End Creation: Using a combination of the 2011 Census, NTEM and employment databases to produce population and jobs data from which trip ends are derived for each modelled zone utilising Jacobs's JTREND program[13];

[13] Jacob's JTREND program disaggregates NTEM data using more detailed data. The outputs were checked to ensure that when aggregated they match the NTEM data.

- Synthetic Trip Distribution: The distribution of trips using a gravity model to create synthetic production / attraction (P/A) matrices where the mean trip length of trips are calibrated to National Travel Survey.

7.4.3 There are several distinct processes involved in creating the base year synthetic matrices, which are presented in Figure 7.12.

Figure 7.12 : Overview of Synthetic Matrix Creation Process



1. **Create Population Data**: Derive population data for all zones from 2011 Census and NTEM;
2. **Generate Productions**: Run population estimates in each zone through NatCOP (National Car Ownership Program) and apply NTEM trip rates to the outputs to create production trip ends by purpose, mode and car availability using Jacobs JTREND software;
3. **Create Employment Data**: Derive employment information from Census data and Bluesheep (an employment database) for all zones;
4. **Generate Attractions and NHB (Non-Home Based) Trips**: Apply NTEM trip rates to employment data to create attraction trip ends by purpose and mode;
5. **Balance Productions and Attractions**: Produce balanced trip end matrices whereby the total attractions are the same as the total productions for each purpose and mode;
6. **Distribution of Trip Ends to create Synthetic Matrices**: Distribute the trips using a negative exponential cost function (e-λ(cij)) based on zone-to-zone distances for each O/D pair, adjust for appropriate intrazonal trip making and control to trip length distributions. Since the number of observed trips is high relative to the number of synthetic trips required, this function has been used instead of the more complex tanner function.
7. **Create Synthetic Assignment Matrices**: Factor the distributed matrices by direction and time of day using factors derived from NTEM.

7.4.4 Population and household data was taken from the socio-economic information supplied in the 2011 Census. The smallest area measurement in this dataset is the COA and these will be aggregated / disaggregated where necessary to match the model zone layout and to produce definitive demographic data for each zone within the model. The zonal population information will be segmented into 11 NTEM person types (Table 7.3) and 8 household types (Table 7.4) and run though the NATCOP programme to produce demographic information for each zone segmented into 88 "traveller types" based on age, employment status, household type and car availability.

Table 7.3 : NTEM Zonal Person Type Categorisation

Person Type	Description
1	Children (0-15)
2	Males in Full Time Employment (16 to 64)
3	Males in Part Time Employment (16 to 64)
4	Male Students (16 to 64)
5	Males Not in Employment / Students (16 to 64)
6	Males 65+
7	Females in Full Time Employment (16 to 64)
8	Females in Part Time Employment (16 to 64)
9	Female Students (16 to 64)
10	Females Not in Employment / Students (16 to 64)
11	Females 65+

Table 7.4 : NTEM Zonal Household Type Categorisation

Household Type	Description
1	1 Adult Household with no Car
2	1 Adult Household with one or more Cars
3	2 Adult Household with no Car
4	2 Adult Household with one Car
5	2 Adult Household with two or more Cars
6	3+ Adult Household with no Car
7	3+ Adult Household with one Car
8	3+ Adult Household with two or more Cars

7.4.5 Jobs data has been derived from a combination of NTEM and Bluesheep data (a business database giving the coordinates of employers with information on industry type and number of employers) collected in 2013. The latter dataset is used to apportion employment data into the modelled zones, based on 15 job type categories given in NTEM (Table 7.5).

Table 7.5 : NTEM Zonal Employment Type Categorisation

Employment Type	Description
E01	Total jobs
E02	Total Households
E03	Primary and Secondary Education
E04	Higher Education
E05	Adult/Other Education
E06	Hotels, camp sites etc.
E07	Retail Trade
E08	Health/Medical
E09	Services (business and other)
E10	Industry, construction and transport
E11	Restaurants and bars
E12	Recreation and sport
E13	Agriculture and fishing
E14	Business and not above
E15	Holiday Homes

7.4.6 Prior to use in the model, the jobs and population data has been adjusted, using NTEM datasets for the modelled area, to grow base information to a 2014 estimate (taking account of reducing household sizes, an ageing population, new housing schemes within the modelled area etc). NTEM trip rates are then applied to population estimates by car availability in order to derive the number of trips per week produced by each zone by purpose and car availability (see Section 4.6 for the description of the segmentation used in this model). The purposes used for this exercise were more disaggregate than those used in the model. This was to make use of the more detailed information on trip length distributions available in the National Travel Survey. Additional purpose of Home Based Shopping, Home Based Education and Non-Home Based Employers Business were introduced for this purpose. Similarly, NTEM trip rates were applied to each of the job types to generate attraction rates. The result is a set of 24 hour trip ends by purpose and car availability. The 24 hour trip ends were then split back out by mode according to proportions in the trip ends from which they had been derived.

7.4.7 The productions and attractions for car drivers and car passengers are balanced to ensure that the total productions match the total attractions within set balancing areas. For home-based trip purposes the attractions are balanced to productions only. For non-home based trip purposes, the productions are derived from these balanced home-based attractions. Further NTEM factors have been applied to the trip ends to split them out by time of day.

Matrix Trip-End Check and Adjustment

7.4.8 A check was undertaken of trip ends in the prior matrix against available census data for commuters. Zones were aggregated to match Middle Layer Super Output Areas (MSOAs) and the modelled peak hour trip end totals from the Car Commute user class for AM destinations and PM origins were compared to the 12 hour Census worker totals.

7.4.9 Figure 7.13 shows the zone boundaries for the Harlow District cross-referenced against the MSOAs and Table 7.6 shows the trip end comparisons:

Figure 7.13 : Harlow Zoning and Census MSOAs

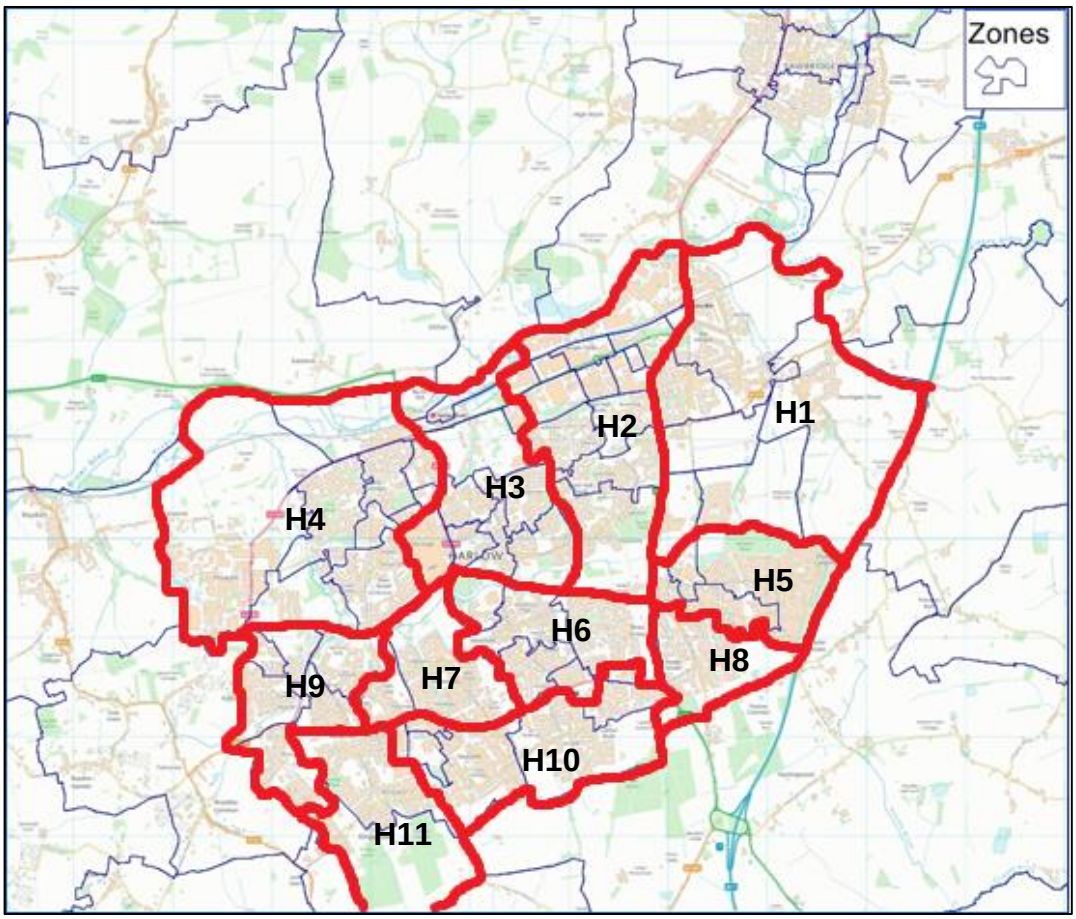


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Table 7.6 : Prior Matrix Car Commute Trip Ends Compared to Census

MSOA	Census (worker) 12 Hr Total	AM Destination Modelled Trip Ends	AM Destination % (compared to Census)	PM Origin Modelled Trip Ends	PM Destination % (compared to Census)
H1	927	489	53%	636	69%
H2	3747	1024	27%	989	26%
H3	1445	632	44%	493	34%
H4	6972	2016	29%	1868	27%

H5	378	204	54%	280	74%
H6	759	258	34%	355	47%
H7	2204	415	19%	660	30%
H8	230	151	66%	203	88%
H9	391	1136	291%	998	255%
H10	843	229	27%	274	33%
H11	198	158	80%	220	111%
Total	**18,094**	**6711**	**37%**	**6977**	**39%**

7.4.10 The data shows that H2, H4 and H7 are the biggest contributors of commute trips within Harlow according to the Census, with over 70% of the total number of workers.

7.4.11 As one would expect, the modelled trip ends are fairly symmetrical between AM destinations and PM origins and, on average across all MSOAs, represent around 35% to 40% of the total commute trips across the 12 hour Census period. However, compared to the Census, H9 contains approximately three times as many car commute trip destinations in the AM peak and more than twice as many car commute trips origins in the PM peak. This suggested a potential issue with the allocation of the trip ends (derived from mobile data) to the individual modelled zones in H9 rather than to neighbouring zones.

7.4.12 H11 contains a small number of workers recorded in the Census and already contained a very large proportion of modelled trip ends so was discounted for extra trips.

7.4.13 H7 contains the lowest proportion of modelled AM destination trips compared to the Census total; however, local knowledge suggests limited employment land use within that area and so it was deemed sensible not to add more car commute trips to those zones.

7.4.14 H4 registers the highest number of Census trips of all Harlow zones (approximately 39% of the Harlow total) and corresponds to The Pinnacles Industrial Estate as well as other major employers such as the Princess Alexandra Hospital. The modelled trip ends for the car commute user class were lower than the average (29% and 27% for AM destinations and PM origins respectively) and, as such, it was deemed sensible to transfer a proportion of the trip ends from zones in H9 to those zones in H4.

7.4.15 The total census workers for the MSOAs H4 and H9 were compared with the sum of the trip ends of all the modelled zones contained in H4 and H9 from the prior matrices. This was done individually for H4 and H9 and then as a combined total across both areas. These latter percentages were then used as a target to calculate the number of trips that should be transferred from H9 to H4 such that the AM destinations and PM origins for both H4 and H9 individually would both match the overall proportion. These proportions and the resulting targets for the number of trips to redistribute are shown in Table 7.7.

Table 7.7 : Zone Trip End Target Proportions

MSOA	Census (worker) 12 Hr Total	AM Destination Trips	AM Destination %	PM Origin Trips	PM Origin %	AM Destination Correction	PM Destination Correction
H9	392	1135.89	290.5	997.65	255.2	-968.52	-845.46
H4	6972	2015.92	28.9	1868.40	26.8	968.52	845.46

Total	**7363**	**3151.81**	**42.8**	**2866.05**	**38.9**	**-**	**-**

7.4.16 The target trips calculated above were then distributed across all modelled zones within MSOAs H4 and H9 proportionally corresponding to their base trip end totals. These calculations are shown in Table 7.8.

Table 7.8 : Zone Trip End Corrections

MSOA	Zone Number	AM Destination Trips	AM Destination %	AM Correction	PM Origin Trips	PM Origin %	PM Correction
H9	38	46.72	0.04	-39.84	67.15	0.07	-56.90
	40	26.92	0.02	-22.95	22.65	0.02	-19.19
	41	905.21	0.80	-771.83	689.46	0.69	-584.28
	42	101.74	0.09	-86.75	141.63	0.14	-120.03
	185	55.31	0.05	-47.16	76.77	0.08	-65.05
	TOTAL			**-968.53**			**-845.45**
H4	3	121.58	0.06	58.41	153.61	0.08	69.51
	4	39.60	0.02	19.03	50.95	0.03	23.06
	5	9.26	0.00	4.45	7.58	0.00	3.43
	6	140.81	0.07	67.65	109.36	0.06	49.49
	7	125.21	0.06	60.16	97.51	0.05	44.12
	8	76.38	0.04	36.69	101.53	0.05	45.94
	43	75.07	0.04	36.07	92.16	0.05	41.70
	44	1089.89	0.54	523.63	836.51	0.45	378.52
	93	324.57	0.16	155.93	404.50	0.22	183.04
	194	13.54	0.01	6.51	14.68	0.01	6.64
	TOTAL			**968.53**			**845.45**

7.4.1 The AM Destination and PM Origin trip corrections were then distributed across the cells of two newly created (zero-sum) AM and PM correction matrices. This was done proportionally according to the base distribution of trips from/to the trip end row/column totals.

7.4.2 The resulting two correction matrices are then added to the existing prior matrices (during the VISUM assignment procedure) as an additional procedure step before the assignment and matrix estimation iterations.

Matrix Distribution Check

7.4.3 Daily productions and attractions have been distributed by the negative exponential cost function (Figure 7.12, Process 6) using cost matrices for each zone pairing by purpose and mode combination. These are compared against both National Travel Survey (NTS) trip length distributions (latest 2002-2010) for all user classes to demonstrate the level of fit against national and local travel patterns. The model lambdas have then been calibrated to provide the best fit to mean trip lengths and distribution patterns. Figure 7.14 presents the NTS distances by purpose and Table 7.9 shows the calibration statistics.

Figure 7.14 : NTS Car Trip Length Distributions 2002-2010

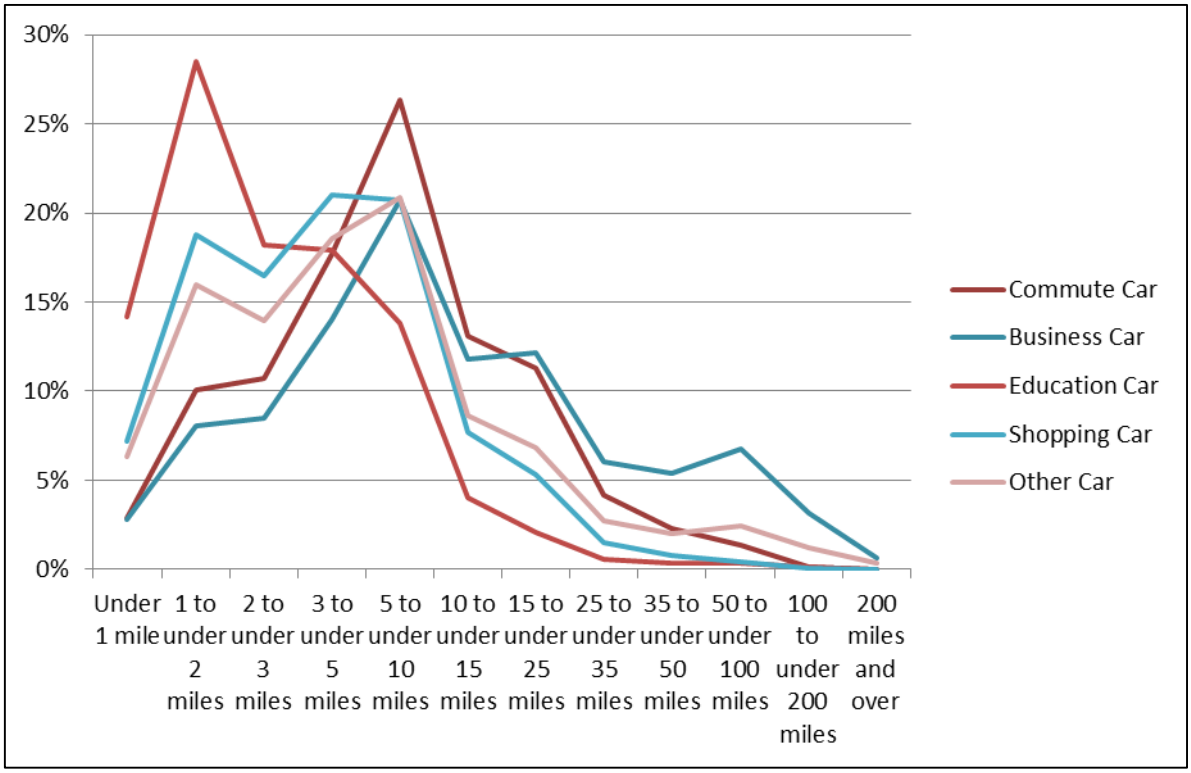


Table 7.9: Synthetic Matrix Calibration Statistics

Trip Purpose	Target Mean	Final Mean	Final Lambda
Home Based Work	16.05	16.0500	0.2152
Home Based Employer's Business	33.14	33.1430	0.0624
Home Based Education	6.65	6.6500	0.4888
Home Based Shopping	9.67	9.6736	0.2992
Home Based Other	17.76	17.7600	0.1486
Non Home Based Work	16.05	16.0515	0.1651
Non Home Based Other	17.76	17.7605	0.1474

7.4.4 Intrazonal costs have assumed half the value of the average of the distances to the three nearest zones. Distances between zones are measured between zone geographical centres. For example, if the three shortest distances from a given zone to other zones in the network are 3 km, 5 km, and 10 km, then the intrazonal distances would be taken to be trips with lengths of 3 km or less (mean of 6 divided by 2). Intrazonal trips would then be apportioned across all NTS distance bandings that are equal to or lower than the derived intrazonal distance. This has a negligible effect on the internal zones, where intrazonal distances are very small, but it will further improve the model's fit to longer distance trip making in the NTS and for large external model zones.

7.4.5 The resultant matrices are split as follows based on the segmentation given in Section 4.6:

- 7 Purposes: 5 home based and 2 non-home based;
- 3 Mode: Car Driver and Passenger, Public Transport and Slow Modes;
- 3 Times of Day - AM (07:00 – 10:00), IP (10:00 – 16:00) and PM (16:00-19:00); and
- 4 Car availabilities: No Car, Part Car (A household with 2 or more adults with access to only one car), One Car and Multiple Cars.

7.4.6 The above 189 outbound P/A matrices have been converted to O/D matrices through phi factors within NTEM to be combined and aggregated for use with the mobile phone matrices.

7.5 Merging Observed and Synthetic Matrices

Merging

7.5.1 The synthetic matrices were merged with the observed mobile phone data matrices to produce the prior matrices.

7.5.2 The synthetic matrices were used for unobserved O/D pairs and simply added to the observed matrices. As stated above there were some areas where synthetic trips were used in place of observed trips, i.e. Pinnacles industrial estate and large supermarkets.

7.5.3 Synthesised HGV and LGV demand was based on employers' business trip patterns, which were scaled to count data. These formed the basis of HGV and LGV synthesised demand, which were merged with mobile phone derived demand (where observed), and were later revised through matrix estimation. The approach to synthesis of this demand was based on what data was readily available for the purpose, and represents the best option available to the study. Calibration / validation results are presented in Appendices C and D. LGV screenline calibration achieves 83% pass for AM and IP, with a lower 67% for PM. HGV performs less well at screenline level, but almost all instances have flow differences which are less than 10 suggesting that the vehicle type split in the model is sufficiently accurate.

7.5.4 Checks were undertaken to ensure that there were no O/D pairs that had trips from both the observed and synthetic matrices.

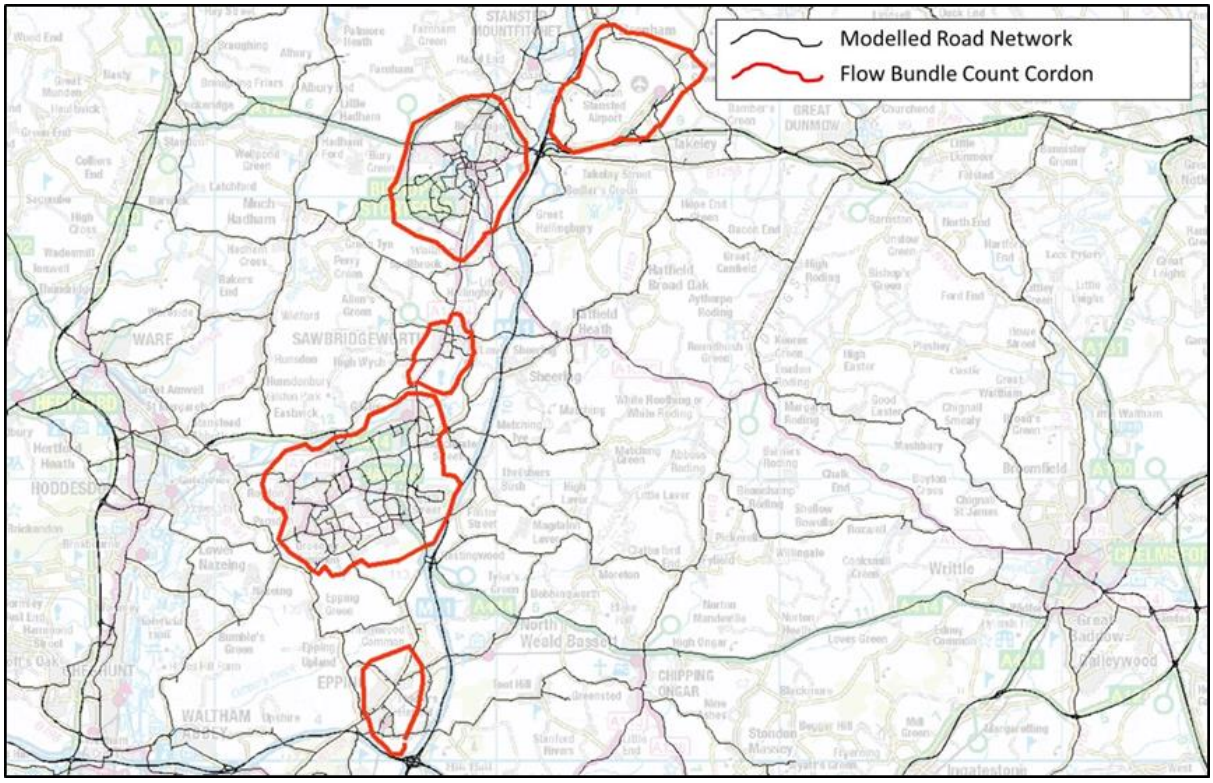
Flow Bundle Factoring

7.5.5 Analysis of the merged matrices showed that overall flows within the fully modelled area were too low, particularly on the northern and southern edges of the model around Bishop's Stortford and Epping. This is primarily a result of the fact that only a sample of mobile phone users has been used (Telefonica customers); as such a process of trip adjustment is required.

7.5.6 A process was developed to factor O/D pairs based upon the sectors (defined previously in Figure 4.4) of the model they pass through, and whether these sectors had too many or too few trips. These sectors are defined by cordons. A flow bundle or select link analysis was undertaken across the cordons and the flows compared to count data.

7.5.7 Figure 7.15 shows the cordons, which form this process.

Figure 7.15 : Count Cordons used in Flow Bundle Factoring



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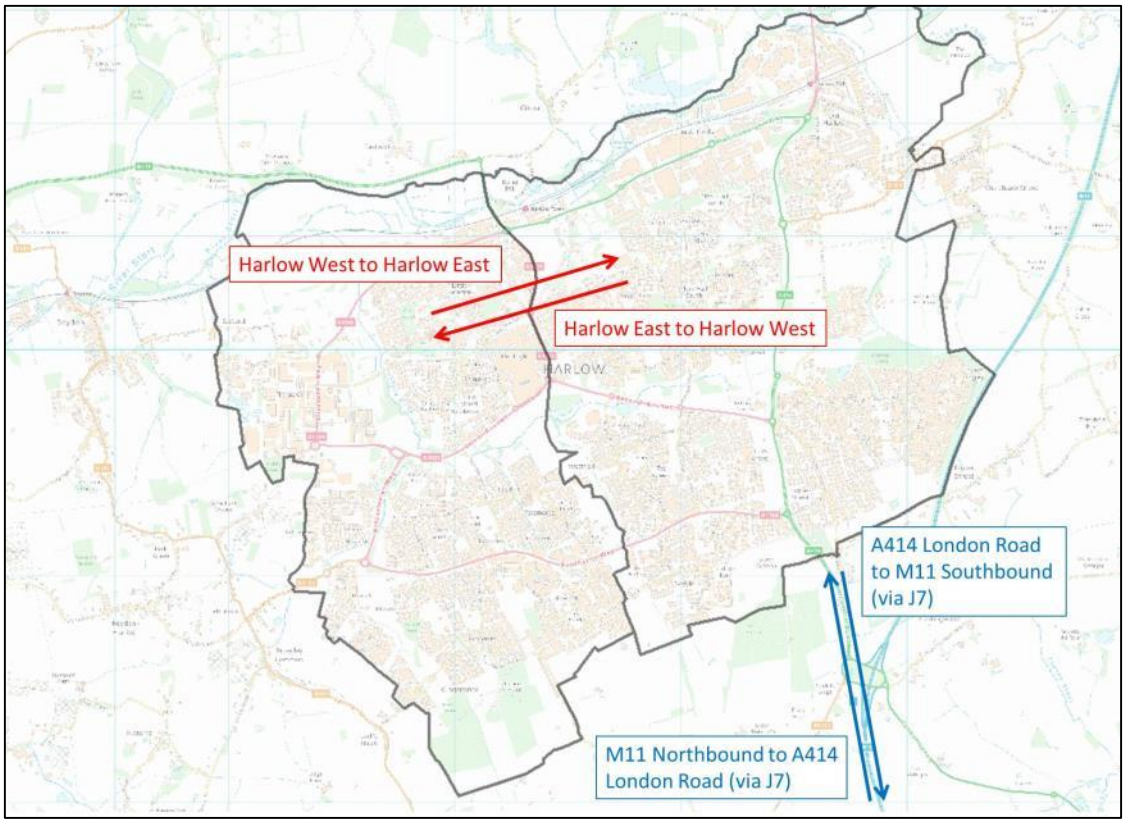
7.5.8 For each zone pair an average factor was developed based upon factors to adjust individual cordons. For example an O/D pair (as expanded trips) from Sawbridgeworth to Harlow would be adjusted by a factor calculated from the Sawbridgeworth outbound and Harlow inbound cordon factors.

Movement Adjustment

7.5.9 Following the above stages detailed analysis was undertaken upon the matrices developed so far. A primary observation was that there were several important traffic movements that had either low or high flows compared to observed traffic count data. These movements are vital for developing a representative traffic model for assessing a new junction on the M11; the movements concerned are shown below in Figure 7.16.

Figure 7.16 : Movement Adjustment



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7.5.10 The movements shown above were adjusted by sector factoring to ensure these movements were more reflective of current traffic conditions.

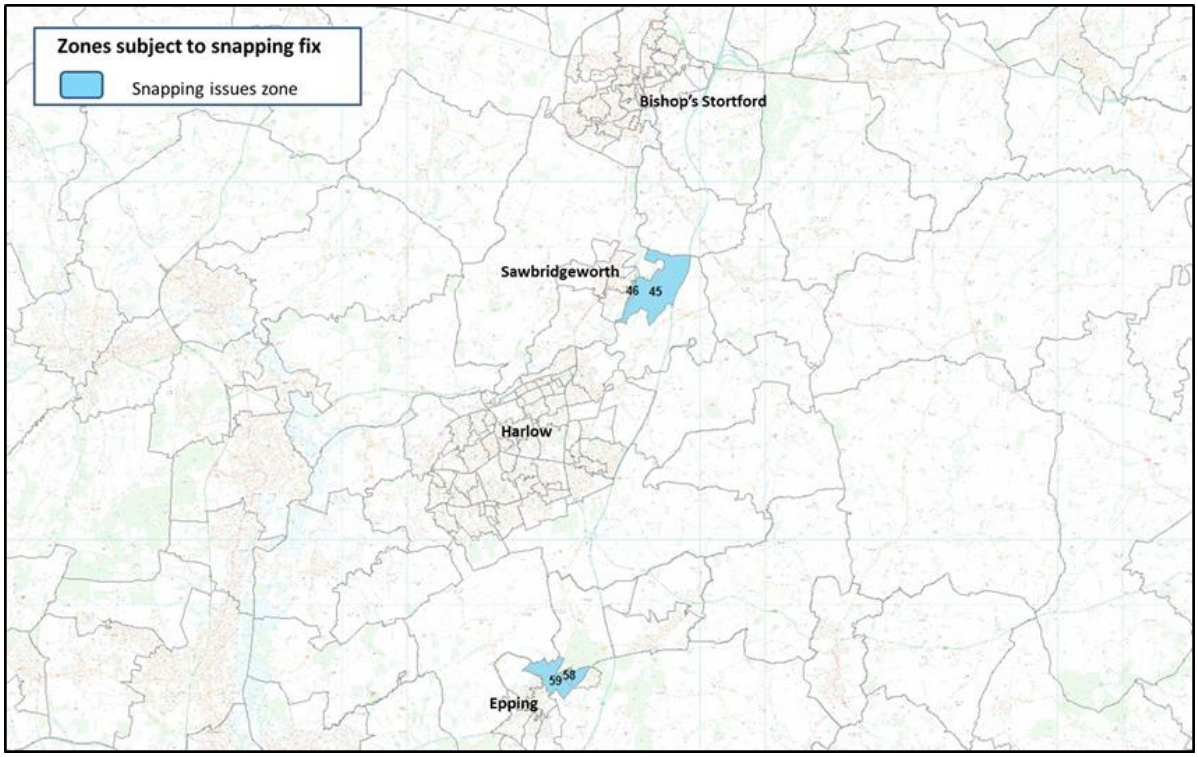
Snapping Fix

7.5.11 In Section 7.2 and Figure 7.2 trip snapping is explained. This process is subject to imperfections as trips may be wrongly snapped to a nearby road, and therefore zone, in an area of dense urban road network. Consequently, a series of checks were done to identify any neighbouring zones which may be subject to snapping issues. This is where trips originating or ending in one zone may be getting wrongly allocated to the neighbouring zone as a result of incorrect snapping.

7.5.12 Where snapping issues were identified trips were re-allocated to better reflect the characteristics of the zones. This was done by merging the trips from the two zones and then proportioning these trips back to the zones based upon the population and number of jobs contained within each zone.

7.5.13 Zones where a snapping fix was applied are shown in Figure 7.17.

Figure 7.17 : Snapping Fix Zones



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Synthetic Adjustments

7.5.14 At this point of matrix development the fully observed aspects (trip levels and routing within the detailed modelled area) of the matrices were deemed to be acceptable, and no other prior matrix development was necessary.

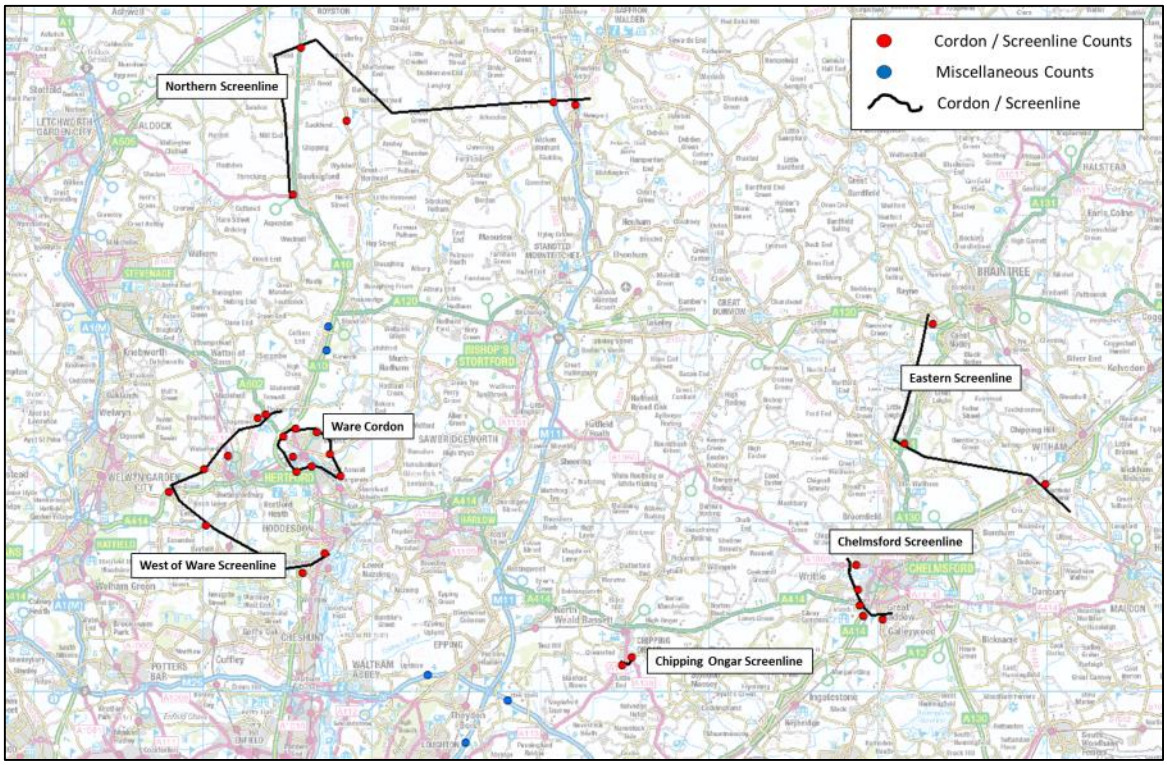
7.5.15 However, issues were still present with the synthetic areas of the matrices and so further work was needed on this aspect of processing. Firstly, a synthetic uplift factor was applied, because the overall level of trips in this area of the model was too low. This factor was only applied to synthetic trips and was calculated by comparing modelled trips and observed count data across several cordons and screenlines that lie outside of the detailed modelled area.

7.5.16 The cordons and screenlines used for calculating the synthetic uplift factors are listed below and their locations can be seen in Figure 7.18:

- Northern Screenline
- Ware Cordon
- West of Ware Screenline
- Chipping Ongar Screenline
- Chelmsford Screenline
- Eastern Screenline

7.5.17 In addition to the above uplift factoring, matrix estimation (ME) was also ran upon the synthetic trips, in order for them to more closely match count data. This ME run was carried out only upon O/D pairs where demand was determined solely from the synthetic matrices. The traffic counts used for this ME run are detailed in Figure 7.18.

Figure 7.18 : Traffic Counts used in Synthetic Matrix Estimation



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7.6 Bus Routes: Preload Fixed Flows

7.6.1 In order to better represent the impacts of buses upon the local network it was decided to model bus routes explicitly as preload fixed flows, especially as Harlow Town Centre has a large number of bus routes passing through.

7.6.2 Bus timetable and routing information was extracted from the interactive Essex Public Transport map (CartoGold) developed by Essex County Council. Bus routes that start, terminate, or go through Harlow Town Centre were recorded with their frequencies and routing.

7.6.3 The timetable and frequencies were considered for the model's three peak hours: AM (08.00 – 09.00), IP (11.00 – 12.00) and PM (17.00 – 18.00). Frequencies outside of the above time intervals were not included.

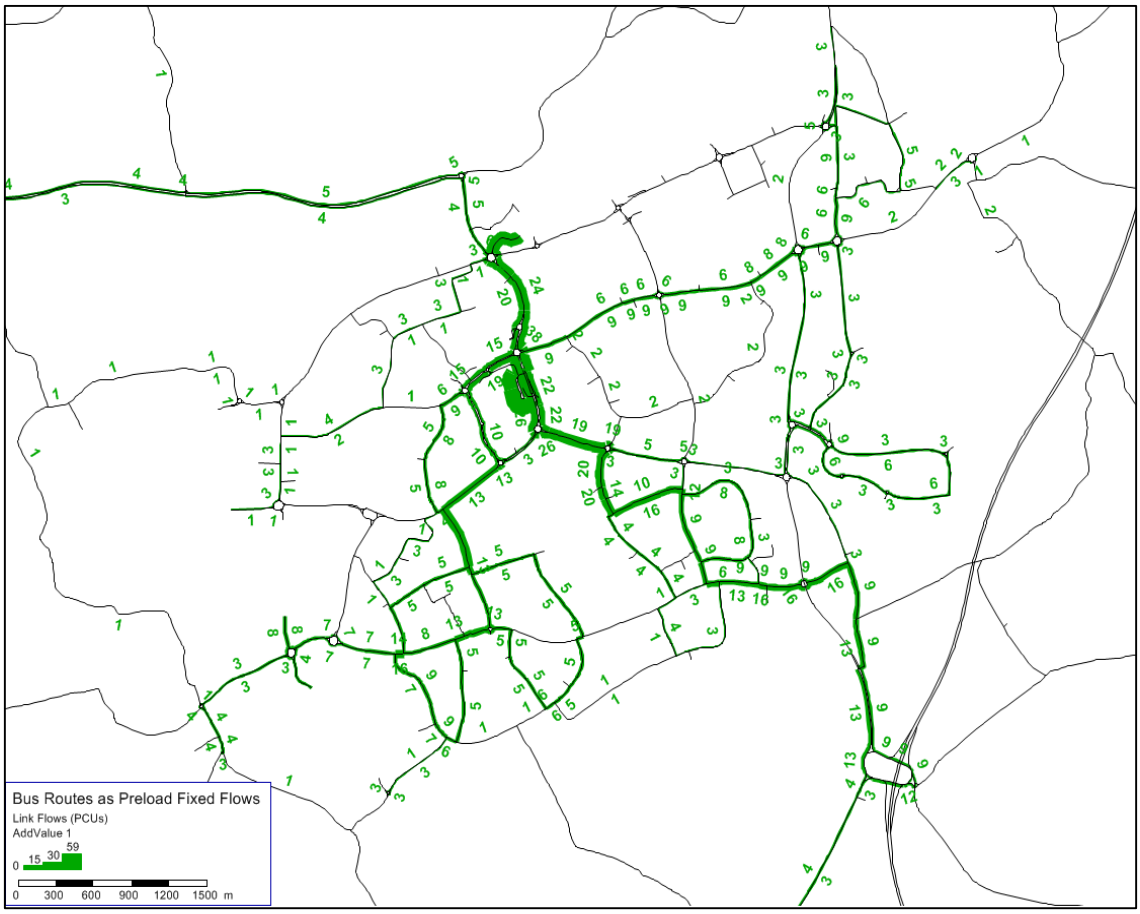
7.6.4 Each bus route was imported into the model as a VISUM "PuT Line".

7.6.5 Bus stop points were created and used only for the start and termination points of each route, those two being necessary to build a PuT Line in VISUM. Intermediate stops were not included as these do not affect the preload assignment methodology.

7.6.6 The bus flows were inserted into VISUM in timetable format. They are subsequently converted into link and turn flows through the VISUM procedure “PuT Operating Indicators”. This procedure generates the “number of service trips” for the relevant modelled peak period, based on the routes and the timetables, as a VISUM link attribute. The assignment procedure was then adjusted so that the number of service trips (multiplied by 2 in order to convert to Passenger Car Units (PCUs)) is incorporated into the assignment as a fixed preload flow.

7.6.7 The resulting bus volumes (in vehicles), for the AM peak, are shown in Figure 7.19.

Figure 7.19 : Bus Volumes (AM Peak)

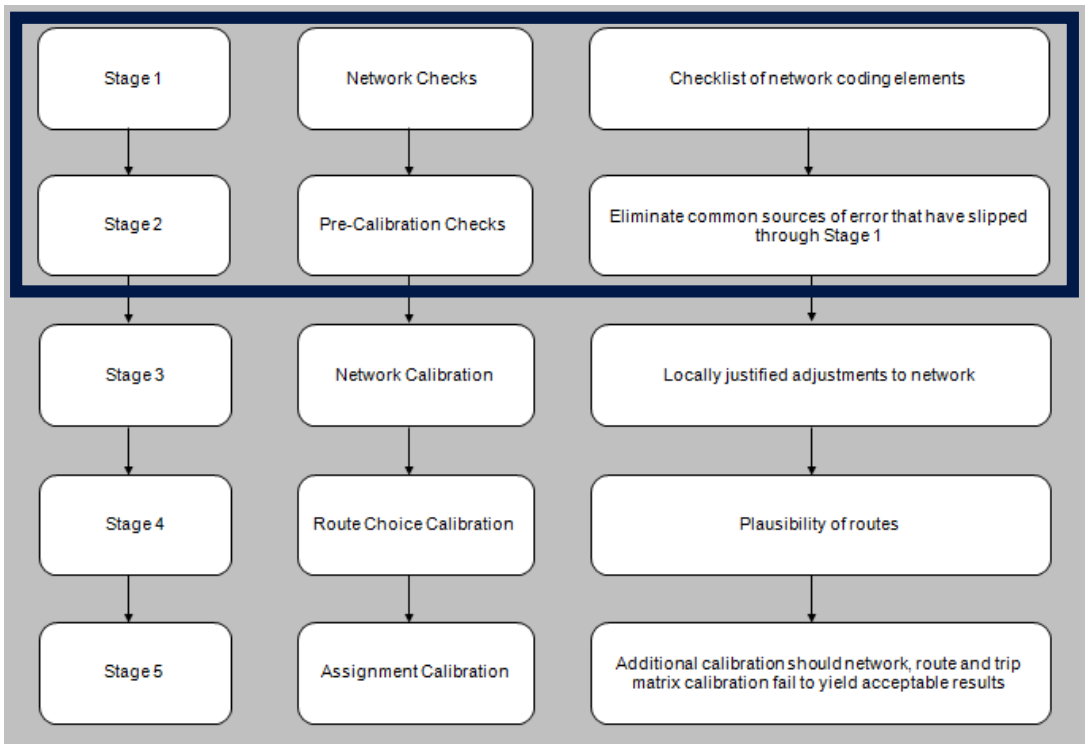


8. Network Calibration and Validation

8.1 Pre-Calibration Network Checks

8.1.1 WebTAG unit M3.1 prescribes detailed checks to the modelled networks prior to model calibration with five overall key steps in the assignment model calibration. Figure 8.1 presents these steps, highlighting the first two to be undertaken prior to model calibration.

Figure 8.1 : Steps 1 and 2 In Network Calibration



8.1.2 Network checks have been systematically undertaken to ensure that no problems arose once the model had been coded. The following detailed checks were undertaken and are presented within Table 8.1.

Table 8.1 : Network Checks

Ref	Description / Scope	Checking Format	Checks carried out	Changes Made
1A	Review of software warnings. [entire model]	VISUM	Check for isolated nodes, zones not connected to network, dead-end roads etc.	Removal of isolated nodes, reviewed connection points for some zones
1B	Have junction types been coded appropriately? [Detailed Model Area (DMA)]	VISUM / Maps	Comparison of node type to up-to-date mapping	No changes needed
1C	Appropriate number of entry lanes coded? [DMA]	VISUM / Maps	Comparison of VISUM coding to up-to-date mapping	Some changes needed at J7 where lanes have recently been added

Ref	Description / Scope	Checking Format	Checks carried out	Changes Made
1D	Appropriate use of flares? [DMA]	XLS	Flare lengths were analysed to ensure there were no very long or very short flares	No changes needed
1E	Have turning restrictions been correctly identified? [entire model]	VISUM	Comparison of VISUM coding with ITN network information, and also visual checks of Google Streetview for narrow roads	Some roads were corrected, a number of rural roads had coding changed to ban HGVs
1F	Have 1-way roads and no entries been correctly identified? [entire model]	VISUM	As 1E	See 1E
1G	Are saturation flows appropriate? For example if turn rates appear excessive or low [entire model]	VISUM	Saturation flows are automatically calculated from geometries. Geometries have been checked.	No changes needed
1H	Compare crow-fly link lengths against actual lengths [entire model]	XLS	Crow-fly and modelled length were compared in excel – major differences were checked	No changes needed
1I	Are link lengths consistent over 2 directions? [entire model]	XLS	This was checked in excel by comparing link lengths	No changes needed
1J	Have link types and speeds been coded consistently, and not possess significant deviation along a series of links? [entire model]	VISUM	Visual checks using VISUM were carried out for all areas of the model, plotting link speeds and types	Some minor changes to link type, particularly in the urban areas
1K	Visually check the overall network structure against a mapping backdrop [entire model]	VISUM	The network was overlaid on to background mapping, and checked by someone with local knowledge	A few minor roads were removed in rural areas, one road which has recently closed was removed
1L	Are junction coding parameters consistent (such as saturation flow)? Checks on similar junctions for significant discrepancies [DMA]	VISUM	All major junctions were checked for consistency in standards geometric parameters	No changes needed

8.1.3 Following the above listed network checks and prior to network calibration, a series of checks were done to identify and eradicate, as far as possible, common sources of error presented in Table 8.2 below.

Table 8.2 : Network Pre-Calibration Checks

Ref	Description / Scope	Checking Format	Checks carried out	Changes Made
2A	Document number of links, nodes and software version [entire model]	XLS	Documented in the project folder structure	No changes needed
2B	Document whether any software updates resulted in changed / required changes to network coding? [entire model]	n/a	n/a	No changes needed
2C	Document inherited / newly acquired or surveyed sources of data and document parts of the model inherited and those that are new [entire model]	GIS / XLS	All count data is documented in Appendix B of this report. Extensive checks were carried out on existing and new data to ensure consistency	No changes needed
2D	Document and map the location of any junction inventory surveys, signal timing or saturation flow surveys [entire model]	VISUM / XLS / LinSig	Signal timings, geometries & some other plans were obtained from Essex CC. Coded junctions have been checked against these plans	Updated some junction geometries and saturation flows to match LinSig models
2E	Examine software error gradings. Confirm no serious error severities that may be affecting network performance [entire model]	VISUM	Checked VISUM error messages	No changes needed
2F	Confirm that link types and cruise speeds (for example through SFCs) are appropriate. Use of mapping may help to demonstrate this, although this should have already been checked to some degree under 1J [entire model]	VISUM	Further checks of link types and speeds, similar to checks in 1J	No changes needed
2G	A formal review of key junctions and intersections should be undertaken. The review should ensure that the junction types are correctly coded and represent their key characteristics. The review should include: -Number of lanes at stop line -Number of lanes on mid-link section -Link type / cruise speed -Representation of flaring -Turn definitions and lane usage -Location / presence of banned turns -For signals, representation of filters -For signals, definition of stages -For signals, cycle times and offsets -For signals, green and inter-green times	VISUM / XLS	A formal review was carried out by local Jacobs transport planners, based in Essex to ensure that coding of key junctions was correct, and that the model was operating realistically in these areas	Some changes to key junction geometry and signal arrangements

Ref	Description / Scope	Checking Format	Checks carried out	Changes Made
	These should be done by an independent person (different to the originator) [DMA]			
2H	Use a dummy matrix to test that every origin zone can connect to every destination zone in the network [entire model]	VISUM	Ensured that all O/D pairs can be travelled between in the model, following an assignment	No changes needed
2I	Use a dummy or normal matrix to test that there are no unjustifiable / implausible zero flow links [entire model]	VISUM	Plotted zero and low flow links, and ensured these were justified	A very small number of links required link type changes
2J	Plot minimum path trees to identify coding errors, for example instances whereby the lowest cost route is illogical [emphasis on study area and DMA, but also routing as wide as rest of fully modelled area]	VISUM / XLS	Routing checks in key areas were checked using the suggested method	Some changes required, particularly in the rest of fully modelled area of the model to correct illogical routings

8.1.4 All of the above checks were carried out in a systematic fashion prior to beginning the calibration process. The checks were carried out by two individuals, one doing an initial check and then a senior modeller carried out a second overview check following the above checklists. This ensured that all aspects of the network were checked at least once by a person who was not the originator of the coding.

8.1.5 Furthermore, to aid checks on the network, ‘stress testing’ was undertaken, in which the base year matrices were factored up (by 25%) and assigned to the network, to see where the increased demand leads to excessive delays. This more easily identified junctions and links which required coding changes.

8.1.6 Additionally, checks were made to ensure that there was consistency of coding across all time periods, with only signal timings differing between periods.

8.2 Network Calibration

8.2.1 Early versions of the prior matrices were assigned to the network and a high level comparison of the modelled and observed journey time data was carried out.

8.2.2 Network adjustments (to link and junction coding) were made to ensure routing and delays were appropriate along the journey time routes.

9. Route Choice Calibration and Validation

9.1 Route Choice Calibration

9.1.1 The plausibility of routes should be checked as part of the pre-calibration checklist outlined in Figure 8.1, this is Stage 4 of that process. Route choice checks should also continually be checked through the calibration process as routing forms a key part of ensuring that journey times and flows match observed data.

9.1.2 Route plausibility was checked by examining shortest paths and minimum generalised cost routes through the network. These checks were done at an early stage of the model development, using an assignment of early versions of synthetic trip matrices, and again towards the end of the model development process, with later versions of the trip matrices produced using mobile phone data.

9.1.3 Major urban areas covered by the network were identified, and routes between them checked against local knowledge, common sense, and also routes suggested by the AA route-planner website and Google Maps. The urban areas identified are listed below:

- Bishop's Stortford
- Stansted Airport
- Harlow
- Epping
- Cambridge
- Braintree
- Chelmsford
- Hertford
- London

9.1.4 All combinations of routes for the settlements above were checked (a total of 72 routes), which far exceeds guidance on the number of routes to be checked. According to TAG unit M3.1, the number of routes that should be checked is defined by:

$$(\text{Number of zones in model})^{0.25} \times \text{number of user classes.}$$

9.1.5 On that basis, with 280 zones and 5 user classes, 20 routes should be checked. The 20 routes selected by combinations of the urban areas listed above all meet the criteria for validation routes, which is that they should:

- Relate to significant number of trips;
- Are of significant length;
- Pass through areas of interest;
- Include both directions of travel;
- Link different compass areas; and
- Coincide with journey time routes as appropriate.

9.1.6 Routes were assessed by checking both the shortest path bespoke VISUM tool and by checking the assigned route.

9.1.7 Where routing in the model was contrary to expectations, the modelled network was adjusted to correct the route. In most cases a change of link type was sufficient to correct the route; in a small number of cases centroid connectors were altered.

9.1.8 Routes were checked in the inter-peak model and shortest path analysis was used to illustrate the routes chosen as lowest cost after assignment. Key routes were also checked in the peak models, but are not reported in this document.

9.1.9 Routing checks are displayed in full for the car vehicle type, and HGVs have also been subject to a route choice check in key areas of the model, which is reported here. The routing of LGVs was also checked but is not reported in this document.

9.2 Car Route Choice Calibration

9.2.1 In order to check car routing checks were carried out as described in Section 9.1 upon the Car Commute user class. Some checks were carried out to ensure that Car Employers' Business and Car Other had the same routing in key areas.

9.2.2 Four examples of key routes checked for Car Commute vehicles in the model are illustrated below. To meet the WebTAG criteria, an additional sixteen of the routes that were checked are detailed in Appendix G.

Figure 9.1 : Modelled routing between Bishop's Stortford and Harlow

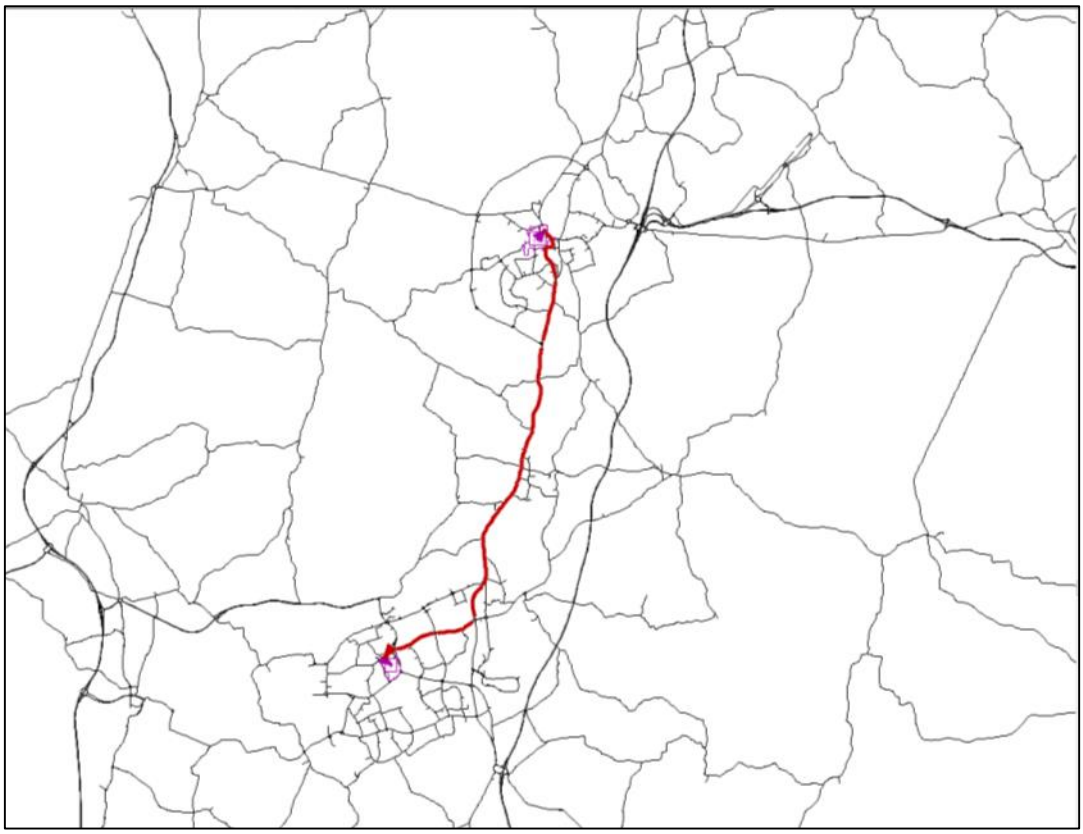


Figure 9.2 : Modelled routing between Harlow and Stansted Airport

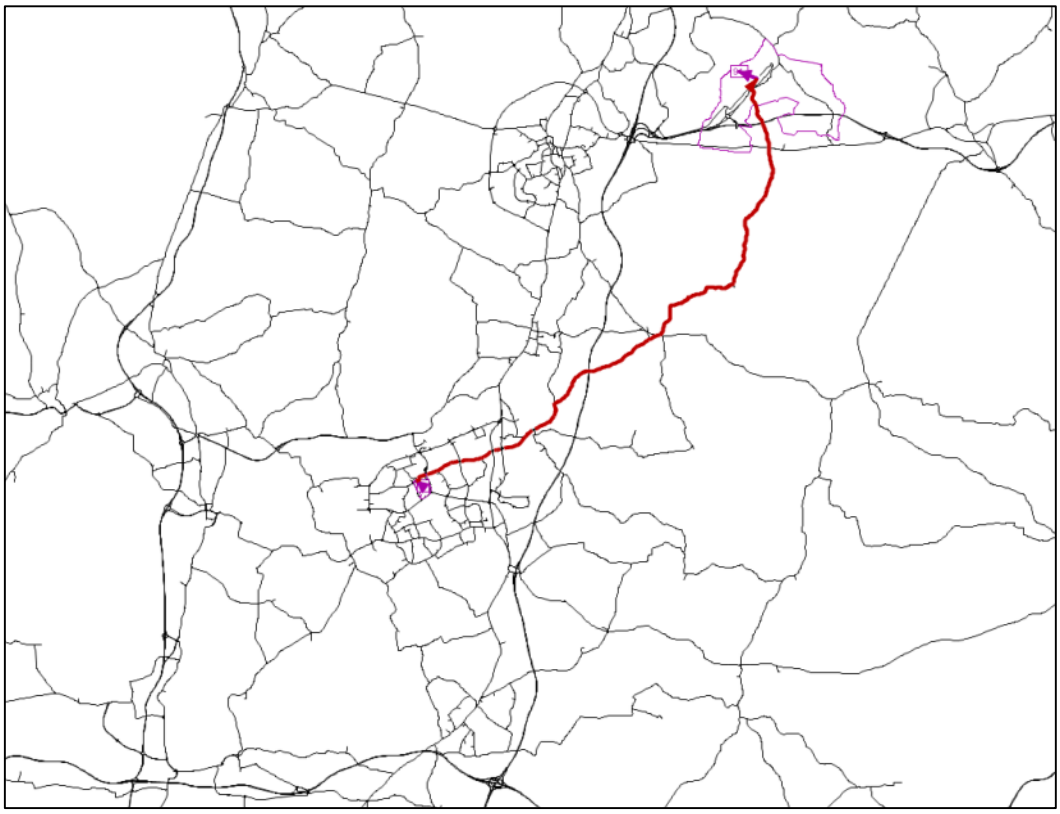


Figure 9.3 : Modelled routing between Harlow and London

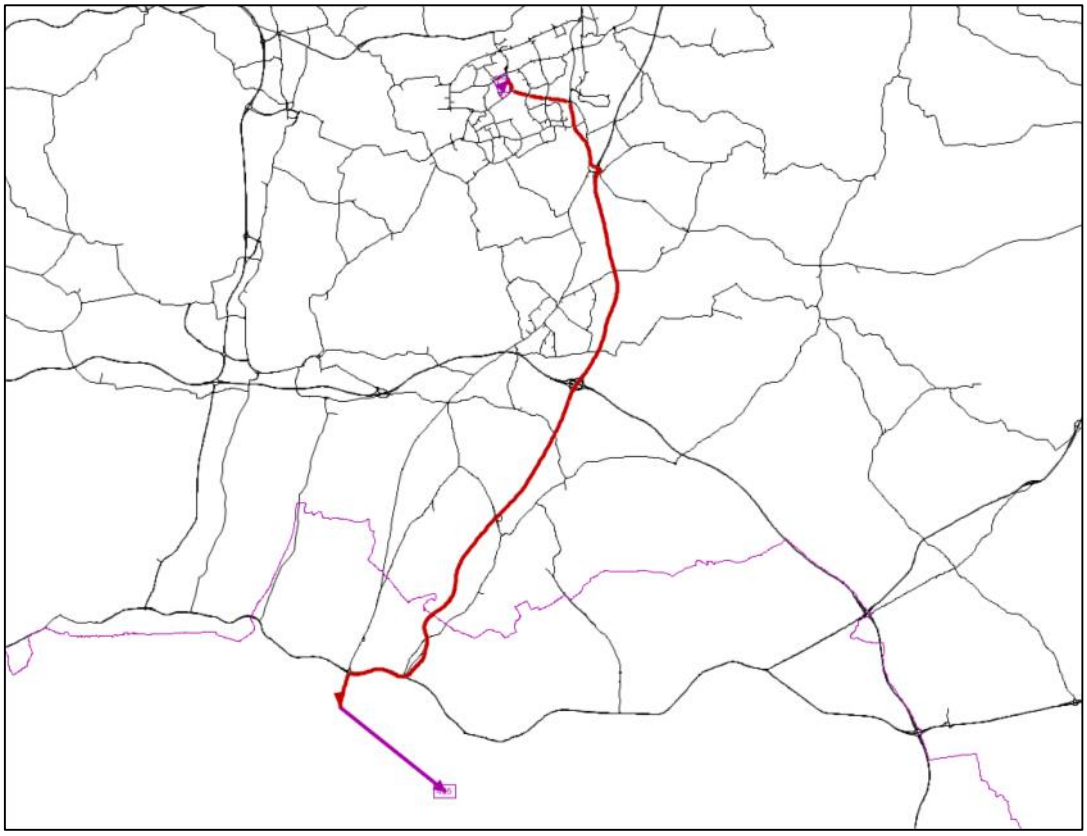
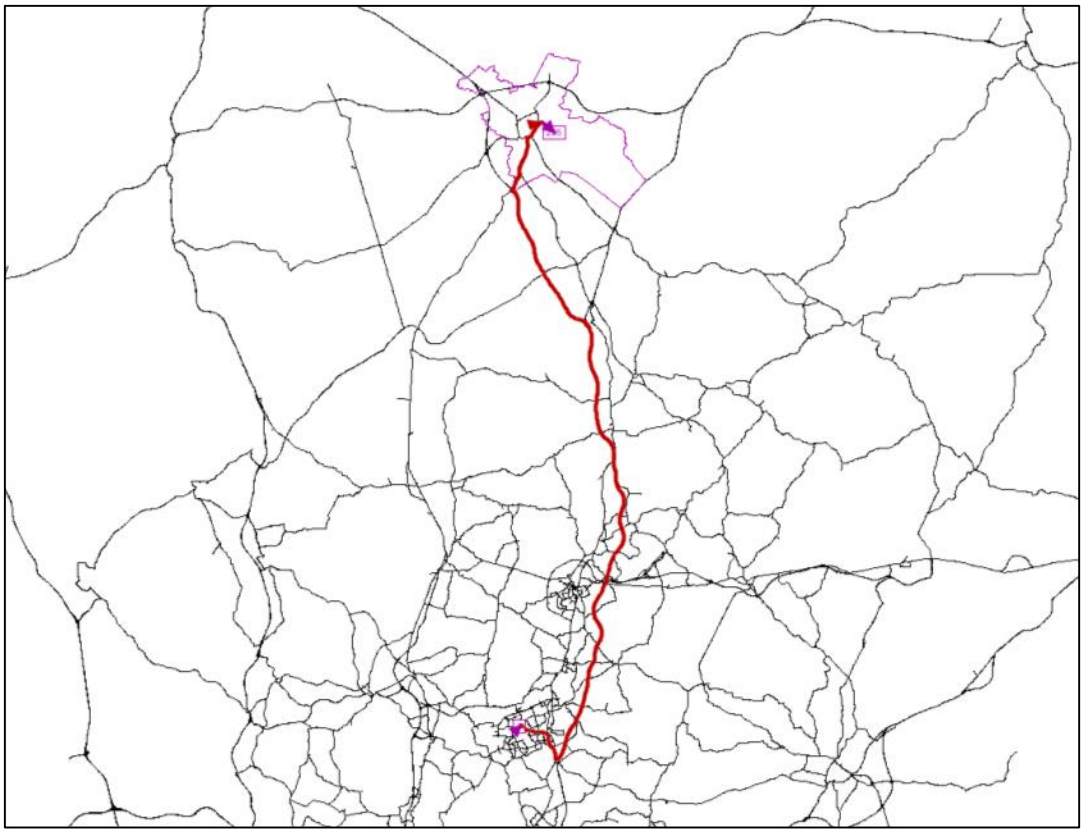


Figure 9.4 : Modelled routing between Harlow and Cambridge



9.3 HGV Route Choice Calibration

9.3.1 Analysis was carried out of HGV route choice within the base model. The specific origin-destination (O-D) pairs that were examined are:

- Bishop's Stortford to: Epping, Chelmsford, London and Braintree;
- Braintree to: Epping and Hertford;
- Hertford to: Bishop's Stortford and Stansted Airport;
- Harlow to: Hertford, Chelmsford and Stansted Airport;
- Cambridge to: Chelmsford, London and Stansted Airport;
- Epping to Stansted Airport;
- London to Stansted Airport;
- Chelmsford to Epping; and
- Stansted Airport to Harlow.

9.3.2 The route choice using the Impedance criterion was different between the HGVs and Car commute for almost half of the O-D pairs examined. Cars were using a route deemed sensible through the M11, A-roads and B-roads; however HGVs would use rural roads and would often divert from the M11 to minor roads for several O-D pairs.

9.3.3 These findings are not uncommon and are described within WebTAG Unit M3.1 (paragraph 7.2.2) where it states that “It is often the case that the routes based on generalised costs given in TAG for heavy goods vehicles do not appear to take full account of the attractiveness of motorways and trunk roads and the unattractiveness of local roads for these vehicles…heavy goods vehicle routes may require further special attention [within the route choice calibration process].”

9.3.4 Consequently, the VoT for HGVs was doubled as recommended in WebTAG Unit M3.1 (paragraph 2.8.8) and described in Section 4.8 of this document.

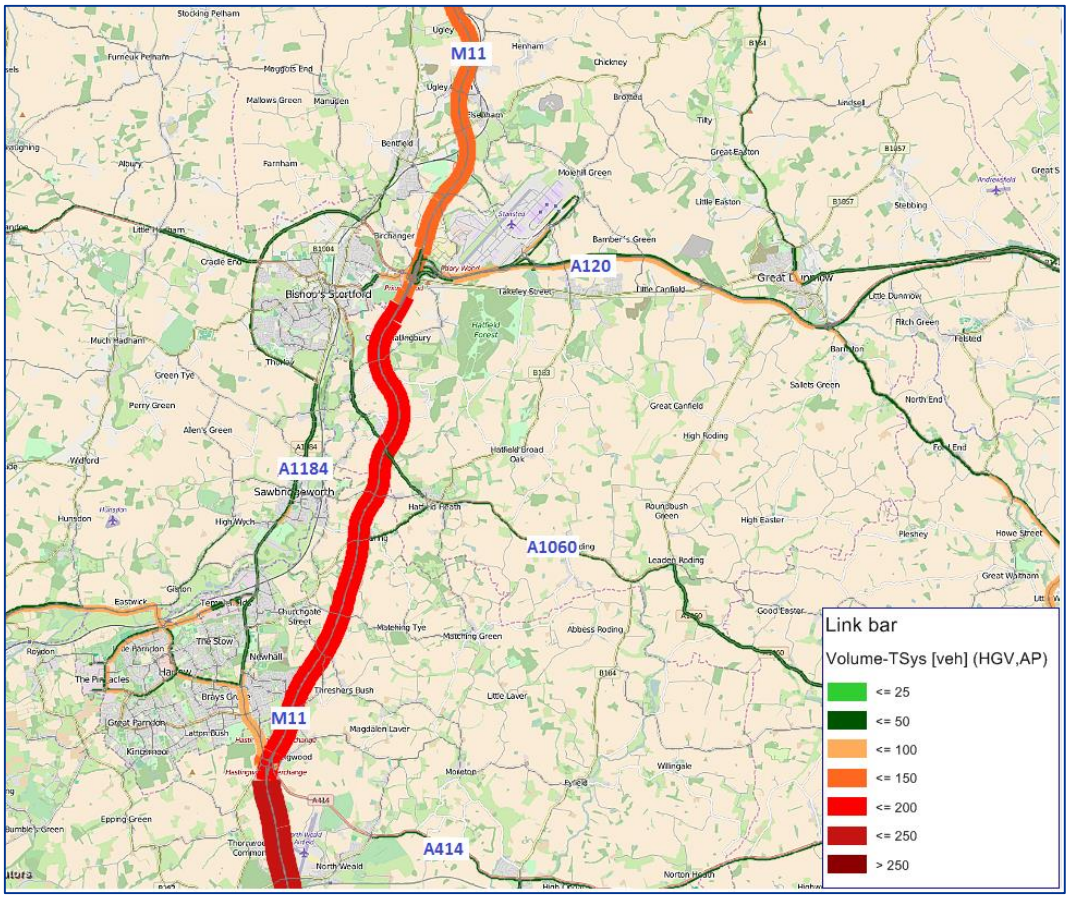
9.3.5 Plots showing the assigned routing of HGVs for the O-D pairs described earlier can be found in Appendix G.

9.3.6 There are four O-D pairs which were analysed where the modelled HGV route choice could be considered not to take full account of the attractiveness of the M11 and nearby trunk roads compared to the expected unattractiveness of local roads for HGVs. These routes are:

- Cambridge to London: HGVs follow the A1307 and A11 until Great Chesterford before entering the M11 at Junction 9;
- Cambridge to Chelmsford: HGVs route along rural roads via Saffron Walden and Thaxted;
- Cambridge to Stansted Airport: HGVs follow the A1307 and A11 until Great Chesterford and then enter the M11 at Junction 9a to reach Stansted Airport instead of using the M11 from an earlier junction (10 or 11); and
- Harlow to Stansted Airport: HGVs route along rural roads instead of using the M11.

9.3.7 Further analysis was undertaken of HGV assigned volumes on roads near Harlow. As shown in Figure 9.5, HGVs are using the main corridors of the network such as the M11 and the A1184 for Northbound and Southbound movements and the A roads A120, A1060 and A414 for Eastbound and Westbound movements. As a result, it is deemed that the number of HGV trips for O-D pairs that route along local/rural routes is negligible.

Figure 9.5 : HGV Assigned Volumes



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10. Trip Matrix Calibration and Validation

10.1 Trip Matrix Estimation

10.1.1 After an initial assignment and subsequent refinement of the modelled network and assignment methodology, the resultant trip matrices underwent a process of 'matrix estimation' whereby trip matrices were adjusted to bring the assigned flows closer to observed traffic count data.

10.1.2 Examination of the assignment of prior matrices to the network highlighted larger differences from traffic count data on the M11 corridor, while the fit within Harlow (and other towns) was generally better. In view of this a two stage matrix estimation process was adopted. The first stage was to reduce the differences between counts and assignment on the M11 corridor while minimising changes in the towns (so avoiding worsening fit there). After this step the strategic road flows had differences from counts which required further correction without significant changes to study area traffic which joins or leaves the M11 in the detailed modelled area. The second stage used tighter tolerances and all calibration screenlines/links to get better fit in towns and on strategic roads. Entire screenlines were input as matrix estimation targets not at total level, but as a mix of single links (for major roads) and groupings of parallel links to form short screenlines (covering two or more where the balance between individual links was less critical).

The two stage matrix estimation process was as follows:

- Stage 1 – motorway: This used counts on motorway links (on M11 and M25) and at one A120 (Stansted) location (counts M4, Z3, Z4, Z5, Z7, Z8 and Z20 were used). Estimation used tolerances of 200 for cars, 10 for LGV and 10 for HGV.

- Stage 2 – study area wide estimation: This used all calibration screenlines, mini screenlines and links. Tolerances used in estimation were 60 for cars, 20 for LGV and 10 for HGV.

10.1.3 The "TFlowFuzzy" module within VISUM was used for this process. The VISUM manual contains details of the specifics of the TFlowFuzzy process, but in principle it is much the same as other matrix estimation tools in other modelling packages.

10.1.4 The observed traffic count data was classified as far as cars, LGVs and HGVs, so the matrix estimation process was undertaken for these vehicle types and their matrices. TFlowFuzzy was able to apply matrix estimation over the three car matrices (Commute, Employer's Business and Other) to match the observed car traffic count values. To achieve this, TFlowFuzzy simply splits each individual observed car traffic count value based upon the assigned (prior) matrix proportions of car trip purposes at that count location on the network.

10.1.5 Following TFlowFuzzy a final alteration to matrices was carried out to correct motorway flows through the detailed modelled area. The process simply involved adding or removing trips from selected external –external O/D pairs in order to better match the levels of flow observed on each section of motorway within the modelled area. Vehicle flows in the matrices were corrected if the associated count site was out by more than 10% compared to observed flows. The level of alteration required for each section of motorway concerned is detailed in Appendix I.

10.1.6 A selection of links counts and screenline counts were selected for the purpose of matrix estimation. These are detailed in Chapter 5.

10.1.7 It is important when running the matrix estimation process that the prior trip matrices are not distorted such that the underlying trip patterns are altered. The guidelines which should be complied with in order to ensure this does not happen are detailed in 3.1.13.

10.1.8 Scatter plots of prior and post matrix estimation cell values, row totals and column totals were produced. The slopes, intercepts and R2 values for each matrix are given in Table 10.1. The graphical outputs including errors and confidence intervals are given in Appendix F.

Table 10.1 : Matrix Estimation Change Results

		Cell Values			Row Totals			Column Totals		
Time Period	User Class (UC)	Intercept	Slope	R^2	Intercept	Slope	R^2	Intercept	Slope	R^2
AM	UC1	0.00	0.96	1.00	0.67	0.96	1.00	0.41	0.96	1.00
	UC2	-0.01	1.03	0.91	0.23	0.99	0.98	-0.84	1.02	0.98
	UC3	0.00	0.95	0.99	-1.18	0.96	0.99	-2.13	0.97	0.99
	UC4	0.00	1.07	0.99	-1.24	1.07	0.99	-1.24	1.07	0.99
	UC5	0.00	1.06	0.98	-0.23	1.06	0.99	-0.11	1.05	0.99
IP	UC1	0.00	0.96	0.99	1.34	0.96	1.00	0.43	0.96	1.00
	UC2	0.00	0.96	1.00	0.34	0.96	1.00	0.18	0.96	1.00
	UC3	0.00	0.99	0.99	0.71	0.99	1.00	0.57	0.99	1.00
	UC4	0.00	1.10	0.93	-1.05	1.12	0.97	-1.18	1.12	0.97
	UC5	0.00	1.07	0.90	-0.05	1.11	0.96	-0.01	1.11	0.96
PM	UC1	0.01	1.05	0.99	-1.27	1.07	0.99	4.01	1.05	1.00
	UC2	0.01	1.05	0.99	0.37	1.08	0.99	1.04	1.06	1.00
	UC3	0.01	1.09	0.99	2.09	1.09	1.00	3.46	1.08	1.00
	UC4	0.00	1.05	0.97	-0.52	1.04	0.98	-1.59	1.06	0.99
	UC5	0.00	1.13	0.92	0.45	1.16	0.96	0.90	1.13	0.96

10.1.9 The regression analysis results show a reasonable fit with the WebTAG guidance for both intercept and R^2 values. R^2 only fails to meet standard for cell values in AM UC2, IP UC4 and UC5, and PM UC5. These are matrices of lower trip numbers and therefore any changes brought by matrix estimation may be more pronounced; Table 10.2 displays the number of trips in each matrix. Similarly the row column totals value of R^2 does not meet criteria for the IP in UC4 and UC5 and for the PM in UC5.

Table 10.2 : Matrix Estimation Change Results

Time Period	User Class (UC)	Trips	% of total trips
AM	UC1	90851.95	49%
	UC2	12577.56	7%
	UC3	42464.42	23%
	UC4	31206.3	17%
	UC5	9683.89	5%
IP	UC1	26469.5	22%
	UC2	10790.13	9%
	UC3	53054.81	45%
	UC4	23543.95	20%
	UC5	4705.71	4%
PM	UC1	86621.77	46%
	UC2	13654.94	7%
	UC3	56079.84	30%
	UC4	29186.18	15%
	UC5	4369.96	2%

10.1.10 The values for slope are only within the guidelines for cell values in the IP for UC3 and for row totals in the AM for UC2 and IP for UC3. This is due to overall change in the matrix totals brought about by matrix estimation. A slope value less than 1 indicates an increase in matrix total, greater than 1 a decrease in matrix totals. Given the reasonable fit of R^2 and intercept values, this would suggest that the changes to cell values are being made uniformly across the matrix (i.e. all cell values increasing or reducing), rather than just a small number of O/D pairs changing.

10.1.11 For trip length distributions, it is stipulated in WebTAG that both the mean and standard deviation of the post matrix trip lengths must not differ by more than 5% from those of the prior matrices. The change on trip length due to matrix estimation is summarised in Table 10.3 below.

Table 10.3 : Trip Lengths and Standard Deviations

		Prior		Post		Percentage Difference	
Time Period	User Class (UC)	Mean (km)	Standard Deviation (km)	Mean (km)	Standard Deviation (km)	Mean	Standard Deviation
AM	UC1	27.4	35.4	27.8	37.2	1%	5%
	UC2	40.0	28.2	39.5	28.4	-1%	1%
	UC3	20.1	26.9	19.9	27.7	-1%	3%
	UC4	22.7	17.1	24.9	23.9	10%	39%
	UC5	23.6	16.7	27.1	25.6	15%	53%
IP	UC1	29.7	40.1	30.6	42.3	3%	5%
	UC2	36.1	27.9	35.9	27.6	-1%	-1%
	UC3	20.8	24.5	21.8	26.9	5%	10%
	UC4	23.6	19.0	28.7	30.8	21%	62%
	UC5	24.5	17.7	31.1	32.1	27%	81%
PM	UC1	29.7	39.5	29.9	40.9	0%	3%
	UC2	40.1	30.7	39.8	30.6	-1%	0%
	UC3	20.5	20.5	20.4	21.1	0%	3%
	UC4	23.1	17.5	26.2	26.7	14%	53%
	UC5	24.3	17.5	26.7	20.9	10%	19%

10.1.12 The guidance is met for all car user classes and time periods with the exception of UC3 in the IP. The changes in trip length for goods vehicles do not meet the guidance. This is because there are fewer goods vehicle trips and a greater number of O/D pairs with negligible numbers of trips than in the car matrices, which reduces the number of pairs available for the matrix estimation process. Thus any matrix changes can have a large effect on trip length.

10.1.13 The figures given are for the entire matrix and thus include both synthetic and observed trips. In Appendix F the trip length changes are broken down based upon the origin and destination zone location. The results show that there are minimal changes to the trips wholly within the detailed modelled area, classified as internal to internal. These will be almost solely made up of observed trip movements.

10.1.14 Finally, the guidelines require a check on the matrix cells on a sector basis. The guidelines state that trips should not change by more than 5%. Using the same sectors identified in Section 4.2, the percentage change in trips for each sector to sector movement within the fully modelled area as a result of matrix estimation is shown below. Full sector to sector results are available in Appendix F. An absolute flow difference filter of change greater than 10 trips was applied. In this way small changes to low value sector trip ends to not distort the effect of matrix estimation. Sectors 1-6 can be considered to contain fully observed trips and sectors 7-12 a mixture of partially observed and synthetic trips.

Table 10.4 : AM UC1 Percentage Change in Trips by Sector (fully modelled area)

Sector	1	2	3	4	5	6	7	8	9	10	11	12
1	0%	-16%	0%	0%	-25%	0%	0%	0%	0%	49%	48%	-22%
2	-34%	9%	0%	-45%	-15%	0%	0%	0%	87%	0%	0%	35%
3	0%	42%	0%	0%	27%	0%	0%	0%	0%	0%	88%	0%
4	0%	-35%	0%	-13%	4%	134%	0%	0%	58%	0%	0%	11%
5	0%	-19%	-37%	-11%	4%	17%	0%	0%	0%	0%	11%	16%
6	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
7	0%	193%	0%	42%	0%	0%	0%	24%	3%	0%	0%	0%
8	0%	0%	0%	65%	65%	37%	0%	0%	0%	0%	0%	53%
9	0%	51%	0%	35%	0%	0%	-3%	0%	18%	23%	7%	0%
10	86%	57%	0%	0%	29%	0%	24%	0%	36%	4%	7%	0%
11	53%	25%	0%	-34%	15%	0%	0%	0%	5%	0%	24%	66%
12	0%	81%	0%	0%	9%	53%	0%	0%	0%	34%	95%	0%

Table 10.5 : AM UC2 Percentage Change in Trips by Sector (fully modelled area)

Sector	1	2	3	4	5	6	7	8	9	10	11	12
1	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
2	0%	0%	0%	-78%	0%	0%	0%	0%	0%	0%	0%	0%
3	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	749%	0%
4	0%	0%	0%	0%	17%	0%	0%	0%	0%	0%	0%	0%
5	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
6	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
7	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
8	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
9	0%	0%	0%	0%	0%	0%	0%	0%	39%	0%	0%	0%
10	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%
11	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
12	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Table 10.6 : AM UC3 Percentage Change in Trips by Sector (fully modelled area)

Sector	1	2	3	4	5	6	7	8	9	10	11	12
1	0%	0%	0%	0%	0%	0%	0%	0%	0%	47%	70%	0%
2	-32%	13%	0%	-60%	-21%	0%	0%	0%	85%	0%	0%	55%
3	0%	0%	0%	0%	0%	0%	0%	0%	0%	146%	131%	0%
4	0%	0%	57%	27%	52%	123%	0%	0%	66%	0%	38%	44%
5	0%	-33%	-30%	-2%	6%	0%	0%	0%	0%	0%	0%	0%
6	0%	0%	0%	0%	-31%	0%	0%	0%	0%	0%	0%	0%
7	-81%	162%	0%	0%	0%	0%	-2%	19%	0%	0%	0%	0%
8	0%	0%	0%	47%	0%	0%	0%	0%	0%	0%	0%	0%
9	0%	73%	0%	0%	0%	0%	0%	0%	12%	0%	0%	0%
10	0%	37%	0%	0%	0%	0%	0%	0%	0%	3%	0%	15%
11	0%	27%	69%	-32%	14%	0%	0%	0%	0%	0%	19%	43%
12	30%	98%	0%	19%	14%	44%	0%	0%	0%	32%	140%	8%

Table 10.7 : AM UC4 Percentage Change in Trips by Sector (fully modelled area)

Sector	1	2	3	4	5	6	7	8	9	10	11	12
1	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
2	0%	0%	0%	-42%	0%	0%	0%	0%	0%	0%	0%	73%
3	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
4	0%	-33%	0%	0%	-7%	77%	-55%	0%	-55%	0%	0%	0%
5	0%	0%	0%	-7%	0%	0%	0%	0%	0%	0%	0%	0%
6	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
7	0%	0%	0%	-32%	0%	0%	-8%	19%	0%	0%	0%	0%
8	0%	0%	0%	0%	0%	0%	-12%	0%	0%	0%	0%	0%
9	0%	0%	0%	-35%	0%	0%	-15%	0%	27%	0%	0%	0%
10	0%	0%	0%	0%	0%	0%	0%	0%	0%	-8%	0%	-14%
11	0%	0%	0%	-43%	0%	0%	0%	0%	0%	-33%	0%	0%
12	0%	88%	0%	0%	0%	0%	0%	0%	0%	-15%	0%	0%

Table 10.8 : AM UC5 Percentage Change in Trips by Sector (fully modelled area)

Sector	1	2	3	4	5	6	7	8	9	10	11	12
1	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
2	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
3	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
4	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
5	0%	591%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
6	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
7	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
8	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
9	0%	0%	0%	0%	0%	0%	0%	0%	0%	132%	0%	0%
10	0%	0%	0%	0%	0%	0%	0%	0%	0%	-8%	0%	0%
11	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
12	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Table 10.9 : IP UC1 Percentage Change in Trips by Sector (fully modelled area)

Sector	1	2	3	4	5	6	7	8	9	10	11	12
1	0%	-34%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
2	-14%	0%	0%	-35%	-13%	0%	0%	0%	0%	0%	0%	67%
3	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
4	0%	-40%	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%
5	0%	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%	0%
6	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
7	0%	0%	0%	0%	0%	0%	0%	15%	7%	0%	0%	0%
8	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
9	0%	0%	0%	0%	0%	0%	0%	0%	17%	69%	16%	0%
10	30%	0%	0%	0%	0%	0%	0%	0%	66%	2%	0%	0%
11	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	46%	0%
12	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Table 10.10 : IP UC2 Percentage Change in Trips by Sector (fully modelled area)

Sector	1	2	3	4	5	6	7	8	9	10	11	12
1	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
2	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
3	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
4	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
5	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
6	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
7	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
8	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
9	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
10	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%
11	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
12	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Table 10.11 : IP UC3 Percentage Change in Trips by Sector (fully modelled area)

Sector	1	2	3	4	5	6	7	8	9	10	11	12
1	0%	-34%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
2	-17%	0%	0%	-46%	-23%	0%	0%	0%	0%	0%	0%	25%
3	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	42%	0%
4	0%	-37%	0%	0%	0%	0%	0%	0%	0%	0%	-16%	0%
5	-29%	-20%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-12%
6	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
7	0%	0%	0%	0%	0%	0%	-2%	12%	0%	0%	0%	0%
8	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
9	0%	31%	0%	49%	0%	0%	0%	0%	7%	0%	16%	0%
10	0%	25%	0%	0%	0%	0%	0%	0%	0%	-1%	0%	0%
11	19%	12%	68%	-15%	0%	0%	0%	0%	10%	0%	23%	48%
12	0%	58%	0%	0%	-13%	0%	0%	0%	0%	0%	57%	-13%

Table 10.12 : IP UC4 Percentage Change in Trips by Sector (fully modelled area)

Sector	1	2	3	4	5	6	7	8	9	10	11	12
1	0%	-43%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
2	0%	0%	0%	-37%	0%	0%	0%	0%	0%	0%	0%	0%
3	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
4	0%	-33%	0%	-13%	-13%	0%	0%	0%	-44%	0%	0%	0%
5	0%	0%	0%	-13%	0%	0%	0%	0%	0%	0%	0%	0%
6	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
7	0%	0%	0%	0%	0%	0%	-10%	0%	0%	0%	0%	0%
8	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
9	0%	0%	0%	-48%	0%	0%	-14%	0%	0%	124%	57%	0%
10	0%	0%	0%	0%	0%	0%	-37%	0%	0%	-14%	-24%	-19%
11	0%	0%	0%	0%	0%	0%	0%	0%	0%	-36%	0%	0%
12	0%	0%	0%	0%	0%	0%	0%	0%	0%	-24%	0%	0%

Table 10.13 : IP UC5 Percentage Change in Trips by Sector (fully modelled area)

Sector	1	2	3	4	5	6	7	8	9	10	11	12
1	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
2	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
3	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
4	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
5	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
6	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
7	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
8	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
9	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
10	0%	0%	0%	0%	0%	0%	0%	0%	0%	-16%	0%	0%
11	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
12	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Table 10.14 : PM UC1 Percentage Change in Trips by Sector (fully modelled area)

Sector	1	2	3	4	5	6	7	8	9	10	11	12
1	-23%	-10%	39%	0%	-15%	0%	0%	0%	0%	30%	39%	22%
2	-8%	0%	0%	-51%	-25%	0%	154%	0%	54%	31%	13%	122%
3	0%	0%	0%	0%	-27%	0%	340%	0%	0%	0%	68%	0%
4	0%	-41%	-17%	-8%	-10%	26%	20%	143%	0%	0%	-11%	-16%
5	-18%	-33%	-37%	-8%	-6%	0%	0%	272%	0%	0%	0%	-12%
6	0%	0%	0%	123%	37%	0%	0%	73%	0%	0%	0%	78%
7	0%	0%	0%	0%	0%	0%	-11%	14%	-5%	0%	-14%	0%
8	0%	0%	0%	44%	0%	0%	-15%	0%	-14%	0%	0%	0%
9	0%	56%	0%	30%	0%	0%	-7%	0%	-2%	21%	0%	0%
10	0%	0%	0%	0%	-30%	0%	0%	0%	18%	-7%	-10%	10%
11	0%	-18%	43%	0%	-17%	0%	-21%	0%	-10%	-12%	10%	84%
12	0%	19%	0%	13%	0%	0%	0%	76%	0%	0%	67%	0%

Table 10.15 : PM UC2 Percentage Change in Trips by Sector (fully modelled area)

Sector	1	2	3	4	5	6	7	8	9	10	11	12
1	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
2	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
3	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
4	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
5	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
6	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
7	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
8	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
9	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
10	0%	0%	0%	0%	0%	0%	0%	0%	0%	-8%	0%	0%
11	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
12	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

Table 10.16 : PM UC3 Percentage Change in Trips by Sector (fully modelled area)

Sector	1	2	3	4	5	6	7	8	9	10	11	12
1	0%	-27%	0%	0%	-37%	0%	0%	0%	0%	0%	28%	0%
2	0%	0%	0%	-38%	-36%	0%	141%	0%	69%	33%	11%	67%
3	0%	0%	0%	0%	-40%	0%	0%	0%	0%	0%	0%	0%
4	0%	-61%	-27%	24%	-10%	0%	0%	110%	0%	0%	-23%	0%
5	0%	-35%	-38%	3%	-9%	0%	0%	90%	0%	0%	-25%	-14%
6	0%	0%	0%	115%	41%	0%	0%	0%	0%	0%	0%	66%
7	0%	0%	0%	121%	0%	0%	-12%	13%	-9%	0%	0%	0%
8	0%	0%	0%	68%	0%	0%	-16%	0%	-18%	0%	0%	0%
9	0%	87%	0%	0%	0%	0%	-8%	0%	-5%	29%	0%	0%
10	0%	0%	0%	0%	0%	0%	0%	0%	0%	-9%	-12%	0%
11	0%	-23%	0%	-31%	-37%	0%	0%	0%	0%	-17%	0%	61%
12	0%	0%	0%	28%	-19%	0%	0%	0%	0%	0%	84%	-19%

Table 10.17 : PM UC4 Percentage Change in Trips by Sector (fully modelled area)

Sector	1	2	3	4	5	6	7	8	9	10	11	12
1	0%	-39%	0%	0%	0%	0%	0%	0%	0%	0%	0%	106%
2	0%	0%	0%	-59%	-29%	0%	0%	0%	0%	0%	0%	106%
3	0%	0%	0%	0%	-56%	0%	0%	0%	0%	0%	0%	0%
4	0%	-42%	0%	0%	-7%	0%	-31%	0%	-29%	0%	0%	0%
5	0%	0%	0%	-7%	0%	0%	0%	0%	0%	0%	0%	0%
6	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	75%
7	0%	0%	0%	0%	0%	0%	0%	35%	0%	0%	56%	0%
8	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
9	0%	0%	0%	0%	0%	0%	0%	0%	0%	35%	42%	0%
10	0%	0%	0%	0%	0%	0%	0%	0%	0%	-7%	0%	-26%
11	0%	-29%	0%	-44%	-35%	0%	0%	0%	0%	-59%	0%	0%
12	0%	0%	0%	0%	0%	0%	0%	0%	0%	-30%	0%	0%

Table 10.18 : PM UC5 Percentage Change in Trips by Sector (fully modelled area)

Sector	1	2	3	4	5	6	7	8	9	10	11	12
1	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
2	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
3	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
4	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
5	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
6	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
7	0%	0%	0%	0%	0%	0%	0%	0%	0%	-43%	0%	0%
8	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
9	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
10	0%	0%	0%	0%	0%	0%	0%	0%	0%	-20%	0%	-56%
11	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%
12	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%

10.1.15 It is clearly shown that there are many sector to sector movements where the change in trips brought about by matrix estimation is greater than 5%, even with the 10 trip absolute difference filter applied.

10.1.16 The UC2 and UC5 sector changes across all time periods are lower than the other user classes, reflecting the low numbers of trips of this type that do not have both origin and destination within the fully modelled area.

10.2 Trip Matrix Validation

10.2.1 Validation of the post matrix estimation matrices has been done by comparing the modelled and observed flows across screenlines. The results are given in Chapter 11. The results show over 90% compliance with criteria for screenlines with counts used in matrix estimation. Independent validation screenlines have a compliance with criteria of between 50% and 67%. This is discussed in more detail in Chapter 11.

10.2.2 A comparison between the post matrix estimation matrices and land use data was undertaken. Trip ends for UC1, Car Commute, were compared with NTEM population and jobs data in a series of scatterplots. UC1 AM origins and PM destinations were plotted against population and UC1 AM destinations and PM origins were plotted against jobs. This was done for all zones within the detailed modelled area.

Figure 10.1 : AM Car Commute Origins vs Population

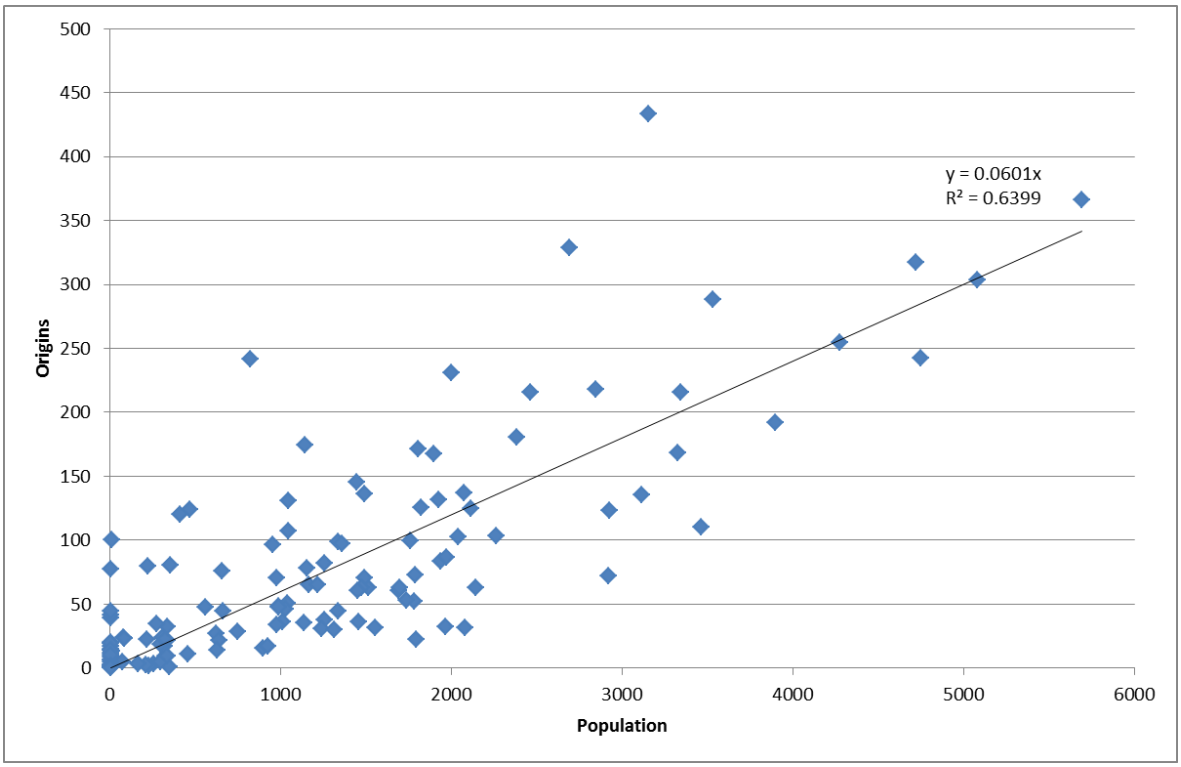


Figure 10.2 : PM Car Commute Destinations vs Population

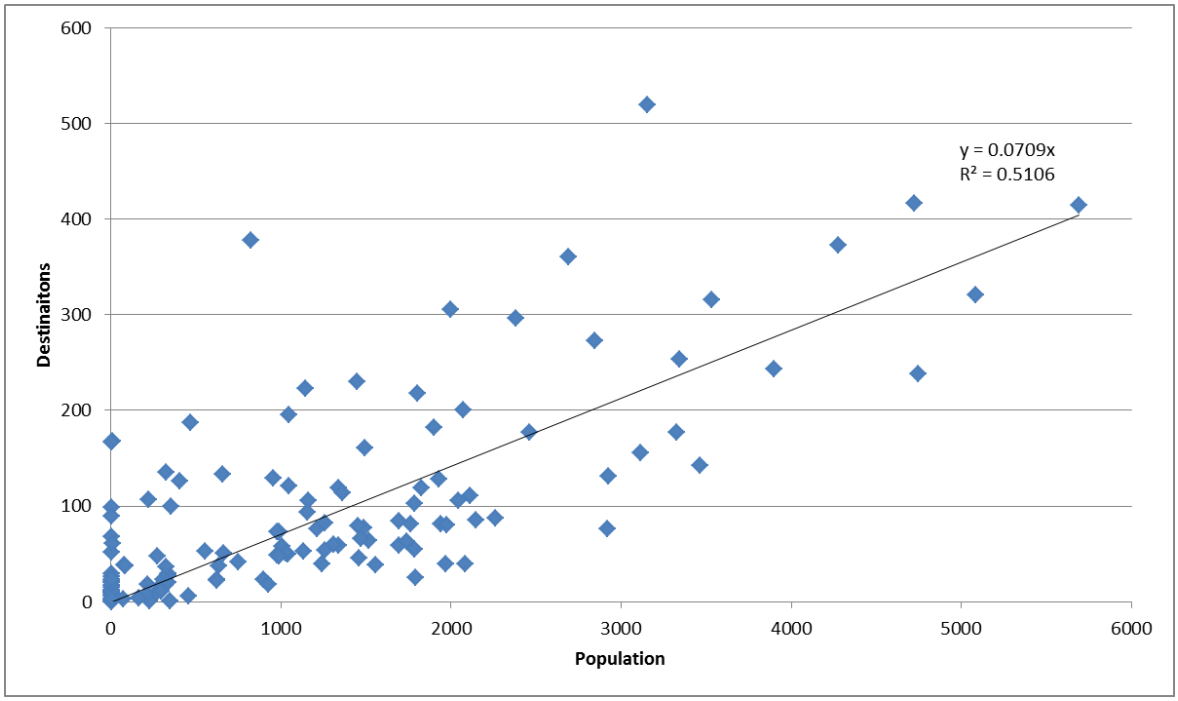


Figure 10.3 : AM Car Commute Destinations vs Jobs

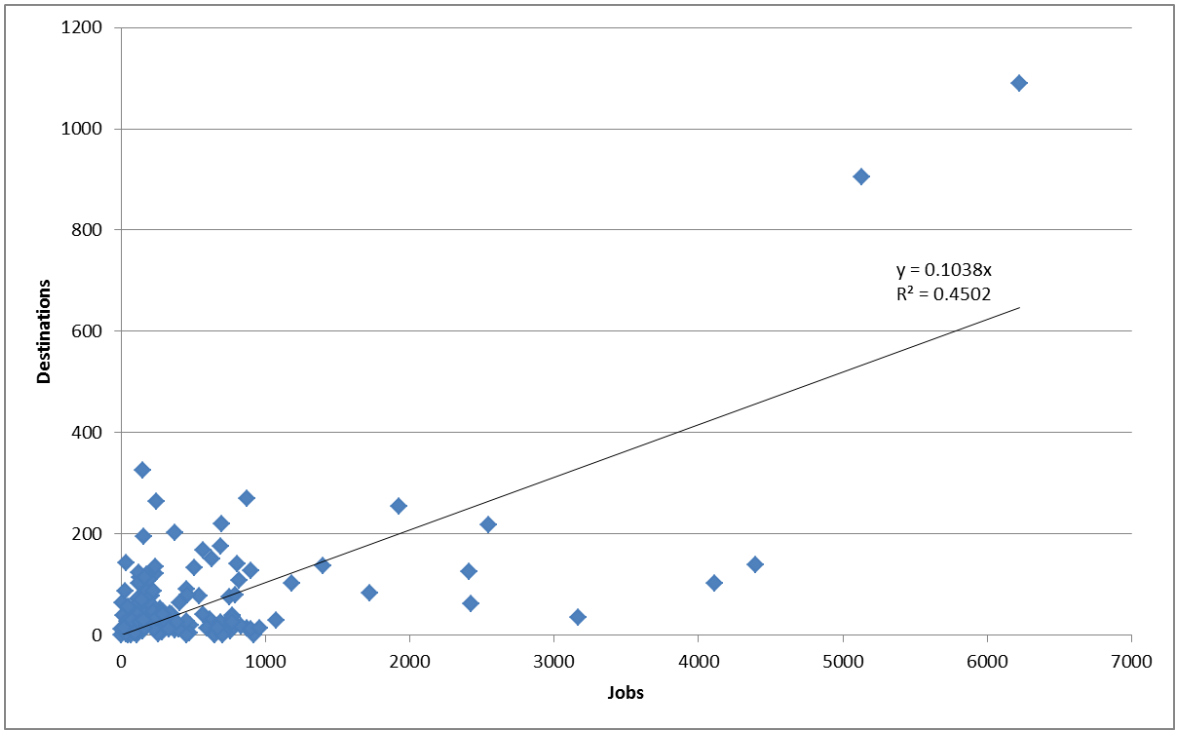
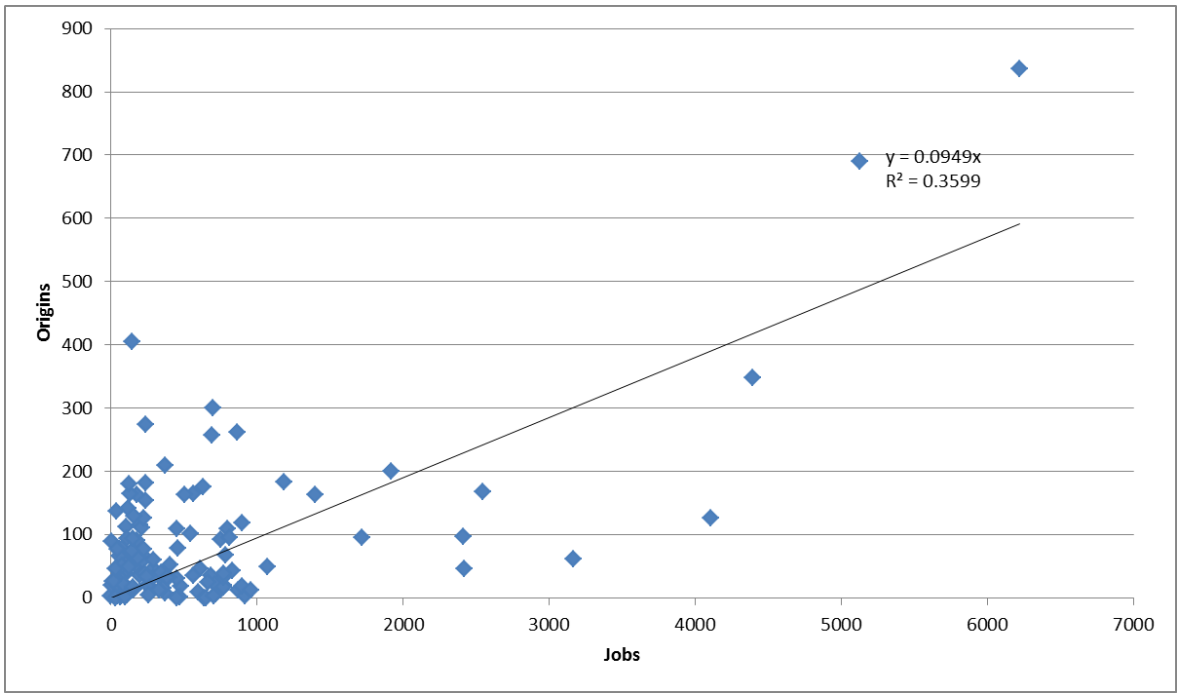


Figure 10.4 : PM Car Commute Origins vs Jobs



10.2.3 The comparison to population size shows they are well correlated without any obvious outliers. The range of zones above and below the trendline reflect that there is no accounting for age of population, employment levels, public transport provision or car ownership levels which are all factors that would influence the number of car commuting trips.

10.2.4 The comparison to number of jobs shows that most of the zonal totals for jobs are relatively small with a number of large sites, typically town centres and industrial estates. The correlation is not as strong as for population and this reflects that jobs data is typically less accurate. Relating commuting trips to population size relies on fewer assumptions, especially in the AM time period, which as expected produced the best fit.

11. Assignment Calibration and Validation

11.1 Assignment Convergence

11.1.1 A summary of the assignment methods used and acceptable convergence levels is given in Section 3.2.

11.1.2 The inner iteration uses the Lohse assignment methodology with Lokta-Volterra for impedance calculations. The inner Lohse assignment does not terminate of its own accord, so a maximum number of iterations of 100 was set, this is accepted standard practice when using VISUM.

11.1.3 The outer iteration termination conditions are based upon turn volumes and delays and are given in Table 11.1 below.

Table 11.1 : Assignment with ICA Termination Conditions

Condition	Share of turns for which condition is met
GEH between turning flows in previous assignment and current assignment is <= 1	98%
GEH between turning flows in current assignment and smoothed ICA turning volumes is <= 1	98%
Relative gap between ICA wait time and VDF wait time in <=0.05	98%

11.1.4 The convergence statistics for each time period are given in Table 11.2.

Table 11.2 : AM Model Convergence Summary

Outer iteration	Proportion of turns with GEH <= 1 between current and previous iteration	Proportion of turns with GEH <= 1 between current iteration and smoothed ICA assignment	Proportion of turns with relative gap between ICA wait time and VDF wait time <= 0.05	Total queues on links	Final %GAP value	Number of inner iterations
1	0.225	1	0.238	0	0.004451%	100
2	0.551	0.778	0.674	1081.701	0.008977%	100
3	0.777	0.913	0.749	821.827	0.004222%	100
4	0.894	0.97	0.865	485.798	0.006589%	100
5	0.939	0.981	0.911	345.984	0.006163%	100
6	0.928	0.986	0.923	198.668	0.005748%	100
7	0.972	0.993	0.963	102.2	0.006958%	100
8	0.964	0.993	0.964	185.268	0.007374%	100
9	0.973	0.993	0.971	85.079	0.008234%	100
10	0.96	0.991	0.971	96.916	0.007120%	100
11	0.965	0.99	0.95	52.468	0.005084%	100
12	0.97	0.996	0.973	134.852	0.006249%	100
13	0.973	0.996	0.978	95.509	0.003769%	100
14	0.964	0.994	0.979	83.64	0.008533%	100
15	0.966	0.996	0.982	68.341	0.005566%	100
16	0.968	0.995	0.982	99.066	0.008818%	100
17	0.971	0.994	0.982	103.857	0.010296%	100
18	0.973	0.994	0.983	86.233	0.008624%	100

19	0.969	0.995	0.985	50.261	0.006823%	100
20	0.985	0.996	0.99	97.147	0.012735%	100

Table 11.3 : IP Model Convergence Summary

Outer iteration	Proportion of turns with GEH <= 1 between current and previous iteration	Proportion of turns with GEH <= 1 between current iteration and smoothed ICA assignment	Proportion of turns with relative gap between ICA wait time and VDF wait time <= 0.05	Total queues on links	Final %GAP value	Number of inner iterations
1	0.232	1	0.246	0	0.002064%	100
2	0.731	0.894	0.865	0	0.000580%	100
3	0.954	0.979	0.92	6.735	0.001192%	100
4	0.976	0.989	0.966	6.735	0.001216%	100
5	0.986	0.993	0.987	10.993	0.001238%	100

Table 11.4 : PM Model Convergence Summary

Outer iteration	Proportion of turns with GEH <= 1 between current and previous iteration	Proportion of turns with GEH <= 1 between current iteration and smoothed ICA assignment	Proportion of turns with relative gap between ICA wait time and VDF wait time <= 0.05	Total queues on links	Final %GAP value	Number of inner iterations
1	0.223	1	0.233	0	0.005598%	100
2	0.547	0.79	0.693	2516.785	0.005380%	100
3	0.765	0.927	0.786	629.758	0.005825%	100
4	0.866	0.966	0.851	216.398	0.005197%	100
5	0.94	0.983	0.905	351.235	0.006257%	100
6	0.965	0.989	0.936	147.677	0.005493%	100
7	0.974	0.996	0.965	251.646	0.004785%	100
8	0.984	1	0.973	143.962	0.005452%	100
9	0.972	0.998	0.977	121.686	0.006132%	100
10	0.971	0.998	0.977	111.275	0.004695%	100
11	0.968	0.997	0.98	104.267	0.006157%	100
12	0.982	1	0.988	105.867	0.005772%	100

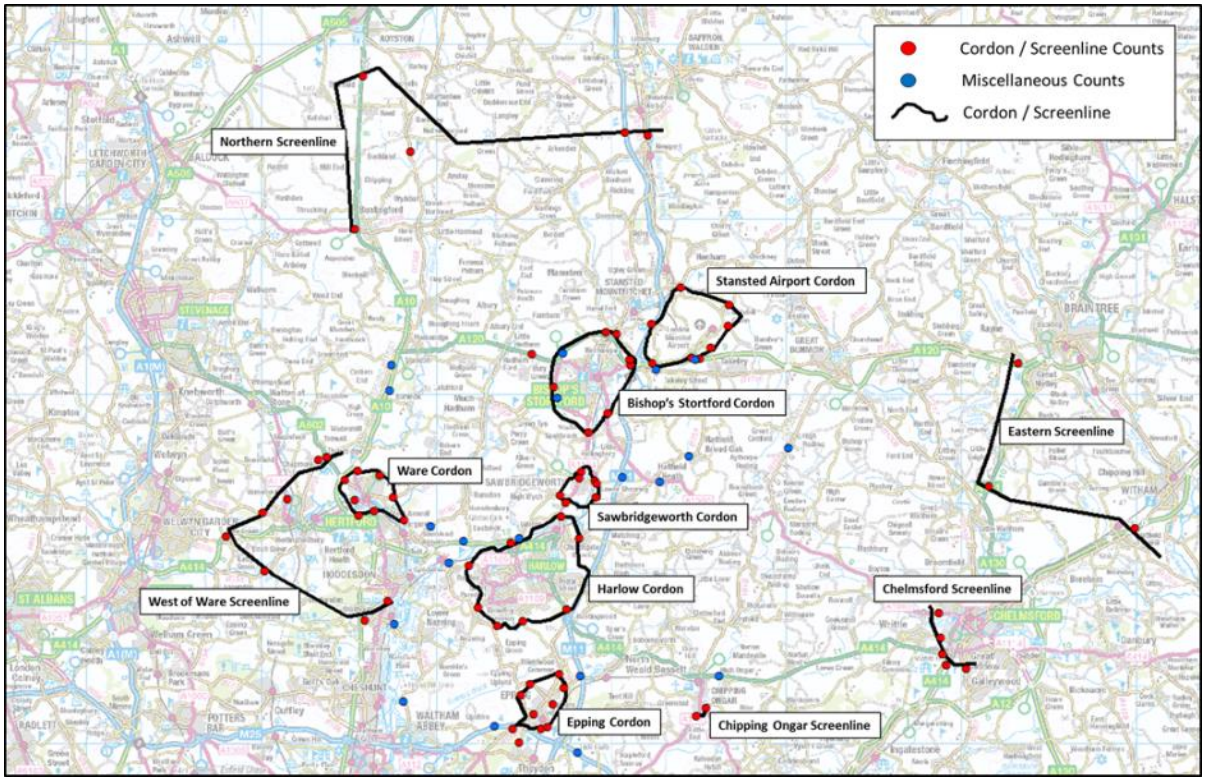
11.1.5 The results above show that the AM, IP and PM models have all achieved the required level of convergence to satisfy WebTAG criteria. Results are stable for at least four consecutive assignment/simulation loops, with 0.98 achieved for each of the first three criteria in the tables relating to the stability of the models. These criteria consider GEH differences between turn flows, which directly relate to link flow differences, the subject of the WebTAG criteria set out in Section 3.2.

11.1.6 In addition to model stability we can also be confident that the model achieves a good level of proximity to the assignment objective. For all time periods the %GAP statistic, which measures this aspect of convergence is well within the 0.01% target that WebTAG recommends.

11.2 Calibration Counts and Screenlines

11.2.1 The locations of counts used for calibration (included in matrix estimation) are shown in Figure 11.1 below, along with the screenlines / cordons into which they are organised. There are some counts, which do not form part of a screenline. These counts have been included in matrix estimation as miscellaneous calibration counts for the purposes of improving the fit of important links in the fully modelled area.

Figure 11.1 : Cordons, Screenlines and Miscellaneous Counts used in Matrix Estimation



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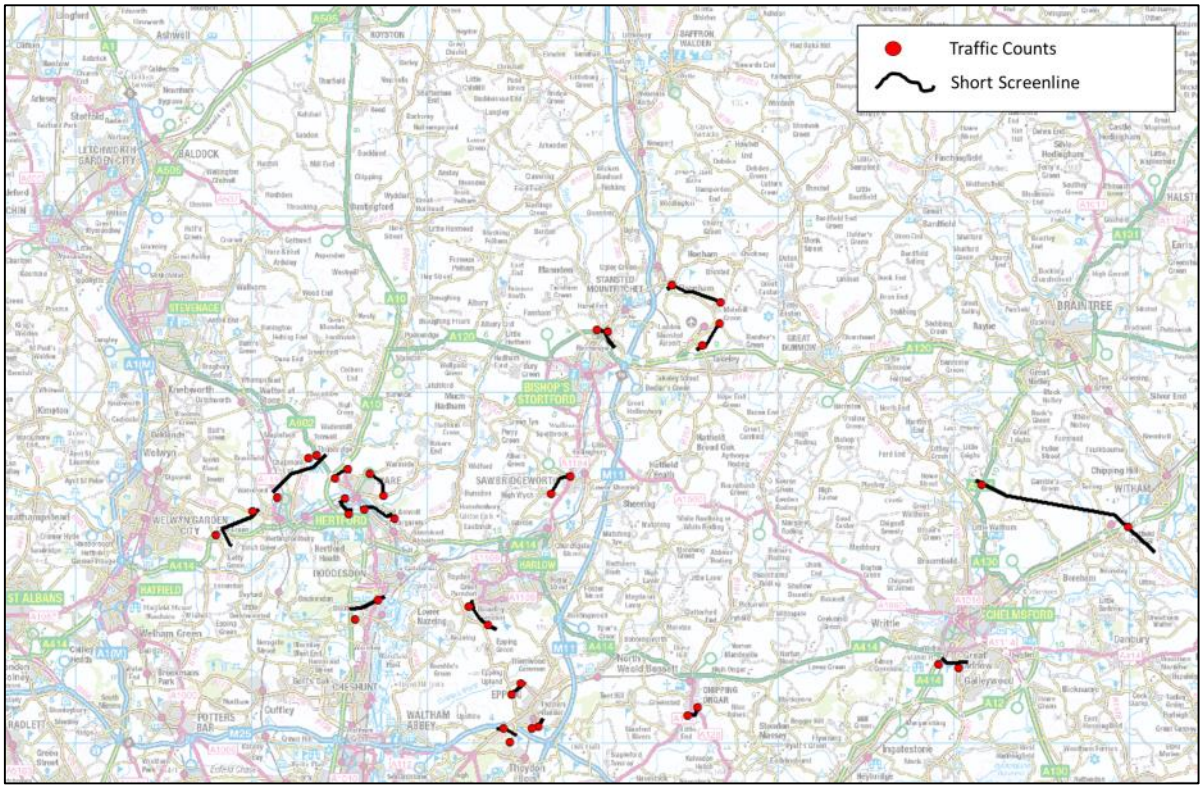
11.2.2 To improve the performance of matrix estimation, and also limit its effect many of the calibration counts included have been organised into 'short screenlines', as recommended in WebTAG unit M3.1. This ensures that matrix estimation does not over-compensate for discrepancies in the model, which are more likely to be a result of other issues than the make-up of the trip matrices. It was not possible, or indeed sensible, to include all counts within 'short screenlines', but where count locations sufficiently interact this approach has been followed.

11.2.3 Figure 11.2 displays the locations of 'short screenlines' used:

Figure 11.2 : Short Screenlines used in Matrix Estimation and associated count sites



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11.2.4 The accepted guidance against which calibration has been assessed is detailed in Section 3.1.

11.2.5 There were 186 calibration counts used in the base year model. The comparison of modelled flows against these counts is summarised in Table 11.5 and Table 11.6 below.

Table 11.5 : Calibration Link Flow Comparison with Observed Flows (Cars and Total Vehicles) – DMRB Flow

Measure	AM peak		Inter-peak		PM peak	
	Cars	Total Vehicles	Cars	Total Vehicles	Cars	Total Vehicles
No. links with modelled flows meeting DMRB flow criteria	174/186	170/186	177/186	174/186	160/186	154/186
% links with modelled flows meeting DMRB flow criteria	94%	91%	95%	94%	86%	83%

Table 11.6 : Calibration Link Flow Comparison with Observed Flows (Cars and Total Vehicles) – GEH

Measure	AM peak		Inter-peak		PM peak	
	Cars	Total Vehicles	Cars	Total Vehicles	Cars	Total Vehicles
No. links with modelled flows meeting GEH criteria	164/186	163/186	166/186	165/186	150/186	149/186
% links with modelled flows meeting GEH criteria	88%	88%	89%	89%	81%	80%

11.2.6 In line with guidance, the statistics are shown for all vehicles combined and for cars separately. The LGV and HGV statistics are based upon a generally less reliable count set, so are not separately reported. It is recognised that there are limitations in the goods vehicle prior matrix quality, and risks in their use. The synthesis of non-observed demand is viewed as the best which could be constructed within the timescales and data availability constraints of the study. Sensitivity tests may be used in future forecasting work to address this issue. Closer examination of HGV and LGV matrix estimation changes shows that the increase in mean trip length and variance is primarily due to increases in long distance trips on M25 and M11 corridors between London and South East, Midlands and East Midlands sectors. Changes to flows to or from study area local sectors are much smaller in magnitude.

11.2.7 The DMRB flow table demonstrates that the 85% criterion is exceeded for all time periods. This gives confidence that modelled flows as a whole are representative of actual traffic flows. It is notable that the PM peak calibration is not as good as the other time periods. This reflects the higher levels of congestion in that time period.

11.2.8 The model does not hit GEH criteria in the PM period, and performs slightly worse overall when this is considered. When this is examined further it can be seen that the model performs less well in the areas of the model that are made up predominately of synthetic flows, this is particularly the case in the PM. These areas are on the periphery of the area of interest and have less impact when assessing schemes around Harlow and Bishop's Stortford. Furthermore, the screenlines, to which these individual counts belong, calibrate well as discussed below. Consequently, we can still be confident that overall levels of traffic entering and leaving the fully modelled area are representative of the 2014 traffic conditions.

11.2.9 A full breakdown of the comparison at the individual count level is included in Appendix C.

11.2.10 As indicated in Figure 11.1, most of the counts are arranged along screenlines and cordons. WebTAG has a separate criterion for total screenline flows, which is that total modelled flows on all links crossing a screenline must be within 5% of the observed totals.

11.2.11 The performance of the model along the calibration screenlines is summarised in Table 11.7 and Table 11.8 below.

Table 11.7 : Calibration Screenline comparison table – All Vehicles

Screenline	No. of links	AM			IP			PM		
		Obs	Mod	% Diff	Obs	Mod	% Diff	Obs	Mod	% Diff
Epping (Inbound)	9	3724	3446	-7%	2359	2316	-2%	2828	2653	-6%
Epping (Outbound)	9	2848	2693	-5%	2328	2317	0%	3706	3351	-10%
Sawbridgeworth (Inbound)	7	2801	2716	-3%	2006	1949	-3%	3009	2966	-1%
Sawbridgeworth (Outbound)	7	3222	3103	-4%	1944	1907	-2%	2694	2693	0%
Harlow (Inbound)	9	6373	6330	-1%	3924	3889	-1%	6304	6209	-2%
Harlow (Outbound)	9	5502	5367	-2%	4003	3934	-2%	6245	6274	0%
Stansted Airport (Inbound)	8	2414	2390	-1%	1724	1760	2%	2069	2085	1%
Stansted Airport (Outbound)	8	1806	1876	4%	1427	1486	4%	2732	2637	-3%
Bishop's Stortford (Inbound)	8	4689	4692	0%	3123	3089	-1%	4694	4683	0%
Bishop's Stortford (Outbound)	8	4700	4685	0%	3255	3215	-1%	4913	4815	-2%
Ongar (Northbound)	2	547	596	9%	461	468	1%	997	999	0%
Ongar (Southbound)	2	958	952	-1%	442	443	-1%	615	635	3%
Chelmsford (Eastbound)	5	3952	3854	-2%	2281	2152	-5%	3798	3713	-2%
Chelmsford (Westbound)	5	3639	3662	1%	2356	2287	-3%	3715	3725	0%
Eastern (Eastbound)	3	5284	5268	0%	4178	4193	1%	8038	8217	2%
Eastern (Westbound)	3	7301	7330	0%	4186	4295	3%	5535	5710	3%
Ware (Inbound)	8	3083	2998	-3%	1630	1583	-3%	2654	2651	0%
Ware (Outbound)	8	2589	2504	-3%	1759	1684	-4%	2748	2744	0%
West of Ware (Westbound)	10	7420	7288	-2%	4402	4433	1%	7436	7512	1%
West of Ware (Eastbound)	10	7347	7263	-1%	4246	4282	1%	7404	7434	0%
Northern – with Motorway (Southbound)	5	3792	3778	0%	2832	2871	0%	4083	4163	2%
Northern – with Motorway (Northbound)	5	4059	4055	0%	3276	3239	-2%	4166	4176	0%
Northern – No Motorway (Northbound)	4	1687	1762	4%	939	981	1%	1705	1754	3%
Northern – No Motorway (Southbound)	4	1750	1738	-1%	890	934	2%	1559	1579	1%
TOTAL (with Motorway)		**20/22 (91%)**			**22/22 (100%)**			**20/22 (91%)**		
TOTAL (without Motorway)		**20/22 (91%)**			**22/22 (100%)**			**20/22 (91%)**		

Table 11.8 : Calibration Screenline comparison table – Cars

Screenline	No. of links	AM			IP			PM		
		Obs	Mod	% Diff	Obs	Mod	% Diff	Obs	Mod	% Diff
Epping (Inbound)	9	3174	2948	-7%	1945	1919	-1%	2426	2318	-4%
Epping (Outbound)	9	2427	2294	-5%	1919	1921	0%	3178	2925	-8%
Sawbridgeworth (Inbound)	7	2351	2251	-4%	1653	1599	-3%	2594	2528	-3%
Sawbridgeworth (Outbound)	7	2689	2581	-4%	1600	1564	-2%	2319	2287	-1%
Harlow (Inbound)	9	5239	5184	-1%	3178	3141	-1%	5374	5250	-2%
Harlow (Outbound)	9	4520	4374	-3%	3240	3174	-2%	5323	5313	0%
Stansted Airport (Inbound)	8	2045	2019	-1%	1425	1455	2%	1784	1782	0%
Stansted Airport (Outbound)	8	1522	1568	3%	1180	1234	5%	2356	2294	-3%
Bishop's Stortford (Inbound)	8	3812	3807	0%	2525	2483	-2%	3989	4011	1%
Bishop's Stortford (Outbound)	8	3814	3799	0%	2631	2594	-1%	4180	4145	-1%
Ongar (Northbound)	2	435	484	11%	369	371	1%	844	862	2%
Ongar (Southbound)	2	762	764	0%	354	349	-1%	521	538	3%
Chelmsford (Eastbound)	5	3224	3144	-2%	1846	1746	-5%	3230	3185	-1%
Chelmsford (Westbound)	5	2953	2980	1%	1909	1849	-3%	3163	3165	0%
Eastern (Eastbound)	3	4205	4211	0%	3346	3376	1%	6805	6918	2%
Eastern (Westbound)	3	5810	5819	0%	3353	3456	3%	4687	4799	2%
Ware (Inbound)	8	2549	2468	-3%	1323	1288	-3%	2261	2244	-1%
Ware (Outbound)	8	2143	2070	-3%	1432	1370	-4%	2343	2315	-1%
West of Ware (Westbound)	10	5960	5796	-3%	3533	3565	1%	6303	6327	0%
West of Ware (Eastbound)	10	5915	5852	-1%	3408	3438	1%	6273	6253	0%
Northern – with Motorway (Southbound)	5	2968	2867	-3%	2053	2048	0%	3343	3384	1%
Northern – with Motorway (Northbound)	5	3170	3149	-1%	2364	2315	-2%	3415	3388	-1%
Northern – No Motorway (Northbound)	4	1382	1441	4%	759	767	1%	1447	1457	1%
Northern – No Motorway (Southbound)	4	1428	1382	-3%	719	734	2%	1324	1333	1%
TOTAL (with Motorway)		**20/22 (91%)**			**22/22 (100%)**			**21/22 (95%)**		
TOTAL (without Motorway)		**20/22 (91%)**			**22/22 (100%)**			**21/22 (95%)**		

11.2.12 Both 'All Vehicles' and 'Cars' separately display good calibration performance, which exceeds WebTAG guidance, with over 90% of screenlines within 5% of observed flows from traffic counts. It is also the same areas of the model that underperform for 'All Vehicles' and 'Cars'. The screenline showing the worse calibration results is Ongar, this screenline however is only made up of two count sites and there is consequently a low total flow to validate against. If this screenline is considered against GEH, and looking at absolute flow difference it becomes evident that this is not a concern for overall model performance. The Epping screenline fails criteria in one direction for both the AM and PM. This area of the model was difficult to calibrate due to the levels of delay observed in Epping itself, meaning that traffic flows and journey time validation were difficult to reconcile.

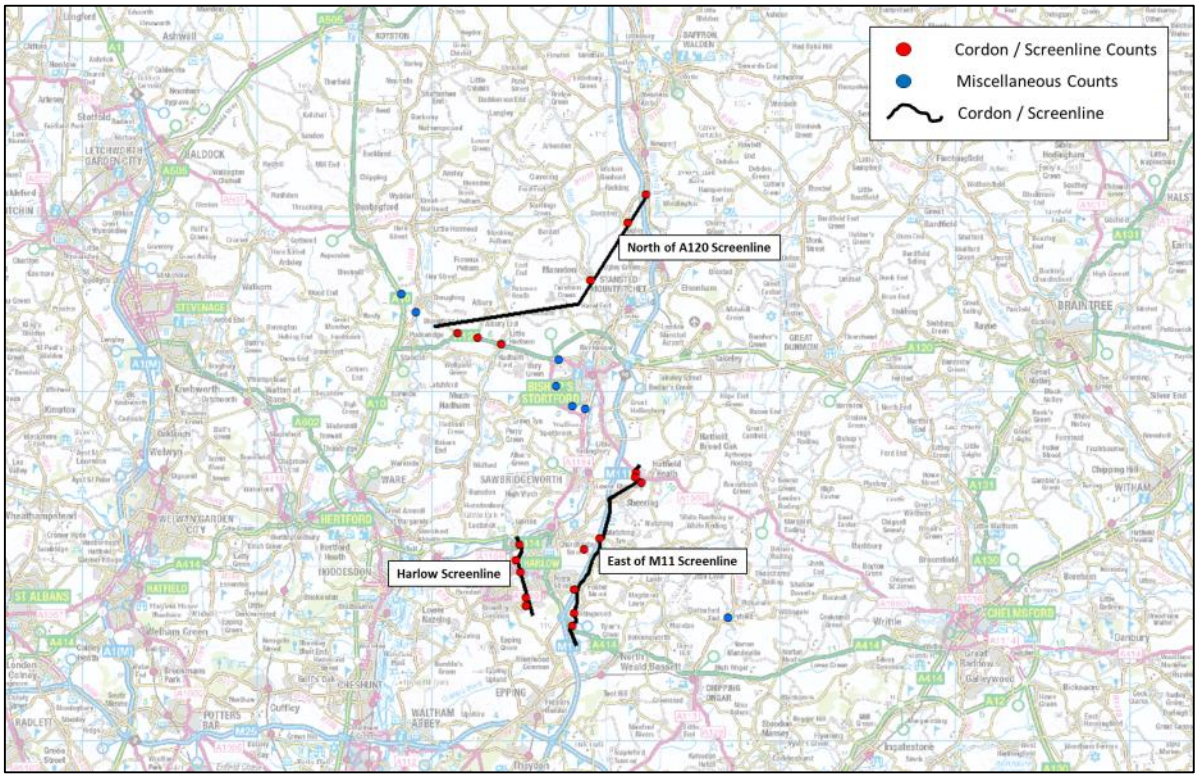
11.2.13 Further information on the screenline calibration is given in Appendix C.

11.3 Count Validation

11.3.1 Count validation relies on making similar comparisons to the ones made for the count calibration, but against independent counts, i.e. those not used in the model building process up to this point, in either the matrix building or the matrix estimation.

11.3.2 The locations of these independent counts are show in the figure below:

Figure 11.3 : Screenlines and Miscellaneous Counts used in Model Validation



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11.3.3 There are 52 counts used in the validation and the model's performance against these counts is summarised in Table 11.9 and Table 11.10 below.

Table 11.9 : Validation Link Flow Comparison with Observed Flows (Cars and Total Vehicles) – DMRB Flow

Measure	AM peak		Inter-peak		PM peak	
	Cars	Total Vehicles	Cars	Total Vehicles	Cars	Total Vehicles
No. links with modelled flows meeting DMRB flow criteria	41/52	42/52	47/52	44/52	38/52	35/52
% links with modelled flows meeting DMRB flow criteria	79%	81%	90%	85%	73%	67%

Table 11.10 : Validation Link Flow Comparison with Observed Flows (Cars and Total Vehicles) – GEH

Measure	AM peak		Inter-peak		PM peak	
	Cars	Total Vehicles	Cars	Total Vehicles	Cars	Total Vehicles
No. links with modelled flows meeting GEH criteria	33/52	33/52	38/52	34/52	35/52	33/52
% links with modelled flows meeting GEH criteria	63%	63%	73%	65%	67%	63%

11.3.4 The validation of individual sites independent from those used in matrix estimation does not meet criteria for either 'All Vehicles' or 'Car'. This is with the exception of the IP, which only passes on the DMRB criteria for both 'Car' and 'HGV'.

11.3.5 The performance of the link counts is adversely affected by the individual counts that make up the Harlow screenline (see Appendix D). Overall the total demand across the screenline meets criteria, yet on an individual basis many of the links counts do not, due to the route choice available within Harlow. This was deemed to be acceptable on the basis that while east-west demand across Harlow was important to meet criteria, for the assessment of an M11 J7a scheme the routing element was of less importance.

11.3.6 Furthermore, there are a few counts that do not meet criteria located on roads inside the Bishop's Stortford by-pass. This suggests that routing through Bishop's Stortford may not be exactly reflecting current traffic conditions. Overall flow into and out of this area of the model calibrates well as shown in Section 11.2.

11.3.7 Similar to the calibration criteria, model validation is also assessed on a screenline level. As with calibration screenlines, the total modelled flows are also recommended to be within 5% of the observed total flows.

11.3.8 The performance of the model's validation screenlines is summarised in Table 11.11 and

11.3.9 Table 11.12 below.

Table 11.11 : Validation Screenline comparison table – All Vehicles

Screenline	No. of links	AM			IP			PM		
		Obs	Mod	%Diff	Obs	Mod	%Diff	Obs	Mod	%Diff
Harlow Screenline (Eastbound)	5	3138	3394	8%	3066	2981	-3%	4648	4672	1%
Harlow Screenline (Westbound)	5	4656	4446	-5%	3100	3090	0%	3480	3512	1%
East of M11 (Eastbound)	8	2000	1880	-6%	1208	1294	7%	2394	2072	-13%
East of M11 (Westbound)	8	2511	2406	-4%	1252	1307	4%	1991	1884	-5%
North of A120 (Northbound)	6	690	716	4%	491	508	3%	833	855	3%
North of A120 (Southbound)	6	928	743	-20%	525	515	-2%	679	704	4%
TOTAL		**3/6 (50%)**			**5/6 (83%)**			**5/6 (83%)**		

Table 11.12 : Validation Screenline comparison table – Cars

Screenline	No. of links	AM			IP			PM		
		Obs	Mod	%Diff	Obs	Mod	%Diff	Obs	Mod	%Diff
Harlow Screenline (Eastbound)	5	2575	2829	10%	2508	2503	0%	3985	4070	2%
Harlow Screenline (Westbound)	5	3824	3680	-4%	2533	2589	2%	2973	2977	0%
East of M11 (Eastbound)	8	1670	1602	-4%	992	1074	8%	2052	1797	-12%
East of M11 (Westbound)	8	2095	2065	-1%	1030	1094	6%	1709	1636	-4%
North of A120 (Northbound)	6	593	585	-1%	412	388	-6%	719	747	4%
North of A120 (Southbound)	6	799	635	-21%	441	420	-5%	588	609	4%
TOTAL		**4/6 (67%)**			**3/6 (50%)**			**5/6 (83%)**		

11.3.10 The North of A120 Screenline passes for all time periods, and for both 'All Vehicles' and 'Car' with the exception of the southbound direction in the AM time period. This is, however a low flow screenline made up of many rural count sites. Furthermore, the screenline is located on the edge of the detailed model area and does not directly interact with the network in proximity to where M11 J7a is proposed.

11.3.11 The Harlow Screenline passes for all time periods, and for both 'All Vehicles' and 'Car' with the exception of the eastbound direction in the AM time period.

11.3.12 The East of M11 screenline fails criterion for 'Total Vehicles' in the eastbound direction in all time periods, whilst also underperforming in the IP in both directions and PM eastbound for 'Car'. However when assessed using GEH values for the screenline it performs significantly better, achieving a GEH value below 4 for all except the eastbound direction in the PM time period. As with the North of A120 this screenline is also low flow and has many rural links contained within it.

11.3.13 The full breakdown of the count validation is given in Appendix D.

11.4 Turning Count Validation

11.4.1 As mentioned in Section 5.4, additional Manual Classified Counts (MCCs) were provided for turning movements across eight sites covering Harlow Town Centre, M11 Junction 7, and Sawbridgeworth. The purpose of these counts was to aid the examination of local route choice in Harlow Town Centre and to help highlight any areas of model weakness.

11.4.2 The performance of the model for the independent turning count validation using a criterion of GEH<10 has been summarised in Table 11.13. The traffic counts included in this set are detailed in Section 5.4.

Table 11.13 : Manual Classified Turning Counts (MCCs) for GEH<10

GEH Criteria	GEH < 10							
	AM				PM			
	CAR	LGV	HGV	TOTAL	CAR	LGV	HGV	TOTAL
GEH Pass	87%	98%	100%	85%	84%	96%	100%	87%

11.4.3 The table illustrates that the modelled turning movements at these junctions are well matched to the observed turning movements. It is worth noting that the GEH statistics for goods vehicles are particularly strong.

11.4.4 The full list of turning movements evaluated by the WebTAG Validation Criteria and Acceptability Guidelines is shown in Appendix J.

11.5 Journey Time Validation

11.5.1 Journey times within the model were checked by comparing the modelled journey times against the observed times along the routes identified in Section 5.5. WebTAG requires that for the total route length, the modelled journey time from start to finish be within 15% of the observed time, and this must be the case for 85% of all the routes.

11.5.2 This simple comparison ignores the fact that modelled and observed journey times could deviate significantly from each other along specific sections of a route, and the overall time still be within the specified acceptance criteria. To ensure the modelled delays and journey times are as accurate as possible throughout the length of the route, the model has been developed in order to ensure that the modelled times match the observed times not just for the total time along the routes, but also along each section of each route. Plots showing journey time versus distance for all routes in each direction are included in Appendix E. These allow comparison along individual sections to be made.

11.5.3 The following tables summarise the model's performance over each journey time route for the AM peak, IP and PM peak time periods.

11.5.4 It should be noted that as explained in Section 5.5, Route 14 is not included with the overall validation statistics, due to the presence of roadworks at this location during the data collection period.

Table 11.14 : Comparison of Modelled Journey Time against the Observed, AM

No & Direction	Description	Modelled time [min:sec]	Observed time [min:sec]	% Diff
1 – EB	A120 Puckeridge to A12	32:14	35:32	9.3%
1 – WB	A120 Puckeridge to A12	34:34	33:10	-4.2%
2 – NB	M11 Junction 6 to Junction 11	32:58	31:55	-3.3%
2 – SB	M11 Junction 6 to Junction 11	33:05	32:12	-2.7%
3 – NB	A10 from M25 Junction 25 to M11 Junction 11	49:12	49:18	0.2%
3 – SB	A10 from M25 Junction 25 to M11 Junction 11	50:28	53:16	5.3%
4 – NB	A414 to A11 / M11 J9a via B1383 and A1184 Bishop's Stortford (old A11)	44:44	45:30	1.7%
4 – SB	A414 to A11 / M11 J9a via B1383 and A1184 Bishop's Stortford (old A11)	46:07	45:15	-1.9%
5 – NB	Harlow to Waltham Abbey via Crooked Mile Route	17:58	17:43	-1.4%
5 – SB	Harlow to Waltham Abbey via Crooked Mile Route	19:18	18:52	-2.3%
6 - EB	A414 from west of Hertford to A12 at Chelmsford	47:49	53:17	10.2%
6 – WB	A414 from west of Hertford to A12 at Chelmsford	53:00	54:15	2.3%
7 – EB	A1250 through Bishop's Stortford (A120 to A1184)	08:43	10:06	13.7%
7 – WB	A1250 through Bishop's Stortford (A120 to A1184)	08:49	09:33	7.6%
8 – NB	A1184 Bishop's Stortford south-west By-pass from A120 to B1383	04:13	04:46	11.5%
8 – SB	A1184 Bishop's Stortford south-west By-pass from A120 to B1383	04:05	04:30	9.4%
9 – EB	B1256 from A120 through Takeley then B183 to Harlow via Hatfield Heath and Sheering	25:58	28:00	7.3%
9 – WB	B1256 from A120 through Takeley then B183 to Harlow via Hatfield Heath and Sheering	29:45	30:01	0.9%
10 –EB	A1060 from A1016 Parkway (Chelmsford) to Bishop's Stortford	28:57	31:41	8.6%
10 – WB	A1060 from A1016 Parkway (Chelmsford) to Bishop's Stortford	28:57	32:16	10.3%
11 – NB	Sawbridgeworth Road, Hallingbury Road, Sheering Lower Road	08:11	07:28	-9.5%
11 – SB	Sawbridgeworth Road, Hallingbury Road, Sheering Lower Road	08:11	06:59	-17.3%
12 – ACW	A1169 Southern Way, Katherine's Way, A1169 Elizabeth Way (A414 to A414)	13:57	12:05	-15.4%
12 – CW	A1169 Southern Way, Katherine's Way, A1169 Elizabeth Way (A414 to A414)	14:49	12:16	-20.9%
13 – NB	High Wych Road between A1184 and A414	08:54	09:45	8.7%
13 – SB	High Wych Road between A1184 and A414	09:12	09:35	4.1%
14 – ACW	*M25 Junction 25 to Junction 28*	*14:16*	*22:35*	*36.8%*
14 – CW	*M25 Junction 25 to Junction 28*	*14:18*	*14:02*	*-1.9%*
15 – EB	B1393 / A121 Hastingwood to Waltham Abbey (old A11)	18:17	17:46	-3.0%
15 – WB	B1393 / A121 Hastingwood to Waltham Abbey (old A11)	18:59	21:20	11.0%
TOTAL	**Total number of passes**	**25/28**		**89%**

Table 11.15 : Comparison of Modelled Journey Time against the Observed, IP

No & Direction	Description	Modelled time [min:sec]	Observed time [min:sec]	% Diff
1 – EB	A120 Puckeridge to A12	30:23	29:59	-4.7%
1 – WB	A120 Puckeridge to A12	31:19	29:42	-8.7%
2 – NB	M11 Junction 6 to Junction 11	31:42	32:29	-1.5%
2 – SB	M11 Junction 6 to Junction 11	31:32	32:12	-1.7%
3 – NB	A10 from M25 Junction 25 to M11 Junction 11	44:43	48:33	3.3%
3 – SB	A10 from M25 Junction 25 to M11 Junction 11	44:47	49:32	5.2%
4 – NB	A414 to A11 / M11 J9a via B1383 and A1184 Bishop's Stortford (old A11)	42:10	43:51	3.1%
4 – SB	A414 to A11 / M11 J9a via B1383 and A1184 Bishop's Stortford (old A11)	42:33	43:27	1.9%
5 – NB	Harlow to Waltham Abbey via Crooked Mile Route	16:48	17:37	4.5%
5 – SB	Harlow to Waltham Abbey via Crooked Mile Route	17:19	17:18	2.1%
6 - EB	A414 from west of Hertford to A12 at Chelmsford	44:32	47:59	8.6%
6 – WB	A414 from west of Hertford to A12 at Chelmsford	45:54	47:20	5.8%
7 – EB	A1250 through Bishop's Stortford (A120 to A1184)	08:16	09:06	8.7%
7 – WB	A1250 through Bishop's Stortford (A120 to A1184)	08:14	09:03	9.4%
8 – NB	A1184 Bishop's Stortford south-west By-pass from A120 to B1383	04:07	04:34	10.4%
8 – SB	A1184 Bishop's Stortford south-west By-pass from A120 to B1383	04:03	04:21	6.8%
9 – EB	B1256 from A120 through Takeley then B183 to Harlow via Hatfield Heath and Sheering	27:28	27:42	10.6%
9 – WB	B1256 from A120 through Takeley then B183 to Harlow via Hatfield Heath and Sheering	27:39	27:51	10.3%
10 –EB	A1060 from A1016 Parkway (Chelmsford) to Bishop's Stortford	26:24	29:57	12.4%
10 – WB	A1060 from A1016 Parkway (Chelmsford) to Bishop's Stortford	26:32	31:02	15.1%
11 – NB	Sawbridgeworth Road, Hallingbury Road, Sheering Lower Road	07:48	07:22	-5.5%
11 – SB	Sawbridgeworth Road, Hallingbury Road, Sheering Lower Road	07:52	07:04	-11.6%
12 – ACW	A1169 Southern Way, Katherine's Way, A1169 Elizabeth Way (A414 to A414)	10:41	10:59	2.8%
12 – CW	A1169 Southern Way, Katherine's Way, A1169 Elizabeth Way (A414 to A414)	10:37	11:14	7.2%
13 – NB	High Wych Road between A1184 and A414	08:56	08:40	6.3%
13 – SB	High Wych Road between A1184 and A414	08:05	08:44	7.4%
14 – ACW	*M25 Junction 25 to Junction 28*	*13:56*	*15:38*	*11.0%*
14 – CW	*M25 Junction 25 to Junction 28*	*13:55*	*13:59*	*0.6%*
15 – EB	B1393 / A121 Hastingwood to Waltham Abbey (old A11)	17:02	17:43	2.2%
15 – WB	B1393 / A121 Hastingwood to Waltham Abbey (old A11)	17:01	16:59	-1.5%
TOTAL	**Total number of passes**	**27/28**		**96%**

Table 11.16 : Comparison of Modelled Journey Time against the Observed, PM

No & Direction	Description	Modelled time [min:sec]	Observed time [min:sec]	% Diff
1 – EB	A120 Puckeridge to A12	32:28	36:39	9.0%
1 – WB	A120 Puckeridge to A12	32:58	33:49	-0.8%
2 – NB	M11 Junction 6 to Junction 11	32:13	33:16	-0.9%
2 – SB	M11 Junction 6 to Junction 11	31:56	33:07	-0.4%
3 – NB	A10 from M25 Junction 25 to M11 Junction 11	49:15	50:46	-1.2%
3 – SB	A10 from M25 Junction 25 to M11 Junction 11	46:43	53:44	8.6%
4 – NB	A414 to A11 / M11 J9a via B1383 and A1184 Bishop's Stortford (old A11)	45:41	48:56	6.3%
4 – SB	A414 to A11 / M11 J9a via B1383 and A1184 Bishop's Stortford (old A11)	44:52	43:37	-3.3%
5 – NB	Harlow to Waltham Abbey via Crooked Mile Route	20:10	21:18	10.2%
5 – SB	Harlow to Waltham Abbey via Crooked Mile Route	18:24	17:48	-1.7%
6 - EB	A414 from west of Hertford to A12 at Chelmsford	52:23	59:04	13.4%
6 – WB	A414 from west of Hertford to A12 at Chelmsford	51:35	53:46	6.8%
7 – EB	A1250 through Bishop's Stortford (A120 to A1184)	08:24	09:42	13.5%
7 – WB	A1250 through Bishop's Stortford (A120 to A1184)	08:20	09:12	9.6%
8 – NB	A1184 Bishop's Stortford south-west By-pass from A120 to B1383	04:12	04:34	8.4%
8 – SB	A1184 Bishop's Stortford south-west By-pass from A120 to B1383	04:08	04:29	8.6%
9 – EB	B1256 from A120 through Takeley then B183 to Harlow via Hatfield Heath and Sheering	29:26	31:34	11.8%
9 – WB	B1256 from A120 through Takeley then B183 to Harlow via Hatfield Heath and Sheering	29:14	27:59	3.1%
10 –EB	A1060 from A1016 Parkway (Chelmsford) to Bishop's Stortford	28:49	30:36	7.1%
10 – WB	A1060 from A1016 Parkway (Chelmsford) to Bishop's Stortford	28:27	32:20	12.1%
11 – NB	Sawbridgeworth Road, Hallingbury Road, Sheering Lower Road	08:26	07:20	-14.8%
11 – SB	Sawbridgeworth Road, Hallingbury Road, Sheering Lower Road	08:09	07:51	-2.6%
12 – ACW	A1169 Southern Way, Katherine's Way, A1169 Elizabeth Way (A414 to A414)	12:36	13:07	4.4%
12 – CW	A1169 Southern Way, Katherine's Way, A1169 Elizabeth Way (A414 to A414)	11:07	15:40	28.5%
13 – NB	High Wych Road between A1184 and A414	10:07	15:27	40.7%
13 – SB	High Wych Road between A1184 and A414	08:35	11:21	22.9%
14 – ACW	*M25 Junction 25 to Junction 28*	*14:33*	*15:08*	*4.8%*
14 – CW	*M25 Junction 25 to Junction 28*	*17:10*	*15:14*	*-12.2%*
15 – EB	B1393 / A121 Hastingwood to Waltham Abbey (old A11)	19:11	21:16	7.9%
15 – WB	B1393 / A121 Hastingwood to Waltham Abbey (old A11)	17:50	18:21	3.2%
TOTAL	**Total number of passes**	**25/28**		**89%**

11.5.5 The above tables demonstrate that for all time periods WebTAG criteria have been met and exceeded with over 85% of journey time routes being modelled within 15% of the observed time. The IP model has 96% journey time routes within the 15% criteria suggesting that free flow speeds are coded in a way that accurately reflects current traffic conditions in the modelled area.

11.5.6 The main discrepancies are found with the following routes.

11.5.7 Route 11 Sawbridgeworth Road, Hallingbury Road, Sheering Lower Road – This is a relatively short route, which is also not considered to be a major route in the network. It includes a rat-run that acts as an alternative to the old A11 between Harlow and Bishop's Stortford. This route is modelled too slow because when coded at a higher free flow speed too much traffic was being attracted to this road, as such the coding used is a compromise to best replicate current observed traffic counts as well as observed link speeds. This route falls outside the 15% criterion in the AM peak in the southbound direction and in the PM peak in the northbound direction, but it should be noted that in both cases the route is close to meeting WebTAG criteria.

11.5.8 Route 12 A1169 Southern Way, A1169 Elizabeth Way (clockwise only) – This route includes much of the residential feeder road network that skirts Harlow. It is also a relatively short journey time route. In the AM peak the model is too slow, whilst in the PM peak this route is too fast. It appears that the model overestimates delay in the AM, whilst underestimating delay in the PM. This is likely to be down to signalised junctions, particularly in the proximity of the Pinnacles industrial estate. As above it was difficult to reconcile observed delays and observed traffic counts, consequently coding has aimed to provide the best possible results for both.

11.5.9 Route 13 High Wych Road between A1184 Sawbridgeworth & A414 Burnt Mill – This short route includes the road through High Wych, as well as a section of congested network in Harlow town centre. The two sections within this route are very different in nature and so it has been difficult to validate. The route validates sufficiently in the AM peak and IP; however in the PM peak both directions are too fast. This is due to difficulties in replicating actual delays associated with roundabouts in Harlow. Local routings have been checked to ensure this is not adversely affecting routing through Harlow town centre to an unacceptable level.

11.6 Journey Time Validation – Routes by Section

11.6.1 As described in Section 5.5 above, the journey time sections were also clustered together to better satisfy the WebTAG recommendation that journey time routes should be between 3 and 15 km. The standard of journey time validation for the base model, when reported on this basis, is summarised in Table 11.17.

11.6.2 The below table demonstrates that, for the AM and IP, WebTAG criteria has been met and exceeded with 87% and 89% of the 62 individual sections being modelled within 15% of the observed time.

11.6.3 In the PM peak, the section validation falls just short of aspired criteria with 84% of the 62 cases being modelled within 15% of observed; however the full route validation in Table 11.16 did meet criteria. Furthermore, several of the sections that fail are outside of the fully modelled area and do not directly influence route choice within the study area (for example, the combined sections 6 & 7 of route 6 which is west of the A10).

Table 11.17 : Journey Time Route Validation by Sections

Route	Sections	Distance [km]	AM	IP	PM
Route 1 EB	1&2	15.01	Fail	Pass	Fail
Route 1 EB	3&4&5	13.87	Pass	Pass	Pass
Route 1 EB	6	11.29	Pass	Pass	Pass
Route 1 WB	6	12.96	Pass	Pass	Pass
Route 1 WB	3&4&5	12.51	Pass	Pass	Pass
Route 1 WB	1&2	14.06	Pass	Fail	Pass
Route 2 NB	1	6.39	Pass	Pass	Pass
Route 2 NB	2	15.14	Pass	Pass	Pass
Route 2 NB	3	22.59	Pass	Pass	Pass
Route 2 NB	4	5.78	Pass	Pass	Pass
Route 2 NB	5	7.69	Pass	Pass	Pass
Route 2 SB	5	7.40	Pass	Pass	Pass
Route 2 SB	4	5.33	Pass	Pass	Pass
Route 2 SB	3	24.83	Pass	Pass	Pass
Route 2 SB	2	13.34	Pass	Pass	Pass
Route 2 SB	1	6.47	Pass	Pass	Pass
Route 3 NB	1&2	13.61	Pass	Pass	Pass
Route 3 NB	3	11.15	Pass	Pass	Pass
Route 3 NB	4	8.09	Pass	Pass	Pass
Route 3 NB	5	13.07	Pass	Pass	Pass
Route 3 NB	6	12.91	Pass	Pass	Pass
Route 3 SB	6	12.94	Pass	Pass	Pass
Route 3 SB	5	13.13	Pass	Pass	Pass
Route 3 SB	4	8.17	Pass	Fail	Pass
Route 3 SB	3	11.14	Pass	Pass	Pass
Route 3 SB	1&2	13.62	Fail	Pass	Pass
Route 4 NB	1&2&3	11.84	Pass	Pass	Pass
Route 4 NB	4	11.92	Pass	Pass	Pass
Route 4 NB	5	11.29	Pass	Pass	Pass
Route 4 SB	5	11.34	Pass	Pass	Pass

Route 4 SB	4	11.94	Pass	Pass	Pass
Route 4 SB	1&2&3	11.83	Pass	Pass	Pass
Route 5 NB	1	15.09	Pass	Pass	Pass
Route 5 SB	1	14.89	Pass	Pass	Pass
Route 6 EB	6&7	7.47	Pass	Pass	Fail
Route 6 EB	4&5	14.86	Fail	Fail	Fail
Route 6 EB	2&3	11.46	Pass	Pass	Pass
Route 6 EB	1	14.99	Pass	Pass	Pass
Route 6 WB	1	14.99	Pass	Pass	Pass
Route 6 WB	2&3	11.60	Pass	Pass	Pass
Route 6 WB	4&5	14.64	Pass	Fail	Fail
Route 6 WB	6&7	7.40	Pass	Pass	Fail
Route 7 EB	-	4.93	Pass	Pass	Pass
Route 7 WB	-	4.95	Pass	Pass	Pass
Route 8 NB	-	4.58	Pass	Pass	Pass
Route 8 SB	-	4.58	Pass	Pass	Pass
Route 9 EB	3&4&5&6	11.87	Fail	Fail	Fail
Route 9 EB	1&2	12.43	Pass	Pass	Pass
Route 9 WB	1&2	12.44	Pass	Pass	Pass
Route 9 WB	3&4&5&6	11.89	Pass	Fail	Pass
Route 10 EB	2&3	15.63	Pass	Pass	Pass
Route 10 EB	1	13.56	Pass	Pass	Pass
Route 10 WB	1	13.56	Pass	Pass	Pass
Route 10 WB	2&3	15.63	Fail	Fail	Fail
Route 11 NB	-	5.55	Pass	Pass	Pass
Route 11 SB	-	5.63	Fail	Pass	Pass
Route 12 Anti-Clockwise	-	8.53	Fail	Pass	Pass
Route 12 Clockwise	-	8.70	Fail	Pass	Fail
Route 13 NB	-	7.12	Pass	Pass	Fail
Route 13 SB	-	7.05	Pass	Pass	Fail
Route 15 EB	-	11.99	Pass	Pass	Pass
Route 15 WB	-	12.02	Pass	Pass	Pass
		Total	**54/62**	**55/62**	**52/62**
		Percent	**87%**	**89%**	**84%**

11.7 Modelled flows directly affecting the study area

11.7.1 In validating the model to ensure its suitability to assess the proposed scheme it was necessary to examine individual link validation around the M11 J7a site. The figures below demonstrate GEH values for locations in close proximity to the scheme.

Figure 11.4 : AM GEH Values for count locations near to the M11 J7a site

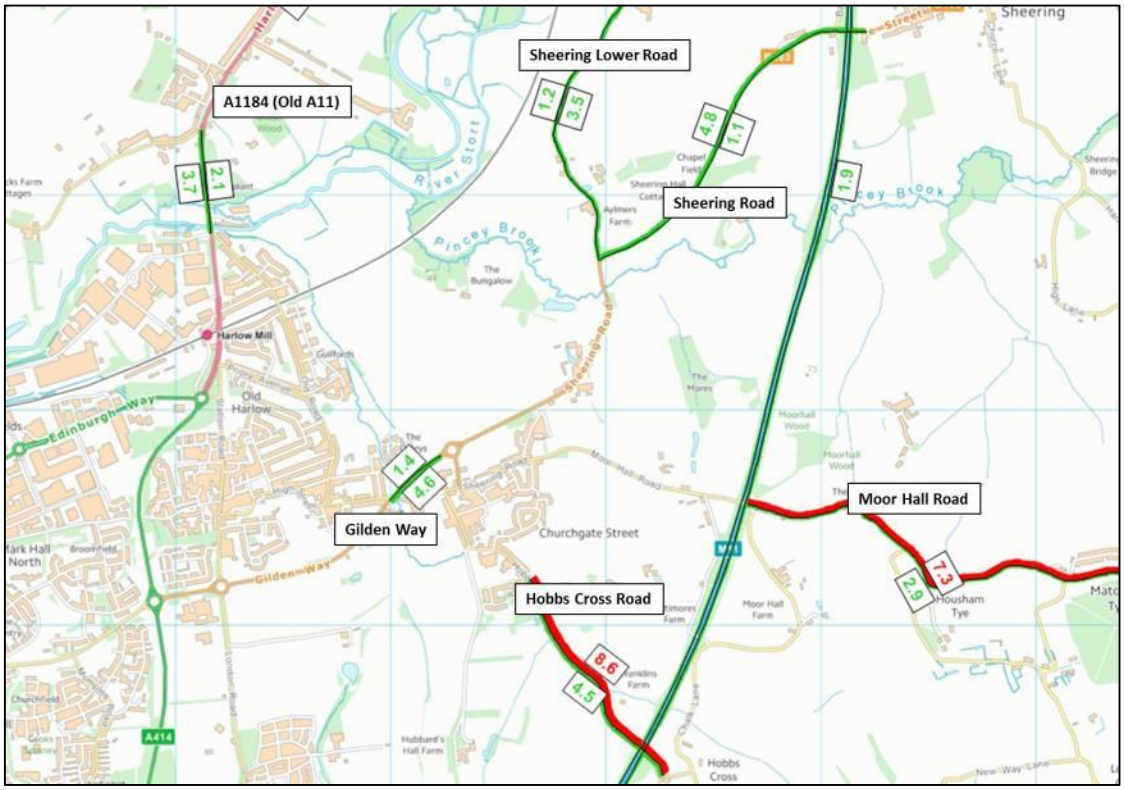

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Figure 11.5 : IP GEH Values for count locations near to the M11 J7a site

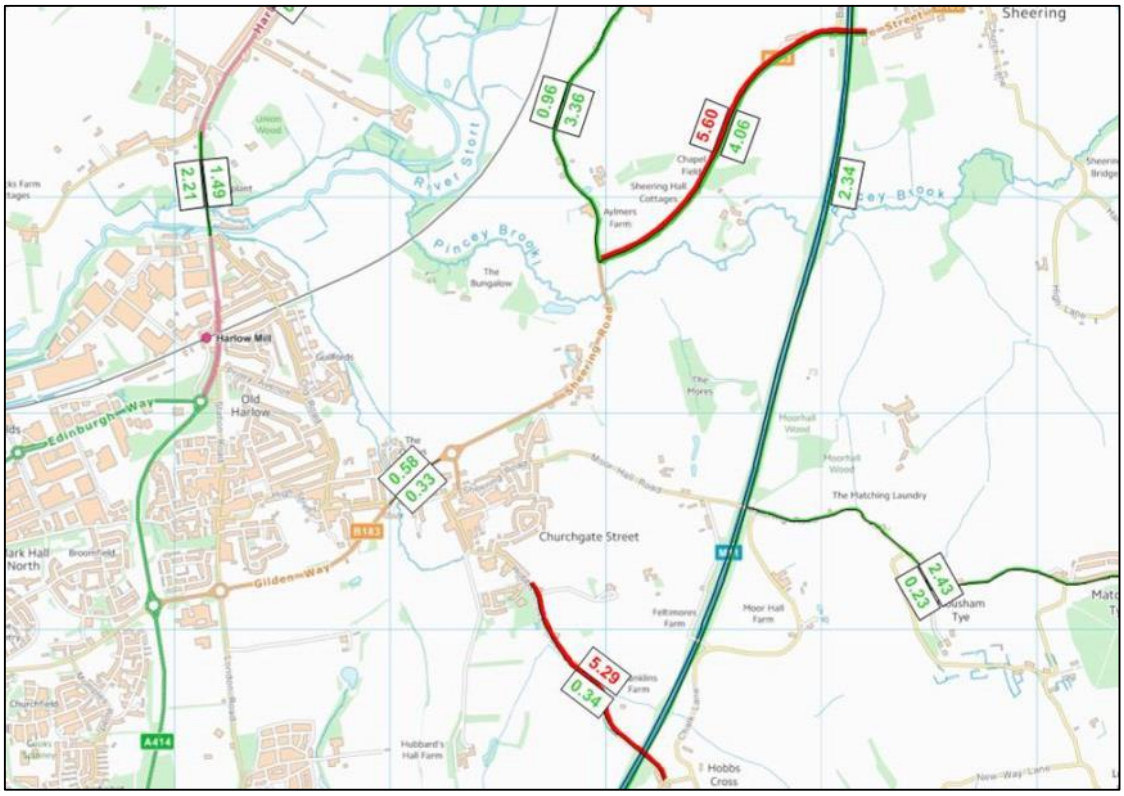

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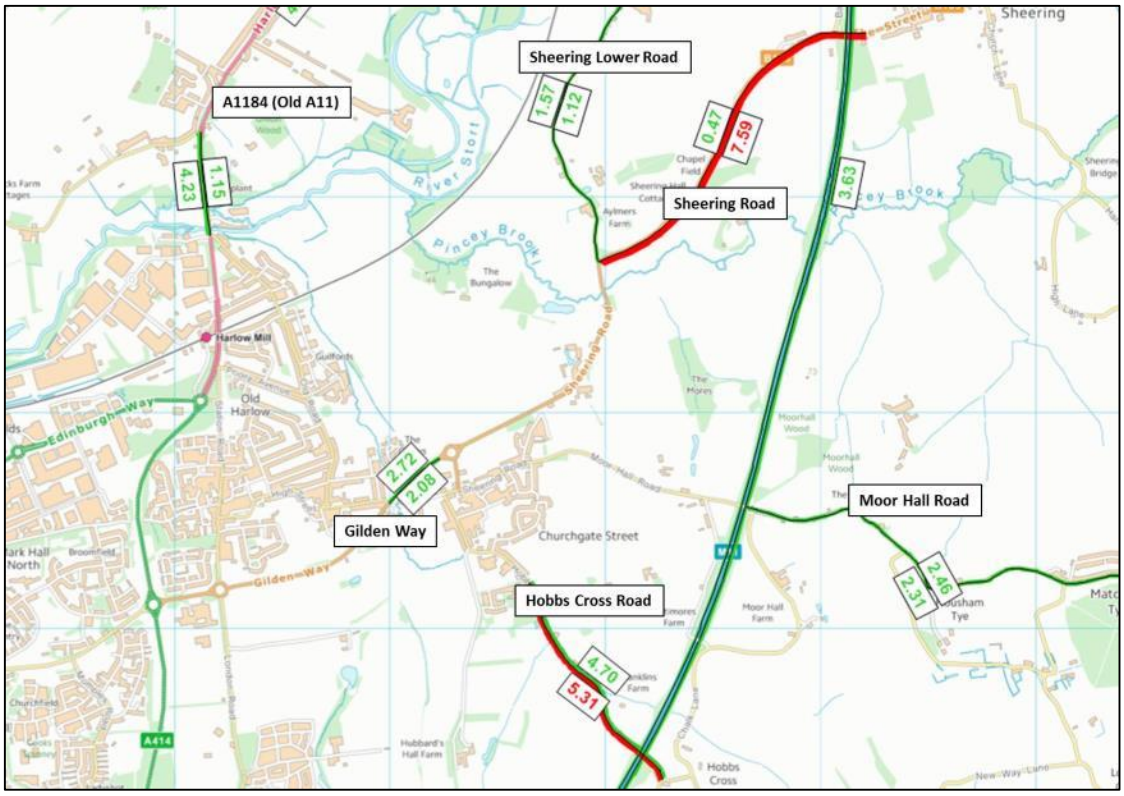
Figure 11.6 : PM GEH Values for count locations near to the M11 J7a site



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11.7.2 Figure 11.4 shows that in the AM inbound flows to Harlow are within recommended GEH values (less than 5 for individual sites). For outbound flows there are a couple of sites that fail, however the flows on these links are fairly low and the roads are of a rural nature.

11.7.3 Figure 11.5 displays IP GEH values, and demonstrates that two links falls outside of the GEH criteria. Hobbs Cross Road and Sheering Road, however pass on DMRB criteria and so we can be satisfied that the model performs well in this area.

11.7.4 Figure 11.6 shows the links in the PM model, which all hit GEH criteria, except one inbound count on Sheering Road and one count on Hobbs Cross Road. All other counts are satisfactory and counts further downstream are well within the acceptable GEH.

11.7.5 In this area of the model there was a delicate balance to consider when calibrating and validating the traffic models for each time period between ensuring correct routing of vehicles, journey times and link flow.

11.7.6 It should be noted that journey times for the Gilden Way route into and out of Harlow are too fast compared to the observed data. This is due to elevated link speeds in the model. This is necessary to make the route more attractive and low generalised costs, compared to the alternative old A11 route through Sawbridgeworth. Similarly the old A11 journey time route is too slow in the model, due to reduced link speeds, in order to make this a less attractive route choice.

11.7.7 By doing this, the model replicates the routing of vehicles between Bishop's Stortford and Harlow where there is route choice between old A11, Sheering Lower Road / Hallingbury Road and via Hatfield Heath. This also achieves more accurate levels of modelled flow.

11.7.8 Overall the models perform well in the area around the proposed M11 J7a, which gives additional confidence of the model's ability to represent actual traffic conditions.

12. Summary of Model Development, Standards Achieved and Fitness for Purpose

12.1 Summary of Model Development

12.1.1 The demand data used in the model is a mixture of observed and synthetic data and has been constructed with reference to guidance set out in WebTAG. Observed mobile phone data has been collected within, into, and out of an area stretching from Epping in the south to Bishop's Stortford and Stansted Airport in the north. This provided 12 days' worth of observed movements which were processed to provide actual trip distributions in the detailed modelled area around the scheme. For non-observed trips, synthetic demand was generated using software created for the purpose, based on NTEM, and using established data sources including the Census, NTS, and employment survey data.

12.1.2 The modelled network was created from the ITN network, a reliable data source provided by Ordnance Survey. The finer points of junction coding and link speeds and capacities were modelled with reference to Google Earth and plans provided by Essex County Council and Hertfordshire County Council. Link data was coded in a manner consistent with what used to be in the COBA manual and WebTAG guidelines. Extensive checks on the coded network were conducted as detailed in Chapter 8.

12.1.3 The model assignment for all time periods satisfies the WebTAG %GAP criteria for a well converged model, the %GAP statistics comfortably achieve what is required. Furthermore the model displays a good level of stability demonstrated through the GEH between turning flows between assignment iterations.

12.1.4 The level of calibration achieved by the model exceeds WebTAG criteria for individual traffic count locations expect for the Total Vehicles in the PM, whilst exceeding criteria for all screenlines and cordons. Checks of strategic routing also demonstrate that the model performs well in terms of replicating traffic conditions.

12.1.5 The Harlow Transport Model does not meet the guidelines set out in WebTAG Unit 3.1 for the validation sites chosen. The 85% target for individual count sites hitting both DMRB and GEH criteria is not satisfied, this is due to a range of issues:

- Local routing in Harlow;
- Local routing in Bishop's Stortford; and
- Poor performance of small rural roads to the east of the M11.

12.1.6 Validation screenlines demonstrate a higher level of validation, despite still falling short of the guidelines set out in WebTAG. The North of A120 and Harlow Screenline both perform well against the 5% target for difference between modelled and observed traffic flows. The East of M11 screenline consistently displays differences significantly above the 5% difference. However, it should be noted that this screenline is consistently within a GEH of 4, which is considered satisfactory for validation purposes.

12.1.7 Journey Time Validation has been shown to exceed WebTAG criteria for all time periods.

12.2 Summary of Standards Achieved

12.2.1 The standards to which the model aimed to conform are set out in Chapter 3. The table below summarises how the model has actually performed against those standards:

Table 12.1 : Summary of Standards Achieved

Model Aspect	Criterion	Acceptability Guideline	Actual Model Performance
Matrix Estimation	Matrix zonal cell values	Slope within 0.98 and 1.02 Intercept near zero R2 in excess of 0.95	Satisfies intercept criteria for all time periods. R2 satisfies criteria for most user classes, but fails for at least one in each time period. Slope fails against the criteria in all time periods.
	Matrix zone trip ends	Slope within 0.99 and 1.01 Intercept near zero R2 in excess of 0.98	Satisfies intercept criteria for all time periods. R2 satisfies criteria for all car user classes, but fails for LGV and HGV in the IP and HGV in the PM. Slope fails against the criteria in all time periods.
	Trip length distributions	Means within 5% Standard deviations within 5%	The criteria met for car user classes in all time periods, except UC3 in the IP. Fails in all time periods for LGVs and HGVs.
	Sector to sector level matrices	Differences within 5%	Fails criteria in all time periods. The matrix is not fully observed however, so this is expected.
Assignment Convergence	Delta and %GAP	Less than 0.01%	Satisfied for all time periods
Link Calibration (Individual & Screenlines)	Individual flows within 100 veh/hr of counts for flows less than 700 veh/hr	> 85% of cases	AM: 91% for total vehicles, 94% for car IP: 94% for total vehicles, 95% for car PM: 83% for total vehicles, 86% for car
	Individual flows within 15% of counts for flows from 700 veh/hr to 2,700 veh/hr	> 85% of cases	
	Individual flows within 400 veh/hr of counts for flows more than 2,700 veh/hr	> 85% of cases	
	GEH < 5 for individual flows	> 85% of cases	AM: 88% for total vehicles, 88% for car IP: 89% for total vehicles, 89% for car PM: 81% for total vehicles, 80% for car
	Differences between modelled flows and counts should be less than 5% of the counts	All or nearly all screenlines	AM: 91% of screenlines pass criteria for total vehicles, 91% for car IP: 100% of screenlines pass criteria for total vehicles, 100% for car PM: 91% for screenlines pass criteria for total vehicles, 95% for car
Link Validation (Individual & Screenlines)	Individual flows within 100 veh/hr of counts for flows less than 700 veh/hr	> 85% of cases	AM: 81% for total vehicles, 79% for car IP: 85% for total vehicles, 90% for car PM: 67% for total vehicles, 73% for car
	Individual flows within 15% of counts for flows from 700 veh/hr to 2,700 veh/hr	> 85% of cases	
	Individual flows within 400 veh/hr of counts for flows more than 2,700 veh/hr	> 85% of cases	

Model Aspect	Criterion	Acceptability Guideline	Actual Model Performance
	GEH < 5 for individual flows	> 85% of cases	AM: 63% for total vehicles, 63% for car IP: 65% for total vehicles, 73% for car PM: 63% for total vehicles, 67% for car
	Differences between modelled flows and counts should be less than 5% of the counts	All or nearly all screenlines	AM: 50% of screenlines pass criteria for total vehicles, 67% for car AM: 83% of screenlines pass criteria for total vehicles, 50% for car PM: 83% of screenlines pass criteria for total vehicles, 83% for car
Journey Times	Modelled times along routes should be within 15% of surveyed time, or 1 minute if higher	> 85% of all routes	Criteria met for all time periods: AM: 89% of routes within 15% IP: 96% of routes within 15% PM: 89% of routes within 15%

12.3 Assessment of Fitness for Purpose

12.3.1 The model performs well against the model standards previously set out, including convergence, link flow and screenline calibration and journey times. This should serve to give confidence and provide reassurance that the model is representative of current conditions. However, link flow and screenline validation and sector to sector matrix integrity do not meet criteria set out in WebTAG.

12.3.2 The model is primarily intended to be used for modelling a new junction on the M11 and so specifically needs to be fit for this purpose. In the area directly affecting the scheme the model replicates well the observed levels of link flow and routing on A1184, Sheering Lower Road, Sheering Road and Gilden Way. This representation of traffic conditions will ensure that accurate transfer of trips to the scheme occurs in the forecast models. In addition to the area around the scheme, the model meets link flow calibration at J7 and particular attention has been made to ensure that he main A414 – M11 north – south movement is accurately represented. The flow of trips east and west across Harlow validates to criteria giving further confidence in assessing any network changes in the Harlow area. Routing through the model is also considered to be accurate and checks have been carried out to check that delay is at the correct junctions in the model, particularly in peak periods.

12.3.3 The model has been demonstrated to have been constructed in a manner consistent with guidance and hits an acceptable level of calibration for all aspects of the model build. Validation has been shown to be satisfactory for the purpose of the model. It is therefore expected that a high degree of confidence may be placed in the model for the purposes of assessment and economic and environmental appraisal of a potential new junction on the M11, as described in the opening sections of this report.

Appendix A. Link Types

Link Types and Parameters

<u>Motorway, Rural and Suburban Link Types</u>

VISUM Function:

Case 1: T Sys <> „HGV“

a) $sat < sat_{crit}$: $t_{Cur} = t_0 \cdot (1.0 + a \cdot sat)$

b) $sat \geq sat_{crit}$: $t_{Cur} = t_0 \cdot [1.0 + a \cdot sat_{crit} + b \cdot (sat - sat_{crit})]$

Case 2: T Sys = „HGV“

a) $sat < d$: $t_{Cur} = t_0 \cdot (1.0 + a_2 \cdot sat)$

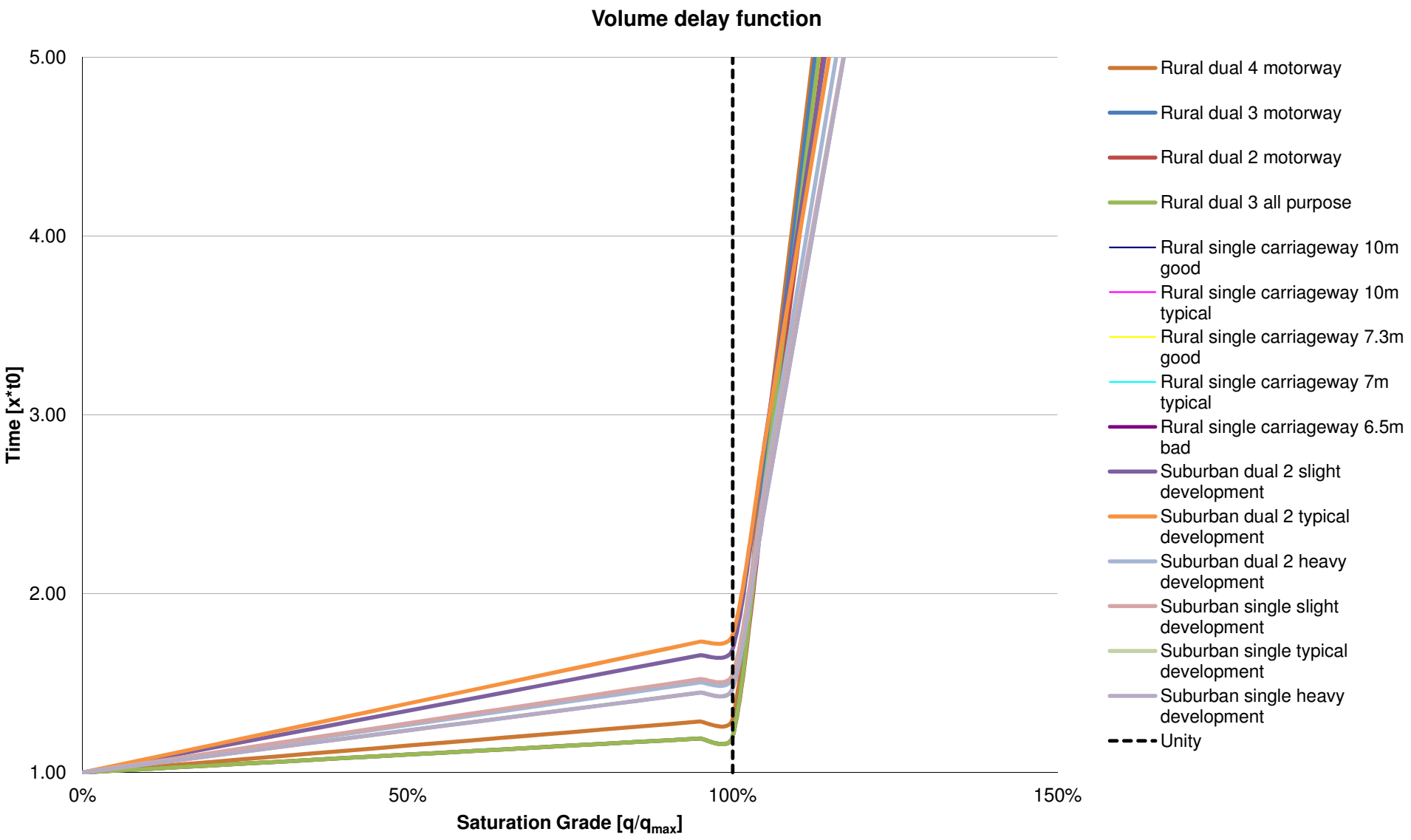
b) $d \leq sat$ AND $sat < f$: $t_{Cur} = t_0 \cdot [1.0 + a_2 \cdot d + b_2 \cdot (sat - d)]$

c) $Else$: $t_{Cur} = t_0 \cdot [1.0 + a_2 \cdot d + b_2 \cdot (f - d) + d_2 \cdot (sat - f)]$

Table of Link Types:

Link Type No.	Description	Available Transport System	No. of lanes	Cap (pcu /hr)	Free-flow speed (kph)	Volume-delay function parameters						
						a	b	d	a’	b’	d’	f
1	Rural dual 4 motorway	Bus, Car, LGV, HGV	4	8211	118	0.3	30	1	0.1	23.38	20.57	1
2	Rural dual 3 motorway	Bus, Car, LGV, HGV	3	6159	118	0.2	30	0.8	0.1	21.76	6.19	1
3	Rural dual 2 motorway	Bus, Car, LGV, HGV	2	4106	111	0.2	27.3	0.8	0.1	21.78	7.9	1
4	Rural dual 3 all purpose	Bus, Car, LGV, HGV	3	5551	115	0.2	28.6	0.8	0.1	20.25	7.91	1
5	Rural single carriageway 10m good	Bus, Car, LGV, HGV, Walk	1	1657	94	0.69	23.38	1	0.1	23.38	20.57	1
6	Rural single carriageway 10m typical	Bus, Car, LGV, HGV, Walk	1	1600	87	0.77	21.76	0.8	0.1	21.76	6.19	1
7	Rural single carriageway 7.3m good	Bus, Car, LGV, HGV, Walk	1	1305	87	0.53	21.78	0.8	0.1	21.78	7.9	1
8	Rural single carriageway 7m typical	Bus, Car, LGV, HGV, Walk	1	1249	81	0.55	20.25	0.8	0.1	20.25	7.91	1
9	Rural single carriageway 6.5m bad	Bus, Car, LGV, HGV, Walk	1	1144	83	0.47	20.63	0.8	0.1	20.63	8.84	1
10	Suburban dual 2 slight development	Bus, Car, LGV, HGV, Walk	2	3000	74	0.69	23.38	1	0.1	23.38	20.57	1

11	Suburban dual 2 typical development	Bus, Car, LGV, HGV, Walk	2	3000	71	0.77	21.76	0.8	0.1	21.76	6.19	1
12	Suburban dual 2 heavy development	Bus, Car, LGV, HGV, Walk	2	3000	63	0.53	21.78	0.8	0.1	21.78	7.9	1
13	Suburban single slight development	Bus, Car, LGV, HGV, Walk	1	1500	69	0.55	20.25	0.8	0.1	20.25	7.91	1
14	Suburban single typical development	Bus, Car, LGV, HGV, Walk	1	1500	61	0.47	20.63	0.8	0.1	20.63	8.84	1
15	Suburban single heavy development	Bus, Car, LGV, HGV, Walk	1	1500	56	0.47	20.63	0.8	0.1	20.63	8.84	1


Volume delay function
5.00
4.00
3.00
2.00
1.00
Time [x*t0]
0%
50%
100%
150%
Saturation Grade [q/qmax]
Rural dual 4 motorway
Rural dual 3 motorway
Rural dual 2 motorway
Rural dual 3 all purpose
Rural single carriageway 10m good
Rural single carriageway 10m typical
Rural single carriageway 7.3m good
Rural single carriageway 7m typical
Rural single carriageway 6.5m bad
Suburban dual 2 slight development
Suburban dual 2 typical development
Suburban dual 2 heavy development
Suburban single slight development
Suburban single typical development
Suburban single heavy development
Unity

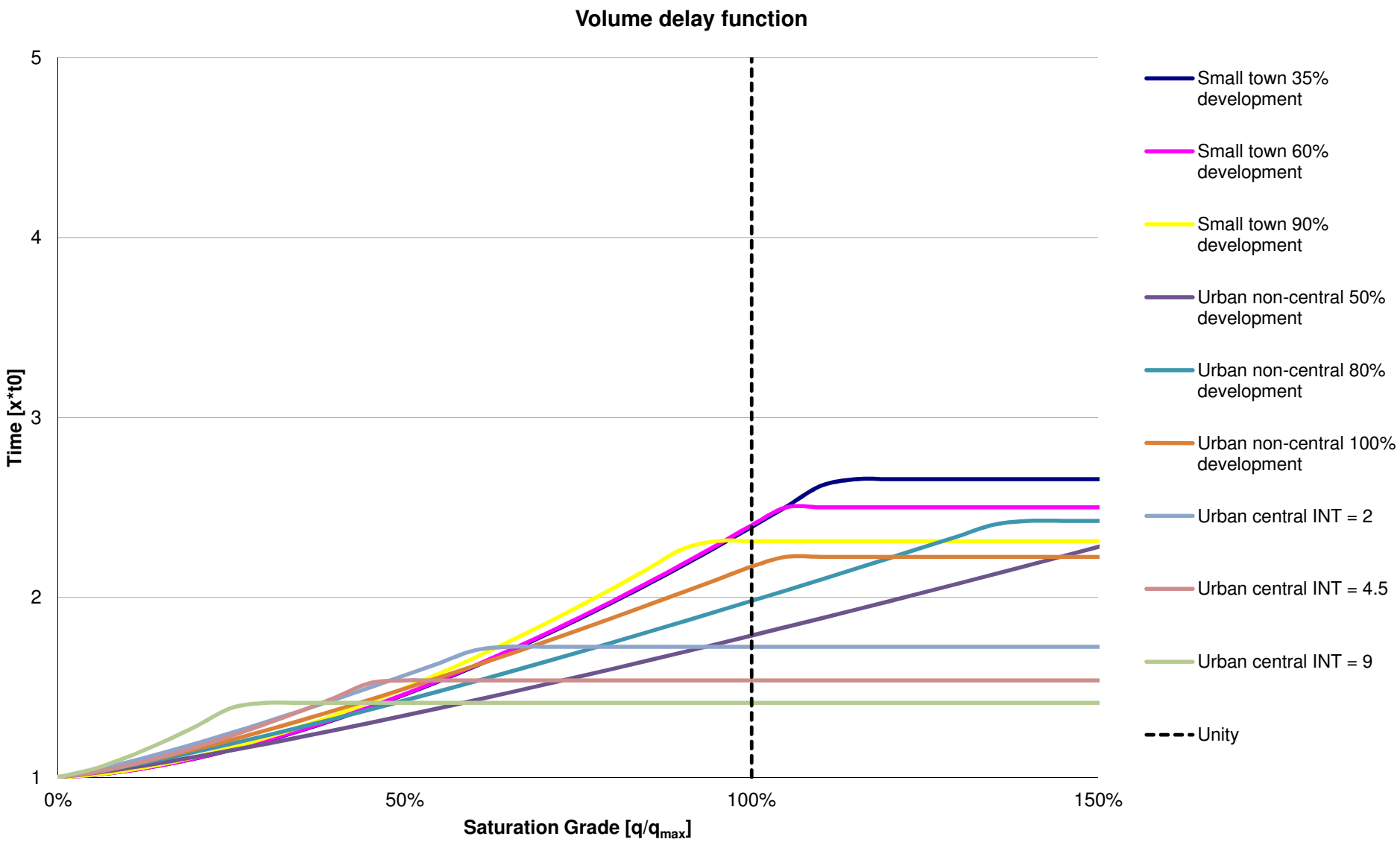
Small Town and Urban Link Types

VISUM Function:

tcr=t0*{1+a*[q/(c*qmax)]b}

Table of Link Types:

Link Type No.	Description	Available Transport System	No. of lanes	Cap (pcu/hr)	Free-flow speed (kph)	Volume-delay function parameters		
						a	b	c
16	Urban non-central 50% development	Bus, Car, LGV, HGV, Walk	1	800	55	0.787	1.2	1
17	Urban non-central 80% development	Bus, Car, LGV, HGV, Walk	1	800	49	0.98	1.2	1
18	Urban non-central 100% development	Bus, Car, LGV, HGV, Walk	1	800	45	1.17	1.25	1
19	Urban central INT = 2	Bus, Car, LGV, HGV, Walk	1	800	35	1.3	1.2	1
20	Urban central INT = 4.5	Bus, Car, LGV, HGV, Walk	1	800	31	1.6	1.4	1
21	Urban central INT = 9	Bus, Car, LGV, HGV, Walk	1	800	28	2.5	1.35	1
22	Small town 35% development	Bus, Car, LGV, HGV, Walk	1	1200	53	1.39	1.6	1
23	Small town 60% development	Bus, Car, LGV, HGV, Walk	1	1200	50	1.4	1.6	1
24	Small town 90% development	Bus, Car, LGV, HGV, Walk	1	1200	46	1.5	1.6	1


Volume delay function
Time [x*t0]
5
4
3
2
1
0%
50%
100%
150%
Saturation Grade [q/qmax]
Small town 35% development
Small town 60% development
Small town 90% development
Urban non-central 50% development
Urban non-central 80% development
Urban non-central 100% development
Urban central INT = 2
Urban central INT = 4.5
Urban central INT = 9
Unity

Link within urban areas of the detailed model area

Link Type No.	Description	Available Transport System	No. of lanes	Cap (pcu/hr)	Free-flow speed (kph)
0	Blocked opposite direction	Walk	0	0	0
25	Car Park	Bus, Car, LGV, HGV, Walk	1	100	10
26	Rural dual 4 motorway_Fixed	Bus, Car, LGV, HGV	4	99999	113
27	Rural dual 3 motorway_Fixed	Bus, Car, LGV, HGV	3	99999	108
28	Rural dual 2 motorway_Fixed	Bus, Car, LGV, HGV	2	99999	100
29	Rural dual 3 all purpose_Fixed	Bus, Car, LGV, HGV	3	99999	67
30	Rural single carriageway 10m good_Fixed	Bus, Car, LGV, HGV, Walk	1	99999	63
31	Rural single carriageway 10m typical_Fixed	Bus, Car, LGV, HGV, Walk	1	99999	58
32	Rural single carriageway 7.3m good_Fixed	Bus, Car, LGV, HGV, Walk	1	99999	55
33	Rural single carriageway 7m typical _Fixed	Bus, Car, LGV, HGV, Walk	1	99999	49
34	Rural single carriageway 6.5m bad_Fixed	Bus, Car, LGV, HGV, Walk	1	99999	27
35	Suburban dual 2 slight development_Fixed	Bus, Car, LGV, HGV, Walk	2	99999	81
36	Suburban dual 2 typical development_Fixed	Bus, Car, LGV, HGV, Walk	2	99999	65
37	Suburban dual 2 heavy development_Fixed	Bus, Car, LGV, HGV, Walk	2	99999	33
38	Suburban single slight development_Fixed	Bus, Car, LGV, HGV, Walk	1	99999	48
39	Suburban single typical development_Fixed	Bus, Car, LGV, HGV, Walk	1	99999	41
40	Suburban single heavy development_Fixed	Bus, Car, LGV, HGV, Walk	1	99999	38
41	Urban non-central 50% development_Fixed	Bus, Car, LGV, HGV, Walk	1	99999	45
42	Urban non-central 80% development_Fixed	Bus, Car, LGV, HGV, Walk	1	99999	39
43	Urban non-central 100% development_Fixed	Bus, Car, LGV, HGV, Walk	1	99999	25
44	Urban central INT = 2_Fixed	Bus, Car, LGV, HGV, Walk	1	99999	29
45	Urban central INT = 4.5_Fixed	Bus, Car, LGV, HGV, Walk	1	99999	24
46	Urban central INT = 9_Fixed	Bus, Car, LGV, HGV, Walk	1	99999	19
47	Small town 35% development_Fixed	Bus, Car, LGV, HGV, Walk	1	99999	43
48	Small town 60% development_Fixed	Bus, Car, LGV, HGV, Walk	1	99999	32
49	Small town 90% development_Fixed	Bus, Car, LGV, HGV, Walk	1	99999	28

Appendix B. Count Sites

Full List of Calibration Traffic Count Sites

Count ID	Screenline / Cordon	Location	Count Type	Date
A1	Epping	B182 Bury Lane, Epping	ATC	02/07/13-08/07/13
A2	Epping	B181 Lindsey Street, Epping	ATC	02/07/13-08/07/13
A3	Epping	B1393 High Road, Epping	ATC	02/07/13-08/07/13
A4	Epping	B181 Epping Road, Coopersale	ATC	02/07/13-08/07/13
A5	Epping	Stonards Hill, Epping	ATC	02/07/13-08/07/13
A6	Epping	Bower Hill, Epping	ATC	27/10/14-31/10/14
A7	Epping	Bridge Hill / Brook Road, Epping	ATC	02/07/13-08/07/13
A8	Epping	Theydon Road / Piercing Hill, Theydon Bois	ATC	02/07/13-08/07/13
A9	Epping	B1393 High Road, Epping	ATC	02/07/13-08/07/13
C1	Sawbridgeworth	A1184 Cambridge Road, Sawbridgeworth	ATC	09/06/14-20/06/14
C2	Sawbridgeworth	Station Road, Sawbridgeworth	ATC	30/05/14-05/06/14
C3	Sawbridgeworth	Sheering Lower Rd, Sawbridgeworth (north end)	ATC	06/09/13-12/09/13
C4	Sawbridgeworth	Sheering Lower Rd, Sawbridgeworth (south end)	ATC	06/09/13-12/09/13
C5	Sawbridgeworth	A1184 Harlow Road, Sawbridgeworth	ATC	08/07/13-14/07/13
C6	Sawbridgeworth	High Wych Road, High Wych	ATC	09/06/14-20/06/14
C7	Sawbridgeworth	West Road, Sawbridgeworth	MCC	09/07/13
D1	Harlow	A1184 Cambridge Road, Harlow	ATC	13/03/14-19/03/14
D2	Harlow	B183 Gilden Way, Harlow	ATC	13/03/14-19/03/14
D4	Harlow	A414 London Rd, Harlow	ATC	02/07/13-08/07/13
D5	Harlow	Rye Hill Road, Harlow	ATC	13/05/14-19/05/14
D6	Harlow	Parsloe Road, Harlow	ATC	13/03/14-19/03/14
D7	Harlow	Water Lane, Harlow	ATC	13/03/14-19/03/14
D8	Harlow	Harlow Road, Roydon	ATC	13/03/14-19/03/14
D9	Harlow	A414 Fifth Avenue, Harlow	ATC	13/03/14-19/03/14
F1	Chipping Ongar	A128 Brentwood Road, Marden Ash	ATC	09/06/14-20/06/14
F2	Chipping Ongar	A113 Romford Rd / Stanford Rivers Rd, Marden Ash	ATC	02/07/13-08/07/13

Count ID	Screenline / Cordon	Location	Count Type	Date
G1	Chelmsford	Roxwell Road, Chelmsford	ATC	19/11/13-25/11/13
G2	Chelmsford	Writtle Road, Chelmsford	ATC	13/05/14-19/05/14
G3	Chelmsford	A414 Writtle Bypass, Chelmsford	ATC	11/06/14-17/06/14
G4	Chelmsford	A414 Three Mile Hill, Chelmsford	ATC	09/06/14-20/06/14
G5	Chelmsford	B1007 Galleywood Road, Chelmsford	ATC	13/05/14-19/05/14
H1	Eastern	A120 Braintree	ATC	15/07/14-21/07/14
H2	Eastern	A131 Little Leighs	ATC	09/06/14-20/06/14
H3	Eastern	A12 Hatfield Peverel	TRADS / PCS	02/06/13-28/06/13
J1	Stansted Airport	Round Coppice Road, Birchanger	ATC	08/07/14-21/07/14
J2	Stansted Airport	Church Road, Stansted	ATC	08/07/14-21/07/14
J3	Stansted Airport	Hall Road, Elsenham	ATC	08/07/14-21/07/14
J4	Stansted Airport	Molehill Green Rd, Dunmow	ATC	08/07/14-21/07/14
J5	Stansted Airport	Bamber's Green, Takeley	ATC	08/07/14-14/07/14
J6	Stansted Airport	Parsonage Road, Takeley	ATC	15/07/14-21/07/14
J7	Stansted Airport	Stansted Services, Takeley	ATC	08/07/14-21/07/14
J8	Stansted Airport	Thremhall Avenue, Stansted Airport	ATC	08/07/14-21/07/14
K1	Bishop’s Stortford	A120 Birchanger	ATC	08/07/14-21/07/14
K2	Bishop’s Stortford	A1060 Hallingbury Road, Bishop's Stortford	ATC	08/07/14-21/07/14
K3	Bishop’s Stortford	A1184 Cambridge Rd, Spellbrook	ATC	08/07/14-18/07/14
K4	Bishop’s Stortford	West of A1184 (R'about)	ATC	24/03/14-04/04/14
K5	Bishop’s Stortford	A120 Stortford Road, Little Hadham	ATC	10/06/13-14/06/13
K6	Bishop’s Stortford	Hazelend Road, Bishops Stortford	ATC	22/07/14-29/07/14
K7	Bishop’s Stortford	B1383 Stansted Road, Birchanger	ATC	13/03/12-19/03/12
K8	Bishop’s	Birchanger Lane, Birchanger	ATC	07/10/14-13/10/14

Count ID	Screenline / Cordon	Location	Count Type	Date
	Stortford			
M1	A10 to M11	A507 Baldock Road, Buntingford	ATC	30/05/14-05/06/14
M2	A10 to M11	A10 London Road, Royston	ATC	06/05/13-16/05/13
M3	A10 to M11	B1368 Biggin Hill, Barkway	ATC	30/05/14-05/06/14
M4	A10 to M11	M11 Saffron Walden	TRADS / PCS	15/07/14-21/07/14
M5	A10 to M11	B1383 Cambridge Road, Newport	ATC	21/06/13-27/06/13
N1	Ware	A1170 Wadesmill Road, Ware	ATC	30/05/14-05/06/14
N2	Ware	Fanhams Hall Road, Ware	ATC	08/07/14-14/07/14
N3	Ware	B1004 Widbury Hill, Ware	ATC	24/03/14-04/04/14
N4	Ware	Hollycross Road, Stanstead Abbotts	ATC	08/07/14-21/07/14
N5	Ware	A1170 London Road, Ware	ATC	08/07/14-21/07/14
N6	Ware	Hoe Lane, Ware	ATC	08/07/14-21/07/14
N7	Ware	A119 Hertford Road, Ware	ATC	30/05/14-05/06/14
N8	Ware	B1001 Westmill Road, Ware	ATC	08/07/14-21/07/14
Q1	West of Ware	A10 Wadesmill Bypass	ATC	09/06/14-20/06/14
Q2	West of Ware	Colliers End	ATC	30/05/14-05/06/14
Q3	West of Ware	A602 Westmill Road, Paynes Hall	ATC	14/06/12-20/06/12
Q4	West of Ware	B158 Wadesmill Road, Chapmore End	ATC	14/06/12-20/06/12
Q5	West of Ware	A119 North Road, Hertford	ATC	30/05/14-05/06/14
Q6	West of Ware	B1000 Welwyn Road, Hertford	ATC	05/06/14-11/06/14
Q7	West of Ware	A414 Bypass, Cole Green	ATC	30/05/14-05/06/14
Q8	West of Ware	B158 Lower Hatfield Road, Howe Green	ATC	18/06/12-22/06/12
Q9	West of Ware	A10 Baas Hill, Broxbourne	ATC	02/07/12-13/07/12
Q10	West of Ware	A1170 High Street, Hoddesdon	ATC	02/07/12-13/07/12
Z1	Miscellaneous	B1393 High Road, Epping (north of Lower Bury Lane)	ATC	02/07/13-08/07/13
Z2	Miscellaneous	Eastwick Rd, Harlow	ATC	08/07/14-14/07/14
Z3	Miscellaneous	M25 between J27 and J28	TRADS / PCS	01/01/14-11/04/14

Count ID	Screenline / Cordon	Location	Count Type	Date
Z4	Miscellaneous	M11 J7-J8	TRADS / PCS	01/06/14-30/06/14
Z5	Miscellaneous	M11 J6-J7	TRADS / PCS	01/06/14-30/06/14
Z7	Miscellaneous	M11 J5-J6	TRADS / PCS	01/06/14-30/06/14
Z8	Miscellaneous	M25 J26-J27	TRADS / PCS	01/06/13-30/06/14
Z9	Miscellaneous	A1060 Chelmsford Road, Hatfield Heath	ATC	07/05/14-13/05/14
Z10	Miscellaneous	B184 The Street, High Roding	ATC	03/02/15-09/02/15
Z12	Miscellaneous	A414 Chelmsford Road, High Ongar	ATC	02/07/13-08/07/13
Z13	Miscellaneous	B183 Feathers Hill, Hatfield Broad Oak	ATC	19/09/14-25/09/14
Z17	Miscellaneous	A120 north of Hadham Road, Bishops Stortford	ATC	24/03/13-04/04/14
Z19	Miscellaneous	A120 south of B1004, Bishops Stortford	ATC	24/03/13-04/04/14
Z20	Miscellaneous	A120 Stansted Southgate	ATC	15/07/14-21/07/14
Z21	Miscellaneous	B1256 Tile Kiln Green	ATC	09/06/14-20/06/14
Z22	Miscellaneous	B180 Hunsdon Road, Stanstead Abbotts	ATC	08/07/14-21/07/14
Z23	Miscellaneous	A414 E of Roydon	ATC	31/03/13-04/04/13
Z24	Miscellaneous	B181 High St, Roydon	ATC	07/10/14-13/10/14
Z25	Miscellaneous	B194 Nazeing New Road, Broxbourne	ATC	25/04/14-01/05/14
Z26	Miscellaneous	B194 Crooked Mile, Waltham Abbey	ATC	16/10/14-22/10/14

Full List of Validation Traffic Count Sites

Count ID	Screenline / Cordon	Location	Count Type	Date
B1	East of M11	Stortford Road, Hatfield Heath	ATC	16/10/14-22/10/14
B2	East of M11	Sawbridgeworth Road, Hatfield Heath	ATC	16/10/14-22/10/14
B3	East of M11	B183 Sheering Road, Sheering	ATC	01/04/14-04/04/14
B4	East of M11	Matching Road, Churchgate	ATC	27/03/14-07/04/14
B5	East of M11	Hobbs Cross Road, Churchgate	ATC	27/03/14-07/04/14
B6 / D3	East of M11	Harlow Common, Harlow	ATC	08/07/14-21/07/14

Count ID	Screenline / Cordon	Location	Count Type	Date
B7	East of M11	Hastingwood Road, Hastingwood	ATC	02/07/13-08/07/13
B8	East of M11	A414 Canes Lane, Harlow	ATC	02/07/13-04/07/13
E1	Harlow Screenline	A414 Edinburgh Way, Harlow	ATC	08/07/14-14/07/14
E2	Harlow Screenline	First Ave Mandela Ave, Harlow	ATC	08/07/14-14/07/14
E3	Harlow Screenline	A1025 Second Avenue, Harlow	ATC	07/10/14-13/10/14
E4	Harlow Screenline	A1169 Southern Way, Harlow	ATC	08/07/14-16/07/14
E5	Harlow Screenline	Commonside, Harlow	ATC	13/03/14-19/03/14
L1	North of A120	A120 Standon Road / Horse Cross	MCC	27/03/14
L2	North of A120	A120/Albury End Road Junction	MCC	03/06/14
L3	North of A120	A120 / Albury Road	MCC	01/04/14
L4	North of A120	Carters Hill, Manuden	ATC	29/09/13-04/10/13
L5	North of A120	B1383 Cambridge Road, Quendon	ATC	16/06/14-20/06/14
L6	North of A120	North Hall Road, Quendon	ATC	08/07/14-21/07/14
Z6	Miscellaneous	B1368 Station Road, Braughing	ATC	13/10/14-22/10/14
Z11	Miscellaneous	B184 Ongar Rd, Fyfield	ATC	17/06/13-21/06/13
Z14	Miscellaneous	B1383 Thorley Street, Bishop's Stortford	ATC	08/07/14-17/07/14
Z15	Miscellaneous	Obrey Way, Bishops Stortford	ATC	08/07/14-21/07/14
Z16	Miscellaneous	B1004 east of A1184, Bishops Stortford	ATC	24/03/13-04/04/14
Z18	Miscellaneous	Hadham Road, Bishops Stortford	ATC	24/03/13-04/04/14
Z27	Miscellaneous	A10 Hamels Park, Hay Street	ATC	10/06/14-20/06/14

Full List of Supplementary Turning Count Sites

Count ID	Screenline / Cordon	Location	Count Type	Date
1	n/a	Roydon Road / A1169 Elizabeth Way	MCC	Tuesday 09 July 2013
2	n/a	A1169 Elizabeth Way / Flex Meadow / Access to GSK / Third Ave	MCC	Tuesday 09 July 2013

Count ID	Screenline / Cordon	Location	Count Type	Date
3	n/a	A1169 Third Ave / Peldon Rd / A1169 Katherine's Way / A1025 Third Ave	MCC	Tuesday 09 July 2013
4	n/a	A1019 Velizy Ave / South Gate / A1025 Third Avenue / A1025 Second Avenue	MCC MCC	Tuesday 09 July 2013
5	n/a	A1184 Cambridge Road / A414 Edinburgh Way / A414 / Station Road	MCC	Tuesday 09 July 2013
6	n/a	A1184 Bonks Hill / High Wych Road / Harlow Road	MCC	Tuesday 09 July 2013
7	n/a	Cambridge Rd / West Road / London Rd / Station Rd	MCC	Tuesday 09 July 2013
8	n/a	M11 Junction 7	MCC	Tuesday 01 April 2014

Appendix C. Link and Screenline Calibration

Link Calibration AM

Summary - Observed		TOTAL	CARS	LGV	HGV
DMRB	Pass	93%	97%	100%	100%
	Fail High	3%	0%	0%	0%
	Fail Low	4%	3%	0%	0%
GEH	Pass	89%	90%	100%	100%
	Fail High	1%	1%	0%	0%
	Fail Low	10%	9%	0%	0%

Summary - Synethetic		TOTAL	CARS	LGV	HGV
DMRB	Pass	90%	90%	100%	100%
	Fail High	3%	5%	0%	0%
	Fail Low	7%	6%	0%	0%
GEH	Pass	86%	86%	93%	100%
	Fail High	5%	3%	1%	0%
	Fail Low	9%	10%	6%	0%

Summary - Total		TOTAL	CARS	LGV	HGV
DMRB	Pass	91%	94%	100%	100%
	Fail High	3%	2%	0%	0%
	Fail Low	5%	4%	0%	0%
GEH	Pass	88%	88%	97%	100%
	Fail High	3%	2%	1%	0%
	Fail Low	10%	10%	3%	0%

			MP Observed Flows				MP Modelled Flows				Absolute differences				%age Difference				CAR MP Performance			LGV MP Performance			HGV MP Performance			TOTAL MP Performance		
Road Name	Count ID	Direction	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Flow Difference	GEH	GEH < 5	Flow Difference	GEH	GEH < 5	Flow Difference	GEH	GEH < 5	Flow Difference	GEH	GEH < 5
BURY LANE	A1	NB	190	30	5	225	178	27	6	211	-12	-3	1	-14	-6%	-10%	20%	-6%	Pass	0.88	Pass	Pass	0.56	Pass	Pass	0.43	Pass	Pass	0.95	Pass
BURY LANE	A1	SB	317	50	9	376	367	70	11	448	50	20	2	72	16%	40%	22%	19%	Pass	2.70	Pass	Pass	2.58	Pass	Pass	0.63	Pass	Pass	3.55	Pass
LINDSEY STREET	A2	EB	249	39	7	295	178	16	1	195	-71	-23	-6	-100	-29%	-59%	-86%	-34%	Pass	4.86	Pass	Pass	4.39	Pass	Pass	3.00	Pass	Pass	6.39	Fail
LINDSEY STREET	A2	WB	137	22	4	163	152	22	1	175	15	0	-3	12	11%	0%	-75%	7%	Pass	1.25	Pass	Pass	0.00	Pass	Pass	1.90	Pass	Pass	0.92	Pass
THORNWOOD ROAD	A3	NB	451	71	13	535	478	76	14	568	27	5	1	33	6%	7%	8%	6%	Pass	1.25	Pass	Pass	0.58	Pass	Pass	0.27	Pass	Pass	1.41	Pass
THORNWOOD ROAD	A3	SB	574	91	16	681	566	69	18	653	-8	-22	2	-28	-1%	-24%	13%	-4%	Pass	0.34	Pass	Pass	2.46	Pass	Pass	0.49	Pass	Pass	1.08	Pass
EPPING ROAD	A4	NEB	283	45	8	336	235	44	6	285	-48	-1	-2	-51	-17%	-2%	-25%	-15%	Pass	2.98	Pass	Pass	0.15	Pass	Pass	0.76	Pass	Pass	2.89	Pass
EPPING ROAD	A4	SWB	603	95	17	715	416	89	16	521	-187	-6	-1	-194	-31%	-6%	-6%	-27%	Fail	8.28	Fail	Pass	0.63	Pass	Pass	0.25	Pass	Fail	7.80	Fail
STONARDS HILL	A5	NWB	122	15	2	139	145	7	2	154	23	-8	0	15	19%	-53%	0%	11%	Pass	1.99	Pass	Pass	2.41	Pass	Pass	0.00	Pass	Pass	1.24	Pass
STONARDS HILL	A5	SEB	93	11	1	105	73	8	1	82	-20	-3	0	-23	-22%	-27%	0%	-22%	Pass	2.20	Pass	Pass	0.97	Pass	Pass	0.00	Pass	Pass	2.38	Pass
BOWER HILL	A6	NB	112	14	1	127	137	10	0	147	25	-4	-1	20	22%	-29%	-100%	16%	Pass	2.24	Pass	Pass	1.15	Pass	Pass	1.41	Pass	Pass	1.71	Pass
BOWER HILL	A6	SB	84	10	1	95	112	12	0	124	28	2	-1	29	33%	20%	-100%	31%	Pass	2.83	Pass	Pass	0.60	Pass	Pass	1.41	Pass	Pass	2.77	Pass
BRIDGE HILL	A7	EB	110	13	1	124	84	10	0	94	-26	-3	-1	-30	-24%	-23%	-100%	-24%	Pass	2.64	Pass	Pass	0.88	Pass	Pass	1.41	Pass	Pass	2.87	Pass
BRIDGE HILL	A7	WB	182	22	2	206	179	15	0	194	-3	-7	-2	-12	-2%	-32%	-100%	-6%	Pass	0.22	Pass	Pass	1.63	Pass	Pass	2.00	Pass	Pass	0.85	Pass
THEYDON ROAD	A8	NB	350	42	4	396	294	49	9	352	-56	7	5	-44	-16%	17%	125%	-11%	Pass	3.12	Pass	Pass	1.04	Pass	Pass	1.96	Pass	Pass	2.28	Pass
THEYDON ROAD	A8	SB	267	32	3	302	250	30	2	282	-17	-2	-1	-20	-6%	-6%	-33%	-7%	Pass	1.06	Pass	Pass	0.36	Pass	Pass	0.63	Pass	Pass	1.17	Pass
EPPING ROAD	A9	NEB	665	105	19	789	666	100	16	782	1	-5	-3	-7	0%	-5%	-16%	-1%	Pass	0.04	Pass	Pass	0.49	Pass	Pass	0.72	Pass	Pass	0.25	Pass
EPPING ROAD	A9	SWB	812	128	23	963	732	117	23	872	-80	-11	0	-91	-10%	-9%	0%	-9%	Pass	2.88	Pass	Pass	0.99	Pass	Pass	0.00	Pass	Pass	3.00	Pass
CAMBRIDGE ROAD	C1	NB	746	144	48	938	701	136	39	876	-45	-8	-9	-62	-6%	-6%	-19%	-7%	Pass	1.67	Pass	Pass	0.68	Pass	Pass	1.36	Pass	Pass	2.06	Pass
CAMBRIDGE ROAD	C1	SB	657	126	42	825	737	140	43	920	80	14	1	95	12%	11%	2%	12%	Pass	3.03	Pass	Pass	1.21	Pass	Pass	0.15	Pass	Pass	3.22	Pass
STATION ROAD	C2	EB	184	22	2	208	190	14	0	204	6	-8	-2	-4	3%	-36%	-100%	-2%	Pass	0.44	Pass	Pass	1.89	Pass	Pass	2.00	Pass	Pass	0.28	Pass
STATION ROAD	C2	WB	235	28	3	266	189	27	3	219	-46	-1	0	-47	-20%	-4%	0%	-18%	Pass	3.16	Pass	Pass	0.19	Pass	Pass	0.00	Pass	Pass	3.02	Pass
SHEERING LOWER ROAD	C3	NB	207	25	3	235	184	24	3	211	-23	-1	0	-24	-11%	-4%	0%	-10%	Pass	1.64	Pass	Pass	0.20	Pass	Pass	0.00	Pass	Pass	1.61	Pass
SHEERING LOWER ROAD	C3	SB	233	28	3	264	158	30	0	188	-75	2	-3	-76	-32%	7%	-100%	-29%	Pass	5.36	Fail	Pass	0.37	Pass	Pass	2.45	Pass	Pass	5.06	Fail
SHEERING LOWER ROAD	C4	NB	125	15	2	142	136	21	0	157	11	6	-2	15	9%	40%	-100%	11%	Pass	0.96	Pass	Pass	1.41	Pass	Pass	2.00	Pass	Pass	1.23	Pass
SHEERING LOWER ROAD	C4	SB	180	22	2	204	126	30	0	156	-54	8	-2	-48	-30%	36%	-100%	-24%	Pass	4.37	Pass	Pass	1.57	Pass	Pass	2.00	Pass	Pass	3.58	Pass
HARLOW ROAD	C5	NB	455	88	29	572	515	100	33	648	60	12	4	76	13%	14%	14%	13%	Pass	2.72	Pass	Pass	1.24	Pass	Pass	0.72	Pass	Pass	3.08	Pass
HARLOW ROAD	C5	SB	669	129	43	841	733	134	30	897	64	5	-13	56	10%	4%	-30%	7%	Pass	2.42	Pass	Pass	0.44	Pass	Pass	2.15	Pass	Pass	1.90	Pass
HIGH WYCH ROAD	C6	EB	393	47	5	445	311	41	9	361	-82	-6	4	-84	-21%	-13%	80%	-19%	Pass	4.37	Pass	Pass	0.90	Pass	Pass	1.51	Pass	Pass	4.18	Pass
HIGH WYCH ROAD	C6	WB	576	69	7	652	566	83	23	672	-10	14	16	20	-2%	20%	229%	3%	Pass	0.42	Pass	Pass	1.61	Pass	Pass	4.13	Pass	Pass	0.78	Pass
WEST ROAD	C7	EB	253	31	3	287	205	18	0	223	-48	-13	-3	-64	-19%	-42%	-100%	-22%	Pass	3.17	Pass	Pass	2.63	Pass	Pass	2.45	Pass	Pass	4.01	Pass
WEST ROAD	C7	WB	127	15	2	144	81	6	0	87	-46	-9	-2	-57	-36%	-60%	-100%	-40%	Pass	4.51	Pass	Pass	2.78	Pass	Pass	2.00	Pass	Pass	5.30	Fail
HARLOW ROAD	D1	NB	444	85	28	557	515	100	33	648	71	15	5	91	16%	18%	18%	16%	Pass	3.24	Pass	Pass	1.56	Pass	Pass	0.91	Pass	Pass	3.71	Pass
HARLOW ROAD	D1	SB	782	151	50	983	754	135	30	919	-28	-16	-20	-64	-4%	-11%	-40%	-7%	Pass	1.01	Pass	Pass	1.34	Pass	Pass	3.16	Pass	Pass	2.08	Pass
GILDEN WAY	D2	NEB	606	96	17	719	577	91	13	681	-29	-5	-4	-38	-5%	-5%	-24%	-5%	Pass	1.19	Pass	Pass	0.52	Pass	Pass	1.03	Pass	Pass	1.44	Pass
GILDEN WAY	D2	SWB	941	149	27	1117	807	138	23	968	-134	-11	-4	-149	-14%	-7%	-15%	-13%	Pass	4.53	Pass	Pass	0.92	Pass	Pass	0.80	Pass	Pass	4.61	Pass
LONDON ROAD	D4	NB	1408	271	90	1769	1535	289	89	1913	127	18	-1	144	9%	7%	-1%	8%	Pass	3.31	Pass	Pass	1.08	Pass	Pass	0.11	Pass	Pass	3.36	Pass
LONDON ROAD	D4	SB	1391	268	89	1748	1422	268	88	1778	31	0	-1	30	2%	0%	-1%	2%	Pass	0.83	Pass	Pass	0.00	Pass	Pass	0.11	Pass	Pass	0.71	Pass
RYE HILL ROAD	D5	NWB	159	19	2	180	146	21	3	170	-13	2	1	-10	-8%	11%	50%	-6%	Pass	1.05	Pass	Pass	0.45	Pass	Pass	0.63	Pass	Pass	0.76	Pass
RYE HILL ROAD	D5	SEB	88	11	1	100	92	9	1	102	4	-2	0	2	5%	-18%	0%	2%	Pass	0.42	Pass	Pass	0.63	Pass	Pass	0.00	Pass	Pass	0.20	Pass
PARSLOE ROAD	D6	NEB	170	20	2	192	99	10	1	110	-71	-10	-1	-82	-42%	-50%	-50%	-43%	Pass	6.12	Fail	Pass	2.58	Pass	Pass	0.82	Pass	Pass	6.67	Fail
PARSLOE ROAD	D6	SWB	385	46	5	436	338	31	4	373	-47	-15	-1	-63	-12%	-33%	-20%	-14%	Pass	2.47	Pass	Pass	2.42	Pass	Pass	0.47	Pass	Pass	3.13	Pass
WATER LANE	D7	NEB	640	101	18	759	682	99	20	801	42	-2	2	42	7%	-2%	11%	6%	Pass	1.63	Pass	Pass	0.20	Pass	Pass	0.46	Pass	Pass	1.50	Pass
WATER LANE	D7	SWB	601	95	17	713	654	116	19	789	53	21	2	76	9%	22%	12%	11%	Pass	2.12	Pass	Pass	2.04	Pass	Pass	0.47	Pass	Pass	2.77	Pass
HARLOW ROAD	D8	EB	361	43	5	409	284	55	10	349	-77	12	5	-60	-21%	28%	100%	-15%	Pass	4.29	Pass	Pass	1.71	Pass	Pass	1.83	Pass	Pass	3.08	Pass
HARLOW ROAD	D8	WB	96	12	1	109	115	27	7	149	19	15	6	40	20%	125%	600%	37%	Pass	1.85	Pass	Pass	3.40	Pass	Pass	3.00	Pass	Pass	3.52	Pass
FIFTH AVENUE ALLENDE AVENUE	D9	NB	728	140	47	915	622	130	49	801	-106	-10	2	-114	-15%	-7%	4%	-12%	Pass	4.08	Pass	Pass	0.86	Pass	Pass	0.29	Pass	Pass	3.89	Pass
FIFTH AVENUE ALLENDE AVENUE	D9	SB	675	130	43	848	748	149	63	960	73	19	20	112	11%	15%	47%	13%	Pass	2.74	Pass	Pass	1.61	Pass	Pass	2.75	Pass	Pass	3.73	Pass
BRENTWOOD ROAD	F1	NB	221	43	14	278	227	49	12	288	6	6	-2	10	3%	14%	-14%	4%	Pass	0.40	Pass	Pass	0.88	Pass	Pass	0.55	Pass	Pass	0.59	Pass
BRENTWOOD ROAD	F1	SB	290	56	19	365	324	61	26	411	34	5	7	46	12%	9%	37%	13%	Pass	1.94	Pass	Pass	0.65	Pass	Pass	1.48	Pass	Pass	2.34	Pass
LONDON ROAD	F2	NEB	214	41	14	269	257	34	17	308	43	-7	3	39	20%	-17%	21%	14%	Pass	2.80	Pass	Pass	1.14	Pass	Pass	0.76	Pass	Pass	2.30	Pass
LONDON ROAD	F2	SWB	472	91	30	593	440	80	21	541	-32	-11	-9	-52	-7%	-12%	-30%	-9%	Pass	1.50	Pass	Pass	1.19	Pass	Pass	1.78	Pass	Pass	2.18	Pass

Link Calibration AM

			MP Observed Flows				MP Modelled Flows				Absolute differences				%age Difference				CAR MP Performance			LGV MP Performance			HGV MP Performance			TOTAL MP Performance		
Road Name	Count ID	Direction	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Flow Difference	GEH	GEH < 5	Flow Difference	GEH	GEH < 5	Flow Difference	GEH	GEH < 5	Flow Difference	GEH	GEH < 5
ROXWELL ROAD	G1	EB	574	111	37	722	533	107	33	673	-41	-4	-4	-49	-7%	-4%	-11%	-7%	Pass	1.74	Pass	Pass	0.38	Pass	Pass	0.68	Pass	Pass	1.86	Pass
ROXWELL ROAD	G1	WB	640	123	41	804	539	103	37	679	-101	-20	-4	-125	-16%	-16%	-10%	-16%	Fail	4.16	Pass	Pass	1.88	Pass	Pass	0.64	Pass	Fail	4.59	Pass
CHELMSFORD ROAD	G2	EB	465	56	6	527	471	56	7	534	6	0	1	7	1%	0%	17%	1%	Pass	0.28	Pass	Pass	0.00	Pass	Pass	0.39	Pass	Pass	0.30	Pass
CHELMSFORD ROAD	G2	WB	317	38	4	359	335	45	7	387	18	7	3	28	6%	18%	75%	8%	Pass	1.00	Pass	Pass	1.09	Pass	Pass	1.28	Pass	Pass	1.45	Pass
0	G3	EB	411	79	26	516	393	75	24	492	-18	-4	-2	-24	-4%	-5%	-8%	-5%	Pass	0.90	Pass	Pass	0.46	Pass	Pass	0.40	Pass	Pass	1.07	Pass
0	G3	WB	553	107	35	695	544	112	35	691	-9	5	0	-4	-2%	5%	0%	-1%	Pass	0.38	Pass	Pass	0.48	Pass	Pass	0.00	Pass	Pass	0.15	Pass
THREE MILE HILL	G4	NB	1174	226	75	1475	1580	299	77	1956	406	73	2	481	35%	32%	3%	33%	Fail	10.94	Fail	Pass	4.51	Pass	Pass	0.23	Pass	Fail	11.61	Fail
THREE MILE HILL	G4	SB	963	186	62	1211	1369	250	66	1685	406	64	4	474	42%	34%	6%	39%	Fail	11.89	Fail	Pass	4.33	Pass	Pass	0.50	Pass	Fail	12.46	Fail
WOOD STREET	G5	NB	600	95	17	712	167	18	14	199	-433	-77	-3	-513	-72%	-81%	-18%	-72%	Fail	22.11	Fail	Pass	10.24	Fail	Pass	0.76	Pass	Fail	24.04	Fail
WOOD STREET	G5	SB	480	76	14	570	193	16	11	220	-287	-60	-3	-350	-60%	-79%	-21%	-61%	Fail	15.65	Fail	Pass	8.85	Fail	Pass	0.85	Pass	Fail	17.61	Fail
0	H1	EB	952	183	61	1196	957	161	61	1179	5	-22	0	-17	1%	-12%	0%	-1%	Pass	0.16	Pass	Pass	1.68	Pass	Pass	0.00	Pass	Pass	0.49	Pass
0	H1	WB	1441	278	92	1811	1457	297	93	1847	16	19	1	36	1%	7%	1%	2%	Pass	0.42	Pass	Pass	1.12	Pass	Pass	0.10	Pass	Pass	0.84	Pass
0	H2	NEB	673	130	43	846	700	146	41	887	27	16	-2	41	4%	12%	-5%	5%	Pass	1.03	Pass	Pass	1.36	Pass	Pass	0.31	Pass	Pass	1.39	Pass
0	H2	SWB	1142	220	73	1435	1176	233	76	1485	34	13	3	50	3%	6%	4%	3%	Pass	1.00	Pass	Pass	0.86	Pass	Pass	0.35	Pass	Pass	1.31	Pass
0	H3	EB	2580	497	165	3242	2554	481	167	3202	-26	-16	2	-40	-1%	-3%	1%	-1%	Pass	0.51	Pass	Pass	0.72	Pass	Pass	0.16	Pass	Pass	0.70	Pass
0	H3	WB	3227	621	207	4055	3186	608	204	3998	-41	-13	-3	-57	-1%	-2%	-1%	-1%	Pass	0.72	Pass	Pass	0.52	Pass	Pass	0.21	Pass	Pass	0.90	Pass
ROUND COPPICE ROAD	J1	NEB	428	52	5	485	428	41	7	476	0	-11	2	-9	0%	-21%	40%	-2%	Pass	0.00	Pass	Pass	1.61	Pass	Pass	0.82	Pass	Pass	0.41	Pass
ROUND COPPICE ROAD	J1	SWB	275	33	4	312	370	58	8	436	95	25	4	124	35%	76%	100%	40%	Pass	5.29	Fail	Pass	3.71	Pass	Pass	1.63	Pass	Fail	6.41	Fail
CHURCH ROAD	J2	EB	283	34	4	321	256	44	3	303	-27	10	-1	-18	-10%	29%	-25%	-6%	Pass	1.64	Pass	Pass	1.60	Pass	Pass	0.53	Pass	Pass	1.02	Pass
CHURCH ROAD	J2	WB	234	28	3	265	194	9	2	205	-40	-19	-1	-60	-17%	-68%	-33%	-23%	Pass	2.73	Pass	Pass	4.42	Pass	Pass	0.63	Pass	Pass	3.91	Pass
HALL ROAD	J3	NB	118	14	2	134	113	21	14	148	-5	7	12	14	-4%	50%	600%	10%	Pass	0.47	Pass	Pass	1.67	Pass	Pass	4.24	Pass	Pass	1.18	Pass
HALL ROAD	J3	SB	177	21	2	200	157	21	5	183	-20	0	3	-17	-11%	0%	150%	-9%	Pass	1.55	Pass	Pass	0.00	Pass	Pass	1.60	Pass	Pass	1.23	Pass
0	J4	NEB	50	6	1	57	37	3	0	40	-13	-3	-1	-17	-26%	-50%	-100%	-30%	Pass	1.97	Pass	Pass	1.41	Pass	Pass	1.41	Pass	Pass	2.44	Pass
0	J4	SWB	128	15	2	145	122	17	2	141	-6	2	0	-4	-5%	13%	0%	-3%	Pass	0.54	Pass	Pass	0.50	Pass	Pass	0.00	Pass	Pass	0.33	Pass
0	J5	NWB	43	5	1	49	0	20	0	20	-43	15	-1	-29	-100%	300%	-100%	-59%	Pass	9.27	Fail	Pass	4.24	Pass	Pass	1.41	Pass	Pass	4.94	Pass
0	J5	SEB	31	4	0	35	0	0	0	0	-31	-4	0	-35	-100%	-100%	0%	-100%	Pass	7.87	Fail	Pass	2.83	Pass	Pass	0.00	Pass	Pass	8.37	Fail
PARSONAGE ROAD	J6	NB	207	25	3	235	207	13	3	223	0	-12	0	-12	0%	-48%	0%	-5%	Pass	0.00	Pass	Pass	2.75	Pass	Pass	0.00	Pass	Pass	0.79	Pass
PARSONAGE ROAD	J6	SB	157	19	2	178	152	22	3	177	-5	3	1	-1	-3%	16%	50%	-1%	Pass	0.40	Pass	Pass	0.66	Pass	Pass	0.63	Pass	Pass	0.08	Pass
0	J7	NWB	300	58	19	377	285	46	26	357	-15	-12	7	-20	-5%	-21%	37%	-5%	Pass	0.88	Pass	Pass	1.66	Pass	Pass	1.48	Pass	Pass	1.04	Pass
0	J7	SEB	135	26	9	170	150	29	8	187	15	3	-1	17	11%	12%	-11%	10%	Pass	1.26	Pass	Pass	0.57	Pass	Pass	0.34	Pass	Pass	1.27	Pass
THREMHALL AVENUE	J8	NEB	479	92	31	602	564	94	29	687	85	2	-2	85	18%	2%	-6%	14%	Pass	3.72	Pass	Pass	0.21	Pass	Pass	0.37	Pass	Pass	3.35	Pass
THREMHALL AVENUE	J8	SWB	522	100	33	655	552	99	32	683	30	-1	-1	28	6%	-1%	-3%	4%	Pass	1.29	Pass	Pass	0.10	Pass	Pass	0.18	Pass	Pass	1.08	Pass
0	K1	EB	1146	221	73	1440	1121	181	72	1374	-25	-40	-1	-66	-2%	-18%	-1%	-5%	Pass	0.74	Pass	Pass	2.82	Pass	Pass	0.12	Pass	Pass	1.76	Pass
0	K1	WB	1201	231	77	1509	1180	240	74	1494	-21	9	-3	-15	-2%	4%	-4%	-1%	Pass	0.61	Pass	Pass	0.59	Pass	Pass	0.35	Pass	Pass	0.39	Pass
HALLINGBURY ROAD	K2	NB	413	80	26	519	404	76	26	506	-9	-4	0	-13	-2%	-5%	0%	-3%	Pass	0.45	Pass	Pass	0.45	Pass	Pass	0.00	Pass	Pass	0.57	Pass
HALLINGBURY ROAD	K2	SB	387	75	25	487	351	77	29	457	-36	2	4	-30	-9%	3%	16%	-6%	Pass	1.87	Pass	Pass	0.23	Pass	Pass	0.77	Pass	Pass	1.38	Pass
0	K3	NB	509	98	33	640	566	116	37	719	57	18	4	79	11%	18%	12%	12%	Pass	2.46	Pass	Pass	1.74	Pass	Pass	0.68	Pass	Pass	3.03	Pass
0	K3	SB	586	113	38	737	664	120	39	823	78	7	1	86	13%	6%	3%	12%	Pass	3.12	Pass	Pass	0.65	Pass	Pass	0.16	Pass	Pass	3.08	Pass
GREAT HADHAM ROAD	K4	EB	179	28	5	212	214	58	10	282	35	30	5	70	20%	107%	100%	33%	Pass	2.50	Pass	Pass	4.57	Pass	Pass	1.83	Pass	Pass	4.45	Pass
GREAT HADHAM ROAD	K4	WB	396	62	11	469	386	46	4	436	-10	-16	-7	-33	-3%	-26%	-64%	-7%	Pass	0.51	Pass	Pass	2.18	Pass	Pass	2.56	Pass	Pass	1.55	Pass
STORTFORD ROAD	K5	EB	455	88	29	572	439	62	28	529	-16	-26	-1	-43	-4%	-30%	-3%	-8%	Pass	0.76	Pass	Pass	3.00	Pass	Pass	0.19	Pass	Pass	1.83	Pass
STORTFORD ROAD	K5	WB	587	113	38	738	589	131	44	764	2	18	6	26	0%	16%	16%	4%	Pass	0.08	Pass	Pass	1.63	Pass	Pass	0.94	Pass	Pass	0.95	Pass
HAZELEND ROAD	K6	NEB	167	20	2	189	95	9	0	104	-72	-11	-2	-85	-43%	-55%	-100%	-45%	Pass	6.29	Fail	Pass	2.89	Pass	Pass	2.00	Pass	Pass	7.02	Fail
HAZELEND ROAD	K6	SWB	238	29	3	270	145	11	1	157	-93	-18	-2	-113	-39%	-62%	-67%	-42%	Pass	6.72	Fail	Pass	4.02	Pass	Pass	1.41	Pass	Fail	7.73	Fail
STANSTED ROAD	K7	NEB	440	69	12	521	511	103	19	633	71	34	7	112	16%	49%	58%	21%	Pass	3.26	Pass	Pass	3.67	Pass	Pass	1.78	Pass	Fail	4.66	Pass
STANSTED ROAD	K7	SWB	769	121	22	912	820	112	28	960	51	-9	6	48	7%	-7%	27%	5%	Pass	1.81	Pass	Pass	0.83	Pass	Pass	1.20	Pass	Pass	1.57	Pass
BIRCHANGER LANE	K8	NB	105	13	1	119	82	12	0	94	-23	-1	-1	-25	-22%	-8%	-100%	-21%	Pass	2.38	Pass	Pass	0.28	Pass	Pass	1.41	Pass	Pass	2.42	Pass
BIRCHANGER LANE	K8	SB	48	6	1	55	39	6	0	45	-9	0	-1	-10	-19%	0%	-100%	-18%	Pass	1.36	Pass	Pass	0.00	Pass	Pass	1.41	Pass	Pass	1.41	Pass
BALDOCK ROAD	M1	EB	436	84	28	548	444	115	31	590	8	31	3	42	2%	37%	11%	8%	Pass	0.38	Pass	Pass	3.11	Pass	Pass	0.55	Pass	Pass	1.76	Pass
BALDOCK ROAD	M1	WB	382	73	24	479	467	78	25	570	85	5	1	91	22%	7%	4%	19%	Pass	4.13	Pass	Pass	0.58	Pass	Pass	0.20	Pass	Pass	3.97	Pass
LONDON ROAD	M2	NB	301	58	19	378	315	59	21	395	14	1	2	17	5%	2%	11%	4%	Pass	0.80	Pass	Pass	0.13	Pass	Pass	0.45	Pass	Pass	0.86	Pass
LONDON ROAD	M2	SB	341	66	22	429	347	69	24	440	6	3	2	11	2%	5%	9%	3%	Pass	0.32	Pass	Pass	0.37	Pass	Pass	0.42	Pass	Pass	0.53	Pass
LONDON ROAD	M3	NB	74	12	2	88	33	2	0	35	-41	-10	-2	-53	-55%	-83%	-100%	-60%	Pass	5.61	Fail	Pass	3.78	Pass	Pass	2.00	Pass	Pass	6.76	Fail
LONDON ROAD	M3	SB	94	15	3	112	60	8	1	69	-34	-7	-2	-43	-36%	-47%	-67%	-38%	Pass	3.87	Pass	Pass	2.06	Pass	Pass	1.41	Pass	Pass	4.52	Pass
0	M4	NB	1788	421	163	2372	1708	441	144	2293	-80	20	-19	-79	-4%	5%	-12%	-3%	Pass	1.91	Pass	Pass	0.96	Pass	Pass	1.53	Pass	Pass	1.64	Pass
0	M4	SB	1540	362	140	2042	1485	418	137	2040	-55	56	-3	-2	-4%	15%	-2%	0%	Pass	1.41	Pass	Pass	2.84	Pass	Pass	0.25	Pass	Pass	0.04	Pass
LONDON ROAD	M5	NB	625	99	18	742	626	119	17	762	1	20	-1	20	0%	20%	-6%	3%	Pass	0.04	Pass	Pass	1.92	Pass	Pass	0.24	Pass	Pass	0.73	Pass
LONDON ROAD	M5	SB	557	88	16	661	531	89	19	639	-26	1	3	-22	-5%	1%	19%	-3%	Pass	1.11	Pass	Pass	0.11	Pass	Pass	0.72	Pass	Pass	0.86	Pass
WADESMILL ROAD	N1	NB	323	62	21	406	368	36	17	421	45	-26	-4	15	14%	-42%	-19%	4%	Pass	2.42	Pass	Pass	3.71	Pass	Pass	0.92	Pass	Pass	0.74	Pass
WADESMILL ROAD	N1	SB	409	79	26	514	469	107	32	608	60	28	6	94	15%	35%	23%	18%	Pass	2.86	Pass	Pass	2.90	Pass	Pass	1.11	Pass	Pass	3.97	Pass
0	N2	EB	34	4	0	38	10	0	0	10	-24	-4	0	-28	-71%	-100%	0%	-74%	Pass	5.12	Fail	Pass	2.83	Pass	Pass	0.00	Pass	Pass	5.72	Fail
0	N2	WB	30	4	0	34	22	0	0	22	-8	-4	0	-12	-27%	-100%	0%	-35%	Pass	1.57	Pass	Pass	2.83	Pass	Pass	0.00	Pass	Pass	2.27	Pass
0	N3	EB	70	11	2	83	71	33	2	106	1	22	0	23	1%	200%	0%	28%	Pass	0.12	Pass	Pass	4.69	Pass	Pass	0.00	Pass	Pass	2.37	Pass
0	N3	WB	178	28	5	211	157	11	6	174	-21	-17	1	-37	-12%	-61%	20%	-18%	Pass	1.62	Pass	Pass	3.85	Pass	Pass	0.43	Pass	Pass	2.67	Pass
HOLLYCROSS ROAD	N4	NWB	117	14	2	133	100	41	6	147	-17	27	4	14	-15%	193%	200%	11%	Pass	1.63	Pass	Pass	5.15	Fail	Pass	2.00	Pass	Pass	1.18	Pass
HOLLYCROSS ROAD	N4	SEB	184	22	2	208	104	41	10	155	-80	19	8	-53	-43%	86%	400%	-25%	Pass	6.67	Fail	Pass	3.39	Pass	Pass	3.27	Pass	Pass	3.93	Pass
VIADUCT ROAD	N5	NWB	462	89	30	581	395	61	29	485	-67	-28	-1	-96	-15%	-31%	-3%	-17%	Pass	3.24	Pass	Pass	3.23	Pass	Pass	0.18	Pass	Pass	4.16	Pass
VIADUCT ROAD	N5	SEB	401	77	26	504	442	69	19	530	41	-8	-7	26	10%	-10%	-27%	5%	Pass	2.00	Pass	Pass	0.94	Pass	Pass	1.48	Pass	Pass	1.14	Pass
0	N6	NB	336	41	4	381	349	1	0	350	13	-40	-4	-31	4%	-98%	-100%	-8%	Pass	0.70	Pass	Pass	8.73	Fail	Pass	2.83	Pass	Pass	1.62	Pass
0	N6	SB	293	35	4	332	363	59	0	422	70	24	-4	90	24%	69%	-100%	27%	Pass	3.87	Pass	Pass	3.50	Pass	Pass	2.83	Pass	Pass	4.64	Pass
WARE ROAD	N7	EB	317	61	20	398	380	95	23	498	63	34	3	100	20%	56%	15%	25%	Pass	3.37	Pass	Pass	3.85	Pass	Pass	0.65	Pass	Pass	4.72	Pass
WARE ROAD	N7	WB	344	66	22	432	270	28	22	320	-74	-38	0	-112	-22%	-58%	0%	-26%	Pass	4.22	Pass	Pass	5.54	Fail	Pass	0.00	Pass	Fail	5.78	Fail
WESTMILL ROAD	N8	NWB	494	78	14	586	442	80	18	540	-52	2	4	-46	-11%	3%	29%	-8%	Pass	2.40	Pass	Pass	0.23	Pass	Pass	1.00	Pass	Pass	1.94	Pass
WESTMILL ROAD	N8	SEB	700	111	20	831	596	103	15	714	-104	-8	-5	-117	-15%	-7%	-25%	-14%	Pass	4.09	Pass	Pass	0.77	Pass	Pass	1.20	Pass	Pass	4.21	Pass

Link Calibration AM

			MP Observed Flows				MP Modelled Flows				Absolute differences				%age Difference				CAR MP Performance			LGV MP Performance			HGV MP Performance			TOTAL MP Performance		
Road Name	Count ID	Direction	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Flow Difference	GEH	GEH < 5	Flow Difference	GEH	GEH < 5	Flow Difference	GEH	GEH < 5	Flow Difference	GEH	GEH < 5
0	Q1	NB	797	153	51	1001	931	115	48	1094	134	-38	-3	93	17%	-25%	-6%	9%	Fail	4.56	Pass	Pass	3.28	Pass	Pass	0.43	Pass	Pass	2.87	Pass
0	Q1	SB	1537	296	98	1931	1540	334	93	1967	3	38	-5	36	0%	13%	-5%	2%	Pass	0.08	Pass	Pass	2.14	Pass	Pass	0.51	Pass	Pass	0.82	Pass
0	Q2	NB	109	13	1	123	130	33	9	172	21	20	8	49	19%	154%	800%	40%	Pass	1.92	Pass	Pass	4.17	Pass	Pass	3.58	Pass	Pass	4.03	Pass
0	Q2	SB	170	21	2	193	182	33	13	228	12	12	11	35	7%	57%	550%	18%	Pass	0.90	Pass	Pass	2.31	Pass	Pass	4.02	Pass	Pass	2.41	Pass
WESTMILL ROAD	Q3	NB	962	185	62	1209	800	169	58	1027	-162	-16	-4	-182	-17%	-9%	-6%	-15%	Fail	5.46	Fail	Pass	1.20	Pass	Pass	0.52	Pass	Fail	5.44	Fail
WESTMILL ROAD	Q3	SB	1086	209	70	1365	1009	181	48	1238	-77	-28	-22	-127	-7%	-13%	-31%	-9%	Pass	2.38	Pass	Pass	2.01	Pass	Pass	2.86	Pass	Pass	3.52	Pass
WADESMILL ROAD	Q4	NEB	339	53	10	402	297	64	5	366	-42	11	-5	-36	-12%	21%	-50%	-9%	Pass	2.36	Pass	Pass	1.44	Pass	Pass	1.83	Pass	Pass	1.84	Pass
WADESMILL ROAD	Q4	SWB	453	72	13	538	466	57	17	540	13	-15	4	2	3%	-21%	31%	0%	Pass	0.61	Pass	Pass	1.87	Pass	Pass	1.03	Pass	Pass	0.09	Pass
0	Q5	NB	199	38	13	250	272	53	20	345	73	15	7	95	37%	39%	54%	38%	Pass	4.76	Pass	Pass	2.22	Pass	Pass	1.72	Pass	Pass	5.51	Fail
0	Q5	SB	383	74	25	482	419	86	43	548	36	12	18	66	9%	16%	72%	14%	Pass	1.80	Pass	Pass	1.34	Pass	Pass	3.09	Pass	Pass	2.91	Pass
WELWYN ROAD	Q6	EB	530	84	15	629	371	41	27	439	-159	-43	12	-190	-30%	-51%	80%	-30%	Fail	7.49	Fail	Pass	5.44	Fail	Pass	2.62	Pass	Fail	8.22	Fail
WELWYN ROAD	Q6	WB	265	42	8	315	256	45	22	323	-9	3	14	8	-3%	7%	175%	3%	Pass	0.56	Pass	Pass	0.45	Pass	Pass	3.61	Pass	Pass	0.45	Pass
0	Q7	EB	781	150	50	981	931	208	47	1186	150	58	-3	205	19%	39%	-6%	21%	Fail	5.13	Fail	Pass	4.34	Pass	Pass	0.43	Pass	Fail	6.23	Fail
0	Q7	WB	1264	243	81	1588	1271	237	68	1576	7	-6	-13	-12	1%	-2%	-16%	-1%	Pass	0.20	Pass	Pass	0.39	Pass	Pass	1.51	Pass	Pass	0.30	Pass
LOWER HATFIELD ROAD	Q8	NEB	270	43	8	321	269	38	9	316	-1	-5	1	-5	0%	-12%	13%	-2%	Pass	0.06	Pass	Pass	0.79	Pass	Pass	0.34	Pass	Pass	0.28	Pass
LOWER HATFIELD ROAD	Q8	SWB	375	59	11	445	369	58	11	438	-6	-1	0	-7	-2%	-2%	0%	-2%	Pass	0.31	Pass	Pass	0.13	Pass	Pass	0.00	Pass	Pass	0.33	Pass
0	Q9	NB	1653	318	106	2077	1608	261	101	1970	-45	-57	-5	-107	-3%	-18%	-5%	-5%	Pass	1.11	Pass	Pass	3.35	Pass	Pass	0.49	Pass	Pass	2.38	Pass
0	Q9	SB	1895	365	121	2381	1919	346	126	2391	24	-19	5	10	1%	-5%	4%	0%	Pass	0.55	Pass	Pass	1.01	Pass	Pass	0.45	Pass	Pass	0.20	Pass
HIGH ROAD	Q10	NB	759	146	49	954	779	194	53	1026	20	48	4	72	3%	33%	8%	8%	Pass	0.72	Pass	Pass	3.68	Pass	Pass	0.56	Pass	Pass	2.29	Pass
HIGH ROAD	Q10	SB	661	127	42	830	612	165	45	822	-49	38	3	-8	-7%	30%	7%	-1%	Pass	1.94	Pass	Pass	3.14	Pass	Pass	0.45	Pass	Pass	0.28	Pass
HIGH ROAD	Z1	NEB	786	124	22	932	626	99	19	744	-160	-25	-3	-188	-20%	-20%	-14%	-20%	Fail	6.02	Fail	Pass	2.37	Pass	Pass	0.66	Pass	Fail	6.49	Fail
HIGH ROAD	Z1	SWB	615	97	17	729	545	88	17	650	-70	-9	0	-79	-11%	-9%	0%	-11%	Pass	2.91	Pass	Pass	0.94	Pass	Pass	0.00	Pass	Pass	3.01	Pass
EASTWICK ROAD	Z2	EB	397	48	5	450	356	38	9	403	-41	-10	4	-47	-10%	-21%	80%	-10%	Pass	2.11	Pass	Pass	1.52	Pass	Pass	1.51	Pass	Pass	2.28	Pass
EASTWICK ROAD	Z2	WB	641	77	8	726	603	84	26	713	-38	7	18	-13	-6%	9%	225%	-2%	Pass	1.52	Pass	Pass	0.78	Pass	Pass	4.37	Pass	Pass	0.48	Pass
0	Z3	EB	3301	776	300	4377	3196	734	302	4232	-105	-42	2	-145	-3%	-5%	1%	-3%	Pass	1.84	Pass	Pass	1.53	Pass	Pass	0.12	Pass	Pass	2.21	Pass
0	Z3	WB	3326	782	302	4410	3297	754	323	4374	-29	-28	21	-36	-1%	-4%	7%	-1%	Pass	0.50	Pass	Pass	1.01	Pass	Pass	1.19	Pass	Pass	0.54	Pass
0	Z4	NB	1991	468	181	2640	1911	451	171	2533	-80	-17	-10	-107	-4%	-4%	-6%	-4%	Pass	1.81	Pass	Pass	0.79	Pass	Pass	0.75	Pass	Pass	2.10	Pass
0	Z4	SB	2365	556	215	3136	2339	512	181	3032	-26	-44	-34	-104	-1%	-8%	-16%	-3%	Pass	0.54	Pass	Pass	1.90	Pass	Pass	2.42	Pass	Pass	1.87	Pass
0	Z5	NB	2205	519	200	2924	2253	504	219	2976	48	-15	19	52	2%	-3%	10%	2%	Pass	1.02	Pass	Pass	0.66	Pass	Pass	1.31	Pass	Pass	0.96	Pass
0	Z5	SB	2581	607	235	3423	2688	557	224	3469	107	-50	-11	46	4%	-8%	-5%	1%	Pass	2.08	Pass	Pass	2.07	Pass	Pass	0.73	Pass	Pass	0.78	Pass
0	Z7	NB	1456	343	132	1931	1245	370	133	1748	-211	27	1	-183	-14%	8%	1%	-9%	Pass	5.74	Fail	Pass	1.43	Pass	Pass	0.09	Pass	Pass	4.27	Pass
0	Z7	SB	1919	451	174	2544	1706	421	162	2289	-213	-30	-12	-255	-11%	-7%	-7%	-10%	Pass	5.00	Fail	Pass	1.44	Pass	Pass	0.93	Pass	Pass	5.19	Fail
0	Z8	EB	2723	640	248	3611	2747	653	257	3657	24	13	9	46	1%	2%	4%	1%	Pass	0.46	Pass	Pass	0.51	Pass	Pass	0.57	Pass	Pass	0.76	Pass
0	Z8	WB	2858	672	260	3790	2821	675	256	3752	-37	3	-4	-38	-1%	0%	-2%	-1%	Pass	0.69	Pass	Pass	0.12	Pass	Pass	0.25	Pass	Pass	0.62	Pass
CHELMSFORD ROAD	Z9	EB	273	53	18	344	271	57	17	345	-2	4	-1	1	-1%	8%	-6%	0%	Pass	0.12	Pass	Pass	0.54	Pass	Pass	0.24	Pass	Pass	0.05	Pass
CHELMSFORD ROAD	Z9	WB	422	81	27	530	330	71	30	431	-92	-10	3	-99	-22%	-12%	11%	-19%	Pass	4.74	Pass	Pass	1.15	Pass	Pass	0.56	Pass	Pass	4.52	Pass
DUNMOW ROAD	Z10	NB	178	28	5	211	174	21	5	200	-4	-7	0	-11	-2%	-25%	0%	-5%	Pass	0.30	Pass	Pass	1.41	Pass	Pass	0.00	Pass	Pass	0.77	Pass
DUNMOW ROAD	Z10	SB	336	53	10	399	337	58	14	409	1	5	4	10	0%	9%	40%	3%	Pass	0.05	Pass	Pass	0.67	Pass	Pass	1.15	Pass	Pass	0.50	Pass
CHELMSFORD ROAD	Z12	EB	393	76	25	494	415	78	25	518	22	2	0	24	6%	3%	0%	5%	Pass	1.09	Pass	Pass	0.23	Pass	Pass	0.00	Pass	Pass	1.07	Pass
CHELMSFORD ROAD	Z12	WB	615	119	39	773	617	126	39	782	2	7	0	9	0%	6%	0%	1%	Pass	0.08	Pass	Pass	0.63	Pass	Pass	0.00	Pass	Pass	0.32	Pass
0	Z13	EB	153	24	4	181	195	33	7	235	42	9	3	54	27%	38%	75%	30%	Pass	3.18	Pass	Pass	1.69	Pass	Pass	1.28	Pass	Pass	3.74	Pass
0	Z13	WB	254	40	7	301	238	51	11	300	-16	11	4	-1	-6%	28%	57%	0%	Pass	1.02	Pass	Pass	1.63	Pass	Pass	1.33	Pass	Pass	0.06	Pass
0	Z17	NB	673	130	43	846	636	113	31	780	-37	-17	-12	-66	-5%	-13%	-28%	-8%	Pass	1.45	Pass	Pass	1.54	Pass	Pass	1.97	Pass	Pass	2.31	Pass
0	Z17	SB	739	142	47	928	727	132	36	895	-12	-10	-11	-33	-2%	-7%	-23%	-4%	Pass	0.44	Pass	Pass	0.85	Pass	Pass	1.71	Pass	Pass	1.09	Pass
ST JAMES WAY	Z19	NB	565	109	36	710	528	98	26	652	-37	-11	-10	-58	-7%	-10%	-28%	-8%	Pass	1.58	Pass	Pass	1.08	Pass	Pass	1.80	Pass	Pass	2.22	Pass
ST JAMES WAY	Z19	SB	338	65	22	425	334	61	15	410	-4	-4	-7	-15	-1%	-6%	-32%	-4%	Pass	0.22	Pass	Pass	0.50	Pass	Pass	1.63	Pass	Pass	0.73	Pass
0	Z20	EB	826	159	53	1038	759	122	39	920	-67	-37	-14	-118	-8%	-23%	-26%	-11%	Pass	2.38	Pass	Pass	3.12	Pass	Pass	2.06	Pass	Pass	3.77	Pass
0	Z20	WB	1475	284	94	1853	1407	243	55	1705	-68	-41	-39	-148	-5%	-14%	-41%	-8%	Pass	1.79	Pass	Pass	2.53	Pass	Pass	4.52	Pass	Pass	3.51	Pass
DUNMOW ROAD	Z21	EB	264	42	8	314	217	33	3	253	-47	-9	-5	-61	-18%	-21%	-63%	-19%	Pass	3.03	Pass	Pass	1.47	Pass	Pass	2.13	Pass	Pass	3.62	Pass
DUNMOW ROAD	Z21	WB	395	62	11	468	337	44	2	383	-58	-18	-9	-85	-15%	-29%	-82%	-18%	Pass	3.03	Pass	Pass	2.47	Pass	Pass	3.53	Pass	Pass	4.12	Pass
HUNSDON ROAD	Z22	NEB	61	10	2	73	66	9	2	77	5	-1	0	4	8%	-10%	0%	5%	Pass	0.63	Pass	Pass	0.32	Pass	Pass	0.00	Pass	Pass	0.46	Pass
HUNSDON ROAD	Z22	SWB	100	16	3	119	96	14	6	116	-4	-2	3	-3	-4%	-13%	100%	-3%	Pass	0.40	Pass	Pass	0.52	Pass	Pass	1.41	Pass	Pass	0.28	Pass
0	Z23	EB	825	159	53	1037	751	137	48	936	-74	-22	-5	-101	-9%	-14%	-9%	-10%	Pass	2.64	Pass	Pass	1.81	Pass	Pass	0.70	Pass	Pass	3.22	Pass
0	Z23	WB	930	179	60	1169	814	161	55	1030	-116	-18	-5	-139	-12%	-10%	-8%	-12%	Pass	3.93	Pass	Pass	1.38	Pass	Pass	0.66	Pass	Pass	4.19	Pass
0	Z24	NB	147	23	4	174	188	38	7	233	41	15	3	59	28%	65%	75%	34%	Pass	3.17	Pass	Pass	2.72	Pass	Pass	1.28	Pass	Pass	4.14	Pass
0	Z24	SB	215	34	6	255	178	55	10	243	-37	21	4	-12	-17%	62%	67%	-5%	Pass	2.64	Pass	Pass	3.15	Pass	Pass	1.41	Pass	Pass	0.76	Pass
STATION ROAD	Z25	EB	594	94	17	705	471	76	17	564	-123	-18	0	-141	-21%	-19%	0%	-20%	Fail	5.33	Fail	Pass	1.95	Pass	Pass	0.00	Pass	Fail	5.60	Fail
STATION ROAD	Z25	WB	576	91	16	683	625	94	16	735	49	3	0	52	9%	3%	0%	8%	Pass	2.00	Pass	Pass	0.31	Pass	Pass	0.00	Pass	Pass	1.95	Pass
CROOKED MILE	Z26	NB	549	87	16	652	627	108	18	753	78	21	2	101	14%	24%	13%	15%	Pass	3.22	Pass	Pass	2.13	Pass	Pass	0.49	Pass	Fail	3.81	Pass
CROOKED MILE	Z26	SB	755	119	21	895	663	115	18	796	-92	-4	-3	-99	-12%	-3%	-14%	-11%	Pass	3.46	Pass	Pass	0.37	Pass	Pass	0.68	Pass	Pass	3.40	Pass

Screenline Calibration AM

Screenlines - Observed	TOTAL	TOTAL %age	CARS	CARS %age
Epping_IB_TOTAL	Fail	-7%	Fail	-7%
Epping_OB_TOTAL	Fail	-5%	Fail	-5%
Sawbridgeworth_IB_TOTAL	Pass	-3%	Pass	-4%
Sawbridgeworth_OB_TOTAL	Pass	-4%	Pass	-4%
Harlow Cordon_IB_TOTAL	Pass	-1%	Pass	-1%
Harlow Cordon_OB_TOTAL	Pass	-2%	Pass	-3%
Stansted_IB_TOTAL	Pass	-1%	Pass	-1%
Stansted_OB_TOTAL	Pass	4%	Pass	3%
Bishop's Stortford_IB_TOTAL	Pass	0%	Pass	0%
Bishop's Stortford_OB_TOTAL	Pass	0%	Pass	0%
TOTAL	80%		80%	

Screenlines - Synthetic	TOTAL	TOTAL %age	CARS	CARS %age
Northern_SB_TOTAL	Pass	0%	Pass	-3%
Northern_NB_TOTAL	Pass	0%	Pass	-1%
Ongar_NB_TOTAL	Fail	9%	Fail	11%
Ongar_SB_TOTAL	Pass	-1%	Pass	0%
Chelmsford_EB_TOTAL	Pass	-2%	Pass	-2%
Chelmsford_WB_TOTAL	Pass	1%	Pass	1%
Eastern_EB_TOTAL	Pass	0%	Pass	0%
Eastern_WB_TOTAL	Pass	0%	Pass	0%
Ware_IB_TOTAL	Pass	-3%	Pass	-3%
Ware_OB_TOTAL	Pass	-3%	Pass	-3%
West of Ware_WB_TOTAL	Pass	-2%	Pass	-3%
West of Ware_EB_TOTAL	Pass	-1%	Pass	-1%
Northern_NoMway_NB_TOTAL	Pass	4%	Pass	4%
Northern_NoMway_SB_TOTAL	Pass	-1%	Pass	-3%
TOTAL (with motorway)	92%		92%	
TOTAL (without motorway)	92%		92%	

Screenlines - Total (with motorway)	86%		86%	
Screenlines - Total (without motorway)	86%		86%	

				MP Observed Flows				MP Modelled Flows				Absolute differences				%age Difference				CAR MP Performance			LGV MP Performance			HGV MP Performance			TOTAL MP Performance		
Screenline	Road Name	Count ID	Direction	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Flow Difference	GEH	GEH < 4	Flow Difference	GEH	GEH < 4	Flow Difference	GEH	GEH < 4	Flow Difference	GEH	GEH < 4
Epping_IB	BURY LANE	A1	SB	317	50	9	376	367	70	11	448	50	20	2	72	16%	40%	22%	19%	Fail	2.70	Pass	Fail	2.58	Pass	Fail	0.63	Pass	Fail	3.55	Pass
Epping_IB	LINDSEY STREET	A2	EB	249	39	7	295	178	16	1	195	-71	-23	-6	-100	-29%	-59%	-86%	-34%	Fail	4.86	Pass	Fail	4.39	Pass	Fail	3.00	Pass	Fail	6.39	Fail
Epping_IB	THORNWOOD ROAD	A3	SB	574	91	16	681	566	69	18	653	-8	-22	2	-28	-1%	-24%	13%	-4%	Pass	0.34	Pass	Fail	2.46	Pass	Fail	0.49	Pass	Pass	1.08	Pass
Epping_IB	EPPING ROAD	A4	SWB	603	95	17	715	416	89	16	521	-187	-6	-1	-194	-31%	-6%	-6%	-27%	Fail	8.28	Fail	Fail	0.63	Pass	Fail	0.25	Pass	Fail	7.80	Fail
Epping_IB	STONARDS HILL	A5	NWB	122	15	2	139	145	7	2	154	23	-8	0	15	19%	-53%	0%	11%	Fail	1.99	Pass	Fail	2.41	Pass	Pass	0.00	Pass	Fail	1.24	Pass
Epping_IB	BOWER HILL	A6	NB	112	14	1	127	137	10	0	147	25	-4	-1	20	22%	-29%	-100%	16%	Fail	2.24	Pass	Fail	1.15	Pass	Fail	1.41	Pass	Fail	1.71	Pass
Epping_IB	BRIDGE HILL	A7	WB	182	22	2	206	179	15	0	194	-3	-7	-2	-12	-2%	-32%	-100%	-6%	Pass	0.22	Pass	Fail	1.63	Pass	Fail	2.00	Pass	Fail	0.85	Pass
Epping_IB	THEYDON ROAD	A8	NB	350	42	4	396	294	49	9	352	-56	7	5	-44	-16%	17%	125%	-11%	Fail	3.12	Pass	Fail	1.04	Pass	Fail	1.96	Pass	Fail	2.28	Pass
Epping_IB	EPPING ROAD	A9	NEB	665	105	19	789	666	100	16	782	1	-5	-3	-7	0%	-5%	-16%	-1%	Pass	0.04	Pass	Pass	0.49	Pass	Fail	0.72	Pass	Pass	0.25	Pass
Epping_IB_TOTAL				3174	473	77	3724	2948	425	73	3446	-226	-48	-4	-278	-7%	-10%	-5%	-7%	Fail	4.08	Pass	Fail	2.27	Pass	Fail	0.46	Pass	Fail	4.64	Pass
Epping_OB	BURY LANE	A1	NB	190	30	5	225	178	27	6	211	-12	-3	1	-14	-6%	-10%	20%	-6%	Fail	0.88	Pass	Fail	0.56	Pass	Fail	0.43	Pass	Fail	0.95	Pass
Epping_OB	LINDSEY STREET	A2	WB	137	22	4	163	152	22	1	175	15	0	-3	12	11%	0%	-75%	7%	Fail	1.25	Pass	Pass	0.00	Pass	Fail	1.90	Pass	Fail	0.92	Pass
Epping_OB	THORNWOOD ROAD	A3	NB	451	71	13	535	478	76	14	568	27	5	1	33	6%	7%	8%	6%	Fail	1.25	Pass	Fail	0.58	Pass	Fail	0.27	Pass	Fail	1.41	Pass
Epping_OB	EPPING ROAD	A4	NEB	283	45	8	336	235	44	6	285	-48	-1	-2	-51	-17%	-2%	-25%	-15%	Fail	2.98	Pass	Pass	0.15	Pass	Fail	0.76	Pass	Fail	2.89	Pass
Epping_OB	STONARDS HILL	A5	SEB	93	11	1	105	73	8	1	82	-20	-3	0	-23	-22%	-27%	0%	-22%	Fail	2.20	Pass	Fail	0.97	Pass	Pass	0.00	Pass	Fail	2.38	Pass
Epping_OB	BOWER HILL	A6	SB	84	10	1	95	112	12	0	124	28	2	-1	29	33%	20%	-100%	31%	Fail	2.83	Pass	Fail	0.60	Pass	Fail	1.41	Pass	Fail	2.77	Pass
Epping_OB	BRIDGE HILL	A7	EB	110	13	1	124	84	10	0	94	-26	-3	-1	-30	-24%	-23%	-100%	-24%	Fail	2.64	Pass	Fail	0.88	Pass	Fail	1.41	Pass	Fail	2.87	Pass
Epping_OB	THEYDON ROAD	A8	SB	267	32	3	302	250	30	2	282	-17	-2	-1	-20	-6%	-6%	-33%	-7%	Fail	1.06	Pass	Fail	0.36	Pass	Fail	0.63	Pass	Fail	1.17	Pass
Epping_OB	EPPING ROAD	A9	SWB	812	128	23	963	732	117	23	872	-80	-11	0	-91	-10%	-9%	0%	-9%	Fail	2.88	Pass	Fail	0.99	Pass	Pass	0.00	Pass	Fail	3.00	Pass
Epping_OB_TOTAL				2427	362	59	2848	2294	346	53	2693	-133	-16	-6	-155	-5%	-4%	-10%	-5%	Fail	2.74	Pass	Pass	0.85	Pass	Fail	0.80	Pass	Fail	2.94	Pass
Sawbridgeworth_IB	CAMBRIDGE ROAD	C1	SB	657	126	42	825	737	140	43	920	80	14	1	95	12%	11%	2%	12%	Fail	3.03	Pass	Fail	1.21	Pass	Pass	0.15	Pass	Fail	3.22	Pass
Sawbridgeworth_IB	STATION ROAD	C2	WB	235	28	3	266	189	27	3	219	-46	-1	0	-47	-20%	-4%	0%	-18%	Fail	3.16	Pass	Pass	0.19	Pass	Pass	0.00	Pass	Fail	3.02	Pass
Sawbridgeworth_IB	SHEERING LOWER ROAD	C3	SB	233	28	3	264	158	30	0	188	-75	2	-3	-76	-32%	7%	-100%	-29%	Fail	5.36	Fail	Fail	0.37	Pass	Fail	2.45	Pass	Fail	5.06	Fail
Sawbridgeworth_IB	SHEERING LOWER ROAD	C4	NB	125	15	2	142	136	21	0	157	11	6	-2	15	9%	40%	-100%	11%	Fail	0.96	Pass	Fail	1.41	Pass	Fail	2.00	Pass	Fail	1.23	Pass
Sawbridgeworth_IB	HARLOW ROAD	C5	NB	455	88	29	572	515	100	33	648	60	12	4	76	13%	14%	14%	13%	Fail	2.72	Pass	Fail	1.24	Pass	Fail	0.72	Pass	Fail	3.08	Pass
Sawbridgeworth_IB	HIGH WYCH ROAD	C6	EB	393	47	5	445	311	41	9	361	-82	-6	4	-84	-21%	-13%	80%	-19%	Fail	4.37	Pass	Fail	0.90	Pass	Fail	1.51	Pass	Fail	4.18	Pass
Sawbridgeworth_IB	WEST ROAD	C7	EB	253	31	3	287	205	18	0	223	-48	-13	-3	-64	-19%	-42%	-100%	-22%	Fail	3.17	Pass	Fail	2.63	Pass	Fail	2.45	Pass	Fail	4.01	Pass
Sawbridgeworth_IB_TOTAL				2351	363	87	2801	2251	377	88	2716	-100	14	1	-85	-4%	4%	1%	-3%	Pass	2.08	Pass	Pass	0.73	Pass	Pass	0.11	Pass	Pass	1.62	Pass
Sawbridgeworth_OB	CAMBRIDGE ROAD	C1	NB	746	144	48	938	701	136	39	876	-45	-8	-9	-62	-6%	-6%	19%	-7%	Fail	1.67	Pass	Fail	0.68	Pass	Fail	1.36	Pass	Fail	2.06	Pass
Sawbridgeworth_OB	STATION ROAD	C2	EB	184	22	2	208	190	14	0	204	6	-8	-2	-4	3%	-36%	-100%	-2%	Pass	0.44	Pass	Fail	1.89	Pass	Fail	2.00	Pass	Pass	0.28	Pass
Sawbridgeworth_OB	SHEERING LOWER ROAD	C3	NB	207	25	3	235	184	24	3	211	-23	-1	0	-24	-11%	-4%	0%	-10%	Fail	1.64	Pass	Pass	0.20	Pass	Pass	0.00	Pass	Fail	1.61	Pass
Sawbridgeworth_OB	SHEERING LOWER ROAD	C4	SB	180	22	2	204	126	30	0	156	-54	8	-2	-48	-30%	36%	-100%	-24%	Fail	4.37	Pass	Fail	1.57	Pass	Fail	2.00	Pass	Fail	3.58	Pass
Sawbridgeworth_OB	HARLOW ROAD	C5	SB	669	129	43	841	733	134	30	897	64	5	-13	56	10%	4%	-30%	7%	Fail	2.42	Pass	Pass	0.44	Pass	Fail	2.15	Pass	Fail	1.90	Pass
Sawbridgeworth_OB	HIGH WYCH ROAD	C6	WB	576	69	7	652	566	83	23	672	-10	14	16	20	-2%	20%	229%	3%	Pass	0.42	Pass	Fail	1.61	Pass	Fail	4.13	Pass	Pass	0.78	Pass
Sawbridgeworth_OB	WEST ROAD	C7	WB	127	15	2	144	81	6	0	87	-46	-9	-2	-57	-36%	-60%	-100%	-40%	Fail	4.51	Pass	Fail	2.78	Pass	Fail	2.00	Pass	Fail	5.30	Fail
Sawbridgeworth_OB_TOTAL				2689	426	107	3222	2581	427	95	3103	-108	1	-12	-119	-4%	0%	-11%	-4%	Pass	2.10	Pass	Pass	0.05	Pass	Fail	1.19	Pass	Pass	2.12	Pass

Screenline Calibration AM

				MP Observed Flows				MP Modelled Flows				Absolute differences				%age Difference				CAR MP Performance			LGV MP Performance			HGV MP Performance			TOTAL MP Performance		
Screenline	Road Name	Count ID	Direction	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Flow Difference	GEH	GEH < 4	Flow Difference	GEH	GEH < 4	Flow Difference	GEH	GEH < 4	Flow Difference	GEH	GEH < 4
Harlow Cordon_IB	HARLOW ROAD	D1	SB	782	151	50	983	754	135	30	919	-28	-16	-20	-64	-4%	-11%	-40%	-7%	Pass	1.01	Pass	Fail	1.34	Pass	Fail	3.16	Pass	Fail	2.08	Pass
Harlow Cordon_IB	GILDEN WAY	D2	SWB	941	149	27	1117	807	138	23	968	-134	-11	-4	-149	-14%	-7%	-15%	-13%	Fail	4.53	Pass	Fail	0.92	Pass	Fail	0.80	Pass	Fail	4.61	Pass
East of M11_WB	HARLOW COMMON	B6/D3	WB	103	12	1	116	129	9	2	140	26	-3	1	24	25%	-25%	100%	21%	Fail	2.41	Pass	Fail	0.93	Pass	Fail	0.82	Pass	Fail	2.12	Pass
Harlow Cordon_IB	LONDON ROAD	D4	NB	1408	271	90	1769	1535	289	89	1913	127	18	-1	144	9%	7%	-1%	8%	Fail	3.31	Pass	Fail	1.08	Pass	Pass	0.11	Pass	Fail	3.36	Pass
Harlow Cordon_IB	RYE HILL ROAD	D5	NWB	159	19	2	180	146	21	3	170	-13	2	1	-10	-8%	11%	50%	-6%	Fail	1.05	Pass	Fail	0.45	Pass	Fail	0.63	Pass	Fail	0.76	Pass
Harlow Cordon_IB	PARSLOE ROAD	D6	NEB	170	20	2	192	99	10	1	110	-71	-10	-1	-82	-42%	-50%	-50%	-43%	Fail	6.12	Fail	Fail	2.58	Pass	Fail	0.82	Pass	Fail	6.67	Fail
Harlow Cordon_IB	WATER LANE	D7	NEB	640	101	18	759	682	99	20	801	42	-2	2	42	7%	-2%	11%	6%	Fail	1.63	Pass	Pass	0.20	Pass	Fail	0.46	Pass	Fail	1.50	Pass
Harlow Cordon_IB	HARLOW ROAD	D8	EB	361	43	5	409	284	55	10	349	-77	12	5	-60	-21%	28%	100%	-15%	Fail	4.29	Pass	Fail	1.71	Pass	Fail	1.83	Pass	Fail	3.08	Pass
Harlow Cordon_IB	FIFTH AVENUE ALLENDE AVENUE	D9	SB	675	130	43	848	748	149	63	960	73	19	20	112	11%	15%	47%	13%	Fail	2.74	Pass	Fail	1.61	Pass	Fail	2.75	Pass	Fail	3.73	Pass
Harlow Cordon_IB_TOTAL				5239	896	238	6373	5184	905	241	6330	-55	9	3	-43	-1%	1%	1%	-1%	Pass	0.76	Pass	Pass	0.30	Pass	Pass	0.19	Pass	Pass	0.54	Pass
Harlow Cordon_OB	HARLOW ROAD	D1	NB	444	85	28	557	515	100	33	648	71	15	5	91	16%	18%	18%	16%	Fail	3.24	Pass	Fail	1.56	Pass	Fail	0.91	Pass	Fail	3.71	Pass
Harlow Cordon_OB	GILDEN WAY	D2	NEB	606	96	17	719	577	91	13	681	-29	-5	-4	-38	-5%	-5%	-24%	-5%	Pass	1.19	Pass	Fail	0.52	Pass	Fail	1.03	Pass	Fail	1.44	Pass
Harlow Cordon_OB	HARLOW COMMON	B6/D3	EB	181	22	2	205	39	4	3	46	-142	-18	1	-159	-78%	-82%	50%	-78%	Fail	13.54	Fail	Fail	4.99	Pass	Fail	0.63	Pass	Fail	14.19	Fail
Harlow Cordon_OB	LONDON ROAD	D4	SB	1391	268	89	1748	1422	268	88	1778	31	0	-1	30	2%	0%	-1%	2%	Pass	0.83	Pass	Pass	0.00	Pass	Pass	0.11	Pass	Pass	0.71	Pass
Harlow Cordon_OB	RYE HILL ROAD	D5	SEB	88	11	1	100	92	9	1	102	4	-2	0	2	5%	-18%	0%	2%	Pass	0.42	Pass	Fail	0.63	Pass	Pass	0.00	Pass	Pass	0.20	Pass
Harlow Cordon_OB	PARSLOE ROAD	D6	SWB	385	46	5	436	338	31	4	373	-47	-15	-1	-63	-12%	-33%	-20%	-14%	Fail	2.47	Pass	Fail	2.42	Pass	Fail	0.47	Pass	Fail	3.13	Pass
Harlow Cordon_OB	WATER LANE	D7	SWB	601	95	17	713	654	116	19	789	53	21	2	76	9%	22%	12%	11%	Fail	2.12	Pass	Fail	2.04	Pass	Fail	0.47	Pass	Fail	2.77	Pass
Harlow Cordon_OB	HARLOW ROAD	D8	WB	96	12	1	109	115	27	7	149	19	15	6	40	20%	125%	600%	37%	Fail	1.85	Pass	Fail	3.40	Pass	Fail	3.00	Pass	Fail	3.52	Pass
Harlow Cordon_OB	FIFTH AVENUE ALLENDE AVENUE	D9	NB	728	140	47	915	622	130	49	801	-106	-10	2	-114	-15%	-7%	4%	-12%	Fail	4.08	Pass	Fail	0.86	Pass	Pass	0.29	Pass	Fail	3.89	Pass
Harlow Cordon_OB_TOTAL				4520	775	207	5502	4374	776	217	5367	-146	1	10	-135	-3%	0%	5%	-2%	Pass	2.19	Pass	Pass	0.04	Pass	Pass	0.69	Pass	Pass	1.83	Pass
Ongar_NB	BRENTWOOD ROAD	F1	NB	221	43	14	278	227	49	12	288	6	6	-2	10	3%	14%	-14%	4%	Pass	0.40	Pass	Fail	0.88	Pass	Fail	0.55	Pass	Pass	0.59	Pass
Ongar_NB	LONDON ROAD	F2	NEB	214	41	14	269	257	34	17	308	43	-7	3	39	20%	-17%	21%	14%	Fail	2.80	Pass	Fail	1.14	Pass	Fail	0.76	Pass	Fail	2.30	Pass
Ongar_NB_TOTAL				435	84	28	547	484	83	29	596	49	-1	1	49	11%	-1%	4%	9%	Fail	2.29	Pass	Pass	0.11	Pass	Pass	0.19	Pass	Fail	2.05	Pass
Ongar_SB	BRENTWOOD ROAD	F1	SB	290	56	19	365	324	61	26	411	34	5	7	46	12%	9%	37%	13%	Fail	1.94	Pass	Fail	0.65	Pass	Fail	1.48	Pass	Fail	2.34	Pass
Ongar_SB	LONDON ROAD	F2	SWB	472	91	30	593	440	80	21	541	-32	-11	-9	-52	-7%	-12%	-30%	-9%	Fail	1.50	Pass	Fail	1.19	Pass	Fail	1.78	Pass	Fail	2.18	Pass
Ongar_SB_TOTAL				762	147	49	958	764	141	47	952	2	-6	-2	-6	0%	-4%	-4%	-1%	Pass	0.07	Pass	Pass	0.50	Pass	Pass	0.29	Pass	Pass	0.19	Pass
Chelmsford_EB	ROXWELL ROAD	G1	EB	574	111	37	722	533	107	33	673	-41	-4	-4	-49	-7%	-4%	-11%	-7%	Fail	1.74	Pass	Pass	0.38	Pass	Fail	0.68	Pass	Fail	1.86	Pass
Chelmsford_EB	CHELMSFORD ROAD	G2	EB	465	56	6	527	471	56	7	534	6	0	1	7	1%	0%	17%	1%	Pass	0.28	Pass	Pass	0.00	Pass	Fail	0.39	Pass	Pass	0.30	Pass
Chelmsford_EB	0	G3	EB	411	79	26	516	393	75	24	492	-18	-4	-2	-24	-4%	-5%	-8%	-5%	Pass	0.90	Pass	Fail	0.46	Pass	Fail	0.40	Pass	Pass	1.07	Pass
Chelmsford_EB	THREE MILE HILL	G4	NB	1174	226	75	1475	1580	299	77	1956	406	73	2	481	35%	32%	3%	33%	Fail	10.94	Fail	Fail	4.51	Pass	Pass	0.23	Pass	Fail	11.61	Fail
Chelmsford_EB	WOOD STREET	G5	NB	600	95	17	712	167	18	14	199	-433	-77	-3	-513	-72%	-81%	-18%	-72%	Fail	22.11	Fail	Fail	10.24	Fail	Fail	0.76	Pass	Fail	24.04	Fail
Chelmsford_EB_TOTAL				3224	567	161	3952	3144	555	155	3854	-80	-12	-6	-98	-2%	-2%	-4%	-2%	Pass	1.42	Pass	Pass	0.51	Pass	Pass	0.48	Pass	Pass	1.57	Pass
Chelmsford_WB	ROXWELL ROAD	G1	WB	640	123	41	804	539	103	37	679	-101	-20	-4	-125	-16%	-16%	-10%	-16%	Fail	4.16	Pass	Fail	1.88	Pass	Fail	0.64	Pass	Fail	4.59	Pass
Chelmsford_WB	CHELMSFORD ROAD	G2	WB	317	38	4	359	335	45	7	387	18	7	3	28	6%	18%	75%	8%	Fail	1.00	Pass	Fail	1.09	Pass	Fail	1.28	Pass	Fail	1.45	Pass
Chelmsford_WB	0	G3	WB	553	107	35	695	544	112	35	691	-9	5	0	-4	-2%	5%	0%	-1%	Pass	0.38	Pass	Pass	0.48	Pass	Pass	0.00	Pass	Pass	0.15	Pass
Chelmsford_WB	THREE MILE HILL	G4	SB	963	186	62	1211	1369	250	66	1685	406	64	4	474	42%	34%	6%	39%	Fail	11.89	Fail	Fail	4.33	Pass	Fail	0.50	Pass	Fail	12.46	Fail
Chelmsford_WB	WOOD STREET	G5	SB	480	76	14	570	193	16	11	220	-287	-60	-3	-350	-60%	-79%	-21%	-61%	Fail	15.65	Fail	Fail	8.85	Fail	Fail	0.85	Pass	Fail	17.61	Fail
Chelmsford_WB_TOTAL				2953	530	156	3639	2980	526	156	3662	27	-4	0	23	1%	-1%	0%	1%	Pass	0.50	Pass	Pass	0.17	Pass	Pass	0.00	Pass	Pass	0.38	Pass
Eastern_EB	0	H1	EB	952	183	61	1196	957	161	61	1179	5	-22	0	-17	1%	-12%	0%	-1%	Pass	0.16	Pass	Fail	1.68	Pass	Pass	0.00	Pass	Pass	0.49	Pass
Eastern_EB	0	H2	NEB	673	130	43	846	700	146	41	887	27	16	-2	41	4%	12%	-5%	5%	Pass	1.03	Pass	Fail	1.36	Pass	Pass	0.31	Pass	Pass	1.39	Pass
Eastern_EB	0	H3	EB	2580	497	165	3242	2554	481	167	3202	-26	-16	2	-40	-1%	-3%	1%	-1%	Pass	0.51	Pass	Pass	0.72	Pass	Pass	0.16	Pass	Pass	0.70	Pass
Eastern_EB_TOTAL				4205	810	269	5284	4211	788	269	5268	6	-22	0	-16	0%	-3%	0%	0%	Pass	0.09	Pass	Pass	0.78	Pass	Pass	0.00	Pass	Pass	0.22	Pass
Eastern_WB	0	H1	WB	1441	278	92	1811	1457	297	93	1847	16	19	1	36	1%	7%	1%	2%	Pass	0.42	Pass	Fail	1.12	Pass	Pass	0.10	Pass	Pass	0.84	Pass
Eastern_WB	0	H2	SWB	1142	220	73	1435	1176	233	76	1485	34	13	3	50	3%	6%	4%	3%	Pass	1.00	Pass	Fail	0.86	Pass	Pass	0.35	Pass	Pass	1.31	Pass
Eastern_WB	0	H3	WB	3227	621	207	4055	3186	608	204	3998	-41	-13	-3	-57	-1%	-2%	-1%	-1%	Pass	0.72	Pass	Pass	0.52	Pass	Pass	0.21	Pass	Pass	0.90	Pass
Eastern_WB_TOTAL				5810	1119	372	7301	5819	1138	373	7330	9	19	1	29	0%	2%	0%	0%	Pass	0.12	Pass	Pass	0.57	Pass	Pass	0.05	Pass	Pass	0.34	Pass
Stansted_IB	ROUND COPPICE ROAD	J1	NEB	428	52	5	485	428	41	7	476	0	-11	2	-9	0%	-21%	40%	-2%	Pass	0.00	Pass	Fail	1.61	Pass	Fail	0.82	Pass	Pass	0.41	Pass
Stansted_IB	CHURCH ROAD	J2	EB	283	34	4	321	256	44	3	303	-27	10	-1	-18	-10%	29%	-25%	-6%	Fail	1.64	Pass	Fail	1.60	Pass	Fail	0.53	Pass	Fail	1.02	Pass
Stansted_IB	HALL ROAD	J3	SB	177	21	2	200	157	21	5	183	-20	0	3	-17	-11%	0%	150%	-9%	Fail	1.55	Pass	Pass	0.00	Pass	Fail	1.60	Pass	Fail	1.23	Pass
Stansted_IB	0	J4	SWB	128	15	2	145	122	17	2	141	-6	2	0	-4	-5%	13%	0%	-3%	Pass	0.54	Pass	Fail	0.50	Pass	Pass	0.00	Pass	Pass	0.33	Pass
Stansted_IB	0	J5	NWB	43	5	1	49	0	20	0	20	-43	15	-1	-29	-100%	300%	-100%	-59%	Fail	9.27	Fail	Fail	4.24	Pass	Fail	1.41	Pass	Fail	4.94	Pass
Stansted_IB	PARSONAGE ROAD	J6	NB	207	25	3	235	207	13	3	223	0	-12	0	-12	0%	-48%	0%	-5%	Pass	0.00	Pass	Fail	2.75	Pass	Pass	0.00	Pass	Fail	0.79	Pass
Stansted_IB	0	J7	NWB	300	58	19	377	285	46	26	357	-15	-12	7	-20	-5%	-21%	37%	-5%	Fail	0.88	Pass	Fail	1.66	Pass	Fail	1.48	Pass	Fail	1.04	Pass
Stansted_IB	THREMHALL AVENUE	J8	NEB	479	92	31	602	564	94	29	687	85	2	-2	85	18%	2%	-6%	14%	Fail	3.72	Pass	Pass	0.21	Pass	Fail	0.37	Pass	Fail	3.35	Pass
Stansted_IB_TOTAL				2045	302	67	2414	2019	296	75	2390	-26	-6	8	-24	-1%	-2%	12%	-1%	Pass	0.58	Pass	Pass	0.35	Pass	Fail	0.95	Pass	Pass	0.49	Pass
Stansted_OB	ROUND COPPICE ROAD	J1	SWB	275	33	4	312	370	58	8	436	95	25	4	124	35%	76%	100%	40%	Fail	5.29	Fail	Fail	3.71	Pass	Fail	1.63	Pass	Fail	6.41	Fail
Stansted_OB	CHURCH ROAD	J2	WB	234	28	3	265	194	9	2	205	-40	-19	-1	-60	-17%	-68%	-33%	-23%	Fail	2.73	Pass	Fail	4.42	Pass	Fail	0.63	Pass	Fail	3.91	Pass
Stansted_OB	HALL ROAD	J3	NB	118	14	2	134	113	21	14	148	-5	7	12	14	-4%	50%	600%	10%	Pass	0.47	Pass	Fail	1.67	Pass	Fail	4.24	Pass	Fail	1.18	Pass
Stansted_OB	0	J4	NEB	50	6	1	57	37	3	0	40	-13	-3	-1	-17	-26%	-50%	-100%	-30%	Fail	1.97	Pass	Fail	1.41	Pass	Fail	1.41	Pass	Fail	2.44	Pass
Stansted_OB	0	J5	SEB	31	4	0	35	0	0	0	0	-31	-4	0	-35	-100%	-100%	0%	-100%	Fail	7.87	Fail	Fail	2.83	Pass	Pass	0.00	Pass	Fail	8.37	Fail
Stansted_OB	PARSONAGE ROAD	J6	SB	157	19	2	178	152	22	3	177	-5	3	1	-1	-3%	16%	50%	-1%	Pass	0.40	Pass	Fail	0.66	Pass	Fail	0.63	Pass	Pass	0.08	Pass
Stansted_OB	0	J7	SEB	135	26	9	170	150	29	8	187	15	3	-1	17	11%	12%	-11%	10%	Fail	1.26	Pass	Fail	0.57	Pass	Fail	0.34	Pass	Fail	1.27	Pass
Stansted_OB	THREMHALL AVENUE	J8	SWB	522	100	33	655	552	99	32	683	30	-1	-1	28	6%	-1%	-3%	4%	Fail	1.29	Pass	Pass	0.10	Pass	Pass	0.18	Pass	Pass	1.08	Pass
Stansted_OB_TOTAL				1522	230	54	1806	1568	241	67	1876	46	11	13	70	3%	5%	24%	4%	Pass	1.17	Pass	Pass	0.72	Pass	Fail	1.67	Pass	Pass	1.63	Pass
Bishop's Stortford_IB	0	K1	WB	1201	231	77	1509	1180	240	74	1494	-21	9	-3	-15	-2%	4%	-4%	-1%	Pass	0.61	Pass	Pass	0.59	Pass	Pass	0.35	Pass	Pass	0.39	Pass
Bishop's Stortford_IB	HALLINGBURY ROAD	K2	NB	413	80	26	519	404	76	26	506	-9	-4	0	-13	-2%	-5%	0%	-3%	Pass	0.45	Pass	Fail	0.45	Pass	Pass	0.00	Pass	Pass	0.57	Pass
Bishop's Stortford_IB	0	K3	NB	509	98	33	640	566	116	37	719	57	18	4	79	11%	18%	12%	12%	Fail	2.46	Pass	Fail	1.74	Pass	Fail	0.68	Pass	Fail	3.03	Pass
Bishop's Stortford_IB	GREAT HADHAM ROAD	K4	EB	179	28	5	212	214	58	10	282	35	30	5	70	20%	107%	100%	33%	Fail	2.50	Pass	Fail	4.57	Pass	Fail	1.83	Pass	Fail	4.45	Pass
Bishop's Stortford_IB	STORTFORD ROAD	K5	EB	455	88	29	572	439	62	28	529	-16	-26	-1	-43	-4%	-30%	-3%	-8%	Pass	0.76	Pass	Fail	3.00	Pass	Pass	0.19	Pass	Fail	1.83	Pass
Bishop's Stortford_IB	HAZELEND ROAD	K6	SWB	238	29	3	270	145	11	1	157	-93	-18	-2	-113	-39%	-62%	-67%	-42%	Fail	6.72	Fail	Fail	4.02	Pass	Fail	1.41	Pass	Fail	7.73	Fail
Bishop's Stortford_IB	STANSTED ROAD	K7	SWB	769	121	22	912	820	112	28	960	51	-9	6	48	7%	-7%	27%	5%	Fail	1.81	Pass	Fail	0.83	Pass	Fail	1.20	Pass	Fail	1.57	Pass
Bishop's Stortford_IB	BIRCHANGER LANE	K8	SB	48	6	1	55	39	6	0	45	-9	0	-1	-10	-19%	0%	-100%	-18%	Fail	1.36	Pass	Pass	0.00	Pass	Fail	1.41	Pass	Fail	1.41	Pass
Bishop's Stortford_IB_TOTAL				3812	681	196	4689	3807	681	204	4692	-5	0	8	3	0%	0%	4%	0%	Pass	0.08	Pass	Pass	0.00	Pass	Pass	0.57	Pass	Pass	0.04	Pass
Bishop's Stortford_OB	0	K1	EB	1146	221	73	1440	1121	181	72	1374	-25	-40	-1	-66	-2%	-18%	-1%	-5%	Pass	0.74	Pass	Fail	2.82	Pass	Pass	0.12	Pass	Pass	1.76	Pass
Bishop's Stortford_OB	HALLINGBURY ROAD	K2	SB	387	75	25	487	351	77	29	457	-36	2	4	-30	-9%	3%	16%	-6%	Fail	1.87	Pass	Pass	0.23	Pass	Fail	0.77	Pass	Fail	1.38	Pass
Bishop's Stortford_OB	0	K3	SB	586	113	38	737	664	120	39	823	78	7	1	86	13%	6%	3%	12%	Fail	3.12	Pass	Fail	0.65	Pass	Pass	0.16	Pass	Fail	3.08	Pass
Bishop's Stortford_OB	GREAT HADHAM ROAD	K4	WB	396	62	11	469	386	46	4	436	-10	-16	-7	-33	-3%	-26%	-64%	-7%	Pass	0.51	Pass	Fail	2.18	Pass	Fail	2.56	Pass	Fail	1.55	Pass
Bishop's Stortford_OB	STORTFORD ROAD	K5	WB	587	113	38	738	589	131	44	764	2	18	6	26	0%	16%	16%	4%	Pass	0.08	Pass	Fail	1.63	Pass	Fail	0.94	Pass	Pass	0.95	Pass
Bishop's Stortford_OB	HAZELEND ROAD	K6	NEB	167	20	2	189	95	9	0	104	-72	-11	-2	-85	-43%	-55%	-100%	-45%	Fail	6.29	Fail	Fail	2.89	Pass	Fail	2.00	Pass	Fail	7.02	Fail
Bishop's Stortford_OB	STANSTED ROAD	K7	NEB	440	69	12	521	511	103	19	633	71	34	7	112	16%	49%	58%	21%	Fail	3.26	Pass	Fail	3.67	Pass	Fail	1.78	Pass	Fail	4.66	Pass
Bishop's Stortford_OB	BIRCHANGER LANE	K8	NB	105	13	1	119	82	12	0	94	-23	-1	-1	-25	-22%	-8%	-100%	-21%	Fail	2.38	Pass	Fail	0.28	Pass	Fail	1.41	Pass	Fail	2.42	Pass
Bishop's Stortford_OB_TOTAL				3814	686	200	4700	3799	679	207	4685	-15	-7	7	-15	0%	-1%	4%	0%	Pass	0.24	Pass	Pass	0.27	Pass	Pass	0.49	Pass	Pass	0.22	Pass

Screenline Calibration AM

				MP Observed Flows				MP Modelled Flows				Absolute differences				%age Difference				CAR MP Performance			LGV MP Performance			HGV MP Performance			TOTAL MP Performance		
Screenline	Road Name	Count ID	Direction	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Flow Difference	GEH	GEH < 4	Flow Difference	GEH	GEH < 4	Flow Difference	GEH	GEH < 4	Flow Difference	GEH	GEH < 4
Northern_NB	BALDOCK ROAD	M1	WB	382	73	24	479	467	78	25	570	85	5	1	91	22%	7%	4%	19%	Fail	4.13	Pass	Fail	0.58	Pass	Pass	0.20	Pass	Fail	3.97	Pass
Northern_NB	LONDON ROAD	M2	NB	301	58	19	378	315	59	21	395	14	1	2	17	5%	2%	11%	4%	Pass	0.80	Pass	Pass	0.13	Pass	Fail	0.45	Pass	Pass	0.86	Pass
Northern_NB	LONDON ROAD	M3	NB	74	12	2	88	33	2	0	35	-41	-10	-2	-53	-55%	-83%	-100%	-60%	Fail	5.61	Fail	Fail	3.78	Pass	Fail	2.00	Pass	Fail	6.76	Fail
North of A120_NB	0	M4	NB	1788	421	163	2372	1708	441	144	2293	-80	20	-19	-79	-4%	5%	-12%	-3%	Pass	1.91	Pass	Pass	0.96	Pass	Fail	1.53	Pass	Pass	1.64	Pass
Northern_NB	LONDON ROAD	M5	NB	625	99	18	742	626	119	17	762	1	20	-1	20	0%	20%	-6%	3%	Pass	0.04	Pass	Fail	1.92	Pass	Fail	0.24	Pass	Pass	0.73	Pass
Northern_NB_TOTAL				3170	663	226	4059	3149	699	207	4055	-21	36	-19	-4	-1%	5%	-8%	0%	Pass	0.37	Pass	Fail	1.38	Pass	Fail	1.29	Pass	Pass	0.06	Pass
Northern_SB	BALDOCK ROAD	M1	EB	436	84	28	548	444	115	31	590	8	31	3	42	2%	37%	11%	8%	Pass	0.38	Pass	Fail	3.11	Pass	Fail	0.55	Pass	Fail	1.76	Pass
Northern_SB	LONDON ROAD	M2	SB	341	66	22	429	347	69	24	440	6	3	2	11	2%	5%	9%	3%	Pass	0.32	Pass	Pass	0.37	Pass	Fail	0.42	Pass	Pass	0.53	Pass
Northern_SB	LONDON ROAD	M3	SB	94	15	3	112	60	8	1	69	-34	-7	-2	-43	-36%	-47%	-67%	-38%	Fail	3.87	Pass	Fail	2.06	Pass	Fail	1.41	Pass	Fail	4.52	Pass
North of A120_SB	0	M4	SB	1540	362	140	2042	1485	418	137	2040	-55	56	-3	-2	-4%	15%	-2%	0%	Pass	1.41	Pass	Fail	2.84	Pass	Pass	0.25	Pass	Pass	0.04	Pass
Northern_SB	LONDON ROAD	M5	SB	557	88	16	661	531	89	19	639	-26	1	3	-22	-5%	1%	19%	-3%	Pass	1.11	Pass	Pass	0.11	Pass	Fail	0.72	Pass	Pass	0.86	Pass
Northern_SB_TOTAL				2968	615	209	3792	2867	699	212	3778	-101	84	3	-14	-3%	14%	1%	0%	Pass	1.87	Pass	Fail	3.28	Pass	Pass	0.21	Pass	Pass	0.23	Pass
Ware_IB	WADESMILL ROAD	N1	SB	409	79	26	514	469	107	32	608	60	28	6	94	15%	35%	23%	18%	Fail	2.86	Pass	Fail	2.90	Pass	Fail	1.11	Pass	Fail	3.97	Pass
Ware_IB	0	N2	WB	30	4	0	34	22	0	0	22	-8	-4	0	-12	-27%	-100%	0%	-35%	Fail	1.57	Pass	Fail	2.83	Pass	Pass	0.00	Pass	Fail	2.27	Pass
Ware_IB	0	N3	WB	178	28	5	211	157	11	6	174	-21	-17	1	-37	-12%	-61%	20%	-18%	Fail	1.62	Pass	Fail	3.85	Pass	Fail	0.43	Pass	Fail	2.67	Pass
Ware_IB	HOLLYCROSS ROAD	N4	NWB	117	14	2	133	100	41	6	147	-17	27	4	14	-15%	193%	200%	11%	Fail	1.63	Pass	Fail	5.15	Fail	Fail	2.00	Pass	Fail	1.18	Pass
Ware_IB	VIADUCT ROAD	N5	NWB	462	89	30	581	395	61	29	485	-67	-28	-1	-96	-15%	-31%	-3%	-17%	Fail	3.24	Pass	Fail	3.23	Pass	Pass	0.18	Pass	Fail	4.16	Pass
Ware_IB	0	N6	NB	336	41	4	381	349	1	0	350	13	-40	-4	-31	4%	-98%	-100%	-8%	Pass	0.70	Pass	Fail	8.73	Fail	Fail	2.83	Pass	Fail	1.62	Pass
Ware_IB	WARE ROAD	N7	EB	317	61	20	398	380	95	23	498	63	34	3	100	20%	56%	15%	25%	Fail	3.37	Pass	Fail	3.85	Pass	Fail	0.65	Pass	Fail	4.72	Pass
Ware_IB	WESTMILL ROAD	N8	SEB	700	111	20	831	596	103	15	714	-104	-8	-5	-117	-15%	-7%	-25%	-14%	Fail	4.09	Pass	Fail	0.77	Pass	Fail	1.20	Pass	Fail	4.21	Pass
Ware_IB_TOTAL				2549	427	107	3083	2468	419	111	2998	-81	-8	4	-85	-3%	-2%	4%	-3%	Pass	1.62	Pass	Pass	0.39	Pass	Pass	0.38	Pass	Pass	1.54	Pass
Ware_OB	WADESMILL ROAD	N1	NB	323	62	21	406	368	36	17	421	45	-26	-4	15	14%	-42%	-19%	4%	Fail	2.42	Pass	Fail	3.71	Pass	Fail	0.92	Pass	Pass	0.74	Pass
Ware_OB	0	N2	EB	34	4	0	38	10	0	0	10	-24	-4	0	-28	-71%	-100%	0%	-74%	Fail	5.12	Fail	Fail	2.83	Pass	Pass	0.00	Pass	Fail	5.72	Fail
Ware_OB	0	N3	EB	70	11	2	83	71	33	2	106	1	22	0	23	1%	200%	0%	28%	Pass	0.12	Pass	Fail	4.69	Pass	Pass	0.00	Pass	Fail	2.37	Pass
Ware_OB	HOLLYCROSS ROAD	N4	SEB	184	22	2	208	104	41	10	155	-80	19	8	-53	-43%	86%	400%	-25%	Fail	6.67	Fail	Fail	3.39	Pass	Fail	3.27	Pass	Fail	3.93	Pass
Ware_OB	VIADUCT ROAD	N5	SEB	401	77	26	504	442	69	19	530	41	-8	-7	26	10%	-10%	-27%	5%	Fail	2.00	Pass	Fail	0.94	Pass	Fail	1.48	Pass	Fail	1.14	Pass
Ware_OB	0	N6	SB	293	35	4	332	363	59	0	422	70	24	-4	90	24%	69%	-100%	27%	Fail	3.87	Pass	Fail	3.50	Pass	Fail	2.83	Pass	Fail	4.64	Pass
Ware_OB	WARE ROAD	N7	WB	344	66	22	432	270	28	22	320	-74	-38	0	-112	-22%	-58%	0%	-26%	Fail	4.22	Pass	Fail	5.54	Fail	Pass	0.00	Pass	Fail	5.78	Fail
Ware_OB	WESTMILL ROAD	N8	NWB	494	78	14	586	442	80	18	540	-52	2	4	-46	-11%	3%	29%	-8%	Fail	2.40	Pass	Pass	0.23	Pass	Fail	1.00	Pass	Fail	1.94	Pass
Ware_OB_TOTAL				2143	355	91	2589	2070	346	88	2504	-73	-9	-3	-85	-3%	-3%	-3%	-3%	Pass	1.59	Pass	Pass	0.48	Pass	Pass	0.32	Pass	Pass	1.68	Pass
West of Ware_WB	WESTMILL ROAD	Q3	NB	962	185	62	1209	800	169	58	1027	-162	-16	-4	-182	-17%	-9%	-6%	-15%	Fail	5.46	Fail	Fail	1.20	Pass	Fail	0.52	Pass	Fail	5.44	Fail
West of Ware_WB	WADESMILL ROAD	Q4	NEB	339	53	10	402	297	64	5	366	-42	11	-5	-36	-12%	21%	-50%	-9%	Fail	2.36	Pass	Fail	1.44	Pass	Fail	1.83	Pass	Fail	1.84	Pass
West of Ware_WB	0	Q5	NB	199	38	13	250	272	53	20	345	73	15	7	95	37%	39%	54%	38%	Fail	4.76	Pass	Fail	2.22	Pass	Fail	1.72	Pass	Fail	5.51	Fail
West of Ware_WB	WELWYN ROAD	Q6	WB	265	42	8	315	256	45	22	323	-9	3	14	8	-3%	7%	175%	3%	Pass	0.56	Pass	Fail	0.45	Pass	Fail	3.61	Pass	Pass	0.45	Pass
West of Ware_WB	0	Q7	WB	1264	243	81	1588	1271	237	68	1576	7	-6	-13	-12	1%	-2%	-16%	-1%	Pass	0.20	Pass	Pass	0.39	Pass	Fail	1.51	Pass	Pass	0.30	Pass
West of Ware_WB	LOWER HATFIELD ROAD	Q8	SWB	375	59	11	445	369	58	11	438	-6	-1	0	-7	-2%	-2%	0%	-2%	Pass	0.31	Pass	Pass	0.13	Pass	Pass	0.00	Pass	Pass	0.33	Pass
West of Ware_WB	0	Q9	SB	1895	365	121	2381	1919	346	126	2391	24	-19	5	10	1%	-5%	4%	0%	Pass	0.55	Pass	Fail	1.01	Pass	Pass	0.45	Pass	Pass	0.20	Pass
West of Ware_WB	HIGH ROAD	Q10	SB	661	127	42	830	612	165	45	822	-49	38	3	-8	-7%	30%	7%	-1%	Fail	1.94	Pass	Fail	3.14	Pass	Fail	0.45	Pass	Pass	0.28	Pass
West of Ware_WB_TOTAL				5960	1112	348	7420	5796	1137	355	7288	-164	25	7	-132	-3%	2%	2%	-2%	Pass	2.14	Pass	Pass	0.75	Pass	Pass	0.37	Pass	Pass	1.54	Pass
West of Ware_EB	WESTMILL ROAD	Q3	SB	1086	209	70	1365	1009	181	48	1238	-77	-28	-22	-127	-7%	-13%	-31%	-9%	Fail	2.38	Pass	Fail	2.01	Pass	Fail	2.86	Pass	Fail	3.52	Pass
West of Ware_EB	WADESMILL ROAD	Q4	SWB	453	72	13	538	466	57	17	540	13	-15	4	2	3%	-21%	31%	0%	Pass	0.61	Pass	Fail	1.87	Pass	Fail	1.03	Pass	Pass	0.09	Pass
West of Ware_EB	0	Q5	SB	383	74	25	482	419	86	43	548	36	12	18	66	9%	16%	72%	14%	Fail	1.80	Pass	Fail	1.34	Pass	Fail	3.09	Pass	Fail	2.91	Pass
West of Ware_EB	WELWYN ROAD	Q6	EB	530	84	15	629	371	41	27	439	-159	-43	12	-190	-30%	-51%	80%	-30%	Fail	7.49	Fail	Fail	5.44	Fail	Fail	2.62	Pass	Fail	8.22	Fail
West of Ware_EB	0	Q7	EB	781	150	50	981	931	208	47	1186	150	58	-3	205	19%	39%	-6%	21%	Fail	5.13	Fail	Fail	4.34	Pass	Fail	0.43	Pass	Fail	6.23	Fail
West of Ware_EB	LOWER HATFIELD ROAD	Q8	NEB	270	43	8	321	269	38	9	316	-1	-5	1	-5	0%	-12%	13%	-2%	Pass	0.06	Pass	Fail	0.79	Pass	Fail	0.34	Pass	Pass	0.28	Pass
West of Ware_EB	0	Q9	NB	1653	318	106	2077	1608	261	101	1970	-45	-57	-5	-107	-3%	-18%	-5%	-5%	Pass	1.11	Pass	Fail	3.35	Pass	Pass	0.49	Pass	Fail	2.38	Pass
West of Ware_EB	HIGH ROAD	Q10	NB	759	146	49	954	779	194	53	1026	20	48	4	72	3%	33%	8%	8%	Pass	0.72	Pass	Fail	3.68	Pass	Fail	0.56	Pass	Fail	2.29	Pass
West of Ware_EB_TOTAL				5915	1096	336	7347	5852	1066	345	7263	-63	-30	9	-84	-1%	-3%	3%	-1%	Pass	0.82	Pass	Pass	0.91	Pass	Pass	0.49	Pass	Pass	0.98	Pass
Northern_NB	BALDOCK ROAD	M1	WB	382	73	24	479	467	78	25	570	85	5	1	91	22%	7%	4%	19%	Fail	4.13	Pass	Fail	0.58	Pass	Pass	0.20	Pass	Fail	3.97	Pass
Northern_NB	LONDON ROAD	M2	NB	301	58	19	378	315	59	21	395	14	1	2	17	5%	2%	11%	4%	Pass	0.80	Pass	Pass	0.13	Pass	Fail	0.45	Pass	Pass	0.86	Pass
Northern_NB	LONDON ROAD	M3	NB	74	12	2	88	33	2	0	35	-41	-10	-2	-53	-55%	-83%	-100%	-60%	Fail	5.61	Fail	Fail	3.78	Pass	Fail	2.00	Pass	Fail	6.76	Fail
Northern_NB	LONDON ROAD	M5	NB	625	99	18	742	626	119	17	762	1	20	-1	20	0%	20%	-6%	3%	Pass	0.04	Pass	Fail	1.92	Pass	Fail	0.24	Pass	Pass	0.73	Pass
Northern_NoMway_NB_TOTAL				1382	242	63	1687	1441	258	63	1762	59	16	0	75	4%	7%	0%	4%	Pass	1.57	Pass	Fail	1.01	Pass	Pass	0.00	Pass	Pass	1.81	Pass
Northern_SB	BALDOCK ROAD	M1	EB	436	84	28	548	444	115	31	590	8	31	3	42	2%	37%	11%	8%	Pass	0.38	Pass	Fail	3.11	Pass	Fail	0.55	Pass	Fail	1.76	Pass
Northern_SB	LONDON ROAD	M2	SB	341	66	22	429	347	69	24	440	6	3	2	11	2%	5%	9%	3%	Pass	0.32	Pass	Pass	0.37	Pass	Fail	0.42	Pass	Pass	0.53	Pass
Northern_SB	LONDON ROAD	M3	SB	94	15	3	112	60	8	1	69	-34	-7	-2	-43	-36%	-47%	-67%	-38%	Fail	3.87	Pass	Fail	2.06	Pass	Fail	1.41	Pass	Fail	4.52	Pass
Northern_SB	LONDON ROAD	M5	SB	557	88	16	661	531	89	19	639	-26	1	3	-22	-5%	1%	19%	-3%	Pass	1.11	Pass	Pass	0.11	Pass	Fail	0.72	Pass	Pass	0.86	Pass
Northern_NoMway_SB_TOTAL				1428	253	69	1750	1382	281	75	1738	-46	28	6	-12	-3%	11%	9%	-1%	Pass	1.23	Pass	Fail	1.71	Pass	Fail	0.71	Pass	Pass	0.29	Pass

Link Calibration IP

Summary - Observed		TOTAL	CARS	LGV	HGV
DMRB	Pass	98%	98%	100%	100%
	Fail High	0%	0%	0%	0%
	Fail Low	2%	2%	0%	0%
GEH	Pass	93%	94%	100%	100%
	Fail High	1%	1%	0%	0%
	Fail Low	6%	5%	0%	0%

Summary - Synethetic		TOTAL	CARS	LGV	HGV
DMRB	Pass	88%	92%	100%	100%
	Fail High	6%	5%	0%	0%
	Fail Low	6%	3%	0%	0%
GEH	Pass	84%	84%	92%	100%
	Fail High	6%	6%	3%	0%
	Fail Low	10%	10%	5%	0%

Summary - Total		TOTAL	CARS	LGV	HGV
DMRB	Pass	94%	95%	100%	100%
	Fail High	3%	2%	0%	0%
	Fail Low	4%	3%	0%	0%
GEH	Pass	89%	89%	96%	100%
	Fail High	3%	3%	2%	0%
	Fail Low	8%	8%	2%	0%

			IP Observed Flows				IP Modelled Flows				Absolute differences				%age Difference				CAR IP Performance			LGV IP Performance			HGV IP Performance			TOTAL IP Performance		
Road Name	Count ID	Direction	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Flow Difference	GEH	GEH < 5	Flow Difference	GEH	GEH < 5	Flow Difference	GEH	GEH < 5	Flow Difference	GEH	GEH < 5
BURY LANE	A1	NB	111	23	2	136	86	20	3	109	-25	-3	1	-27	-23%	-13%	50%	-20%	Pass	2.52	Pass	Pass	0.65	Pass	Pass	0.63	Pass	Pass	2.44	Pass
BURY LANE	A1	SB	112	23	3	138	149	29	3	181	37	6	0	43	33%	26%	0%	31%	Pass	3.24	Pass	Pass	1.18	Pass	Pass	0.00	Pass	Pass	3.40	Pass
LINDSEY STREET	A2	EB	76	15	2	93	86	11	0	97	10	-4	-2	4	13%	-27%	-100%	4%	Pass	1.11	Pass	Pass	1.11	Pass	Pass	2.00	Pass	Pass	0.41	Pass
LINDSEY STREET	A2	WB	71	15	2	88	102	17	0	119	31	2	-2	31	44%	13%	-100%	35%	Pass	3.33	Pass	Pass	0.50	Pass	Pass	2.00	Pass	Pass	3.05	Pass
THORNWOOD ROAD	A3	NB	459	94	10	563	462	93	10	565	3	-1	0	2	1%	-1%	0%	0%	Pass	0.14	Pass	Pass	0.10	Pass	Pass	0.00	Pass	Pass	0.08	Pass
THORNWOOD ROAD	A3	SB	439	90	10	539	478	86	8	572	39	-4	-2	33	9%	-4%	-20%	6%	Pass	1.82	Pass	Pass	0.43	Pass	Pass	0.67	Pass	Pass	1.40	Pass
EPPING ROAD	A4	NEB	274	56	6	336	269	54	5	328	-5	-2	-1	-8	-2%	-4%	-17%	-2%	Pass	0.30	Pass	Pass	0.27	Pass	Pass	0.43	Pass	Pass	0.44	Pass
EPPING ROAD	A4	SWB	298	61	7	366	299	64	5	368	1	3	-2	2	0%	5%	-29%	1%	Pass	0.06	Pass	Pass	0.38	Pass	Pass	0.82	Pass	Pass	0.10	Pass
STONARDS HILL	A5	NWB	65	10	1	76	42	6	1	49	-23	-4	0	-27	-35%	-40%	0%	-36%	Pass	3.14	Pass	Pass	1.41	Pass	Pass	0.00	Pass	Pass	3.42	Pass
STONARDS HILL	A5	SEB	67	10	1	78	24	5	1	30	-43	-5	0	-48	-64%	-50%	0%	-62%	Pass	6.37	Fail	Pass	1.83	Pass	Pass	0.00	Pass	Pass	6.53	Fail
BOWER HILL	A6	NB	99	15	1	115	56	12	0	68	-43	-3	-1	-47	-43%	-20%	-100%	-41%	Pass	4.88	Pass	Pass	0.82	Pass	Pass	1.41	Pass	Pass	4.91	Pass
BOWER HILL	A6	SB	99	15	1	115	70	9	0	79	-29	-6	-1	-36	-29%	-40%	-100%	-31%	Pass	3.15	Pass	Pass	1.73	Pass	Pass	1.41	Pass	Pass	3.66	Pass
BRIDGE HILL	A7	EB	65	10	1	76	131	16	0	147	66	6	-1	71	102%	60%	-100%	93%	Pass	6.67	Fail	Pass	1.66	Pass	Pass	1.41	Pass	Pass	6.72	Fail
BRIDGE HILL	A7	WB	69	10	1	80	104	10	0	114	35	0	-1	34	51%	0%	-100%	43%	Pass	3.76	Pass	Pass	0.00	Pass	Pass	1.41	Pass	Pass	3.45	Pass
THEYDON ROAD	A8	NB	214	33	2	249	165	45	5	215	-49	12	3	-34	-23%	36%	150%	-14%	Pass	3.56	Pass	Pass	1.92	Pass	Pass	1.60	Pass	Pass	2.23	Pass
THEYDON ROAD	A8	SB	196	30	2	228	203	37	2	242	7	7	0	14	4%	23%	0%	6%	Pass	0.50	Pass	Pass	1.21	Pass	Pass	0.00	Pass	Pass	0.91	Pass
EPPING ROAD	A9	NEB	573	117	13	703	540	102	10	652	-33	-15	-3	-51	-6%	-13%	-23%	-7%	Pass	1.40	Pass	Pass	1.43	Pass	Pass	0.88	Pass	Pass	1.96	Pass
EPPING ROAD	A9	SWB	577	118	13	708	574	110	14	698	-3	-8	1	-10	-1%	-7%	8%	-1%	Pass	0.13	Pass	Pass	0.75	Pass	Pass	0.27	Pass	Pass	0.38	Pass
CAMBRIDGE ROAD	C1	NB	507	106	20	633	495	107	20	622	-12	1	0	-11	-2%	1%	0%	-2%	Pass	0.54	Pass	Pass	0.10	Pass	Pass	0.00	Pass	Pass	0.44	Pass
CAMBRIDGE ROAD	C1	SB	546	114	22	682	536	110	21	667	-10	-4	-1	-15	-2%	-4%	-5%	-2%	Pass	0.43	Pass	Pass	0.38	Pass	Pass	0.22	Pass	Pass	0.58	Pass
STATION ROAD	C2	EB	134	20	1	155	128	16	1	145	-6	-4	0	-10	-4%	-20%	0%	-6%	Pass	0.52	Pass	Pass	0.94	Pass	Pass	0.00	Pass	Pass	0.82	Pass
STATION ROAD	C2	WB	150	23	1	174	125	16	0	141	-25	-7	-1	-33	-17%	-30%	-100%	-19%	Pass	2.13	Pass	Pass	1.59	Pass	Pass	1.41	Pass	Pass	2.63	Pass
SHEERING LOWER ROAD	C3	NB	76	11	1	88	66	13	0	79	-10	2	-1	-9	-13%	18%	-100%	-10%	Pass	1.19	Pass	Pass	0.58	Pass	Pass	1.41	Pass	Pass	0.98	Pass
SHEERING LOWER ROAD	C3	SB	64	10	1	75	78	15	1	94	14	5	0	19	22%	50%	0%	25%	Pass	1.66	Pass	Pass	1.41	Pass	Pass	0.00	Pass	Pass	2.07	Pass
SHEERING LOWER ROAD	C4	NB	48	7	0	55	51	12	0	63	3	5	0	8	6%	71%	0%	15%	Pass	0.43	Pass	Pass	1.62	Pass	Pass	0.00	Pass	Pass	1.04	Pass
SHEERING LOWER ROAD	C4	SB	48	7	0	55	68	15	0	83	20	8	0	28	42%	114%	0%	51%	Pass	2.63	Pass	Pass	2.41	Pass	Pass	0.00	Pass	Pass	3.37	Pass
HARLOW ROAD	C5	NB	451	94	18	563	480	99	17	596	29	5	-1	33	6%	5%	-6%	6%	Pass	1.34	Pass	Pass	0.51	Pass	Pass	0.24	Pass	Pass	1.37	Pass
HARLOW ROAD	C5	SB	505	105	20	630	509	103	19	631	4	-2	-1	1	1%	-2%	-5%	0%	Pass	0.18	Pass	Pass	0.20	Pass	Pass	0.23	Pass	Pass	0.04	Pass
HIGH WYCH ROAD	C6	EB	268	41	2	311	258	43	5	306	-10	2	3	-5	-4%	5%	150%	-2%	Pass	0.62	Pass	Pass	0.31	Pass	Pass	1.60	Pass	Pass	0.28	Pass
HIGH WYCH ROAD	C6	WB	272	41	2	315	244	37	3	284	-28	-4	1	-31	-10%	-10%	50%	-10%	Pass	1.74	Pass	Pass	0.64	Pass	Pass	0.63	Pass	Pass	1.79	Pass
WEST ROAD	C7	EB	126	19	1	146	71	9	2	82	-55	-10	1	-64	-44%	-53%	100%	-44%	Pass	5.54	Fail	Pass	2.67	Pass	Pass	0.82	Pass	Pass	5.99	Fail
WEST ROAD	C7	WB	58	9	1	68	54	9	0	63	-4	0	-1	-5	-7%	0%	-100%	-7%	Pass	0.53	Pass	Pass	0.00	Pass	Pass	1.41	Pass	Pass	0.62	Pass
HARLOW ROAD	D1	NB	435	91	17	543	480	99	17	596	45	8	0	53	10%	9%	0%	10%	Pass	2.10	Pass	Pass	0.82	Pass	Pass	0.00	Pass	Pass	2.22	Pass
HARLOW ROAD	D1	SB	476	99	19	594	509	103	19	631	33	4	0	37	7%	4%	0%	6%	Pass	1.49	Pass	Pass	0.40	Pass	Pass	0.00	Pass	Pass	1.50	Pass
GILDEN WAY	D2	NEB	345	71	8	424	352	73	11	436	7	2	3	12	2%	3%	38%	3%	Pass	0.37	Pass	Pass	0.24	Pass	Pass	0.97	Pass	Pass	0.58	Pass
GILDEN WAY	D2	SWB	368	75	8	451	381	71	7	459	13	-4	-1	8	4%	-5%	-13%	2%	Pass	0.67	Pass	Pass	0.47	Pass	Pass	0.37	Pass	Pass	0.38	Pass
LONDON ROAD	D4	NB	1057	221	42	1320	1026	228	42	1296	-31	7	0	-24	-3%	3%	0%	-2%	Pass	0.96	Pass	Pass	0.47	Pass	Pass	0.00	Pass	Pass	0.66	Pass
LONDON ROAD	D4	SB	1098	229	44	1371	1093	214	42	1349	-5	-15	-2	-22	0%	-7%	-5%	-2%	Pass	0.15	Pass	Pass	1.01	Pass	Pass	0.30	Pass	Pass	0.60	Pass
RYE HILL ROAD	D5	NWB	42	6	0	48	53	7	0	60	11	1	0	12	26%	17%	0%	25%	Pass	1.60	Pass	Pass	0.39	Pass	Pass	0.00	Pass	Pass	1.63	Pass
RYE HILL ROAD	D5	SEB	38	6	0	44	45	6	0	51	7	0	0	7	18%	0%	0%	16%	Pass	1.09	Pass	Pass	0.00	Pass	Pass	0.00	Pass	Pass	1.02	Pass
PARSLOE ROAD	D6	NEB	97	15	1	113	62	10	0	72	-35	-5	-1	-41	-36%	-33%	-100%	-36%	Pass	3.93	Pass	Pass	1.41	Pass	Pass	1.41	Pass	Pass	4.26	Pass
PARSLOE ROAD	D6	SWB	111	17	1	129	90	14	0	104	-21	-3	-1	-25	-19%	-18%	-100%	-19%	Pass	2.09	Pass	Pass	0.76	Pass	Pass	1.41	Pass	Pass	2.32	Pass
WATER LANE	D7	NEB	362	74	8	444	395	82	13	490	33	8	5	46	9%	11%	63%	10%	Pass	1.70	Pass	Pass	0.91	Pass	Pass	1.54	Pass	Pass	2.13	Pass
WATER LANE	D7	SWB	383	78	9	470	417	94	13	524	34	16	4	54	9%	21%	44%	11%	Pass	1.70	Pass	Pass	1.73	Pass	Pass	1.21	Pass	Pass	2.42	Pass
HARLOW ROAD	D8	EB	103	16	1	120	97	22	3	122	-6	6	2	2	-6%	38%	200%	2%	Pass	0.60	Pass	Pass	1.38	Pass	Pass	1.41	Pass	Pass	0.18	Pass
HARLOW ROAD	D8	WB	102	16	1	119	104	21	3	128	2	5	2	9	2%	31%	200%	8%	Pass	0.20	Pass	Pass	1.16	Pass	Pass	1.41	Pass	Pass	0.81	Pass
FIFTH AVENUE ALLENDE AVENUE	D9	NB	652	136	26	814	558	121	22	701	-94	-15	-4	-113	-14%	-11%	-15%	-14%	Pass	3.82	Pass	Pass	1.32	Pass	Pass	0.82	Pass	Pass	4.11	Pass
FIFTH AVENUE ALLENDE AVENUE	D9	SB	594	124	24	742	585	114	19	718	-9	-10	-5	-24	-2%	-8%	-21%	-3%	Pass	0.37	Pass	Pass	0.92	Pass	Pass	1.08	Pass	Pass	0.89	Pass
BRENTWOOD ROAD	F1	NB	177	37	7	221	165	38	10	213	-12	1	3	-8	-7%	3%	43%	-4%	Pass	0.92	Pass	Pass	0.16	Pass	Pass	1.03	Pass	Pass	0.54	Pass
BRENTWOOD ROAD	F1	SB	178	37	7	222	173	46	8	227	-5	9	1	5	-3%	24%	14%	2%	Pass	0.38	Pass	Pass	1.40	Pass	Pass	0.37	Pass	Pass	0.33	Pass
LONDON ROAD	F2	NEB	192	40	8	240	206	42	7	255	14	2	-1	15	7%	5%	-13%	6%	Pass	0.99	Pass	Pass	0.31	Pass	Pass	0.37	Pass	Pass	0.95	Pass
LONDON ROAD	F2	SWB	176	37	7	220	176	32	8	216	0	-5	1	-4	0%	-14%	14%	-2%	Pass	0.00	Pass	Pass	0.85	Pass	Pass	0.37	Pass	Pass	0.27	Pass

Link Calibration IP

			IP Observed Flows				IP Modelled Flows				Absolute differences				%age Difference				CAR IP Performance			LGV IP Performance			HGV IP Performance			TOTAL IP Performance		
Road Name	Count ID	Direction	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Flow Difference	GEH	GEH < 5	Flow Difference	GEH	GEH < 5	Flow Difference	GEH	GEH < 5	Flow Difference	GEH	GEH < 5
ROXWELL ROAD	G1	EB	344	72	14	430	257	62	9	328	-87	-10	-5	-102	-25%	-14%	-36%	-24%	Pass	5.02	Fail	Pass	1.22	Pass	Pass	1.47	Pass	Fail	5.24	Fail
ROXWELL ROAD	G1	WB	334	70	13	417	283	58	9	350	-51	-12	-4	-67	-15%	-17%	-31%	-16%	Pass	2.90	Pass	Pass	1.50	Pass	Pass	1.21	Pass	Pass	3.42	Pass
CHELMSFORD ROAD	G2	EB	197	30	2	229	217	30	3	250	20	0	1	21	10%	0%	50%	9%	Pass	1.39	Pass	Pass	0.00	Pass	Pass	0.63	Pass	Pass	1.36	Pass
CHELMSFORD ROAD	G2	WB	220	33	2	255	235	38	5	278	15	5	3	23	7%	15%	150%	9%	Pass	0.99	Pass	Pass	0.84	Pass	Pass	1.60	Pass	Pass	1.41	Pass
0	G3	EB	337	70	13	420	312	62	10	384	-25	-8	-3	-36	-7%	-11%	-23%	-9%	Pass	1.39	Pass	Pass	0.98	Pass	Pass	0.88	Pass	Pass	1.80	Pass
0	G3	WB	323	68	13	404	306	69	12	387	-17	1	-1	-17	-5%	1%	-8%	-4%	Pass	0.96	Pass	Pass	0.12	Pass	Pass	0.28	Pass	Pass	0.85	Pass
THREE MILE HILL	G4	NB	622	130	25	777	844	184	31	1059	222	54	6	282	36%	42%	24%	36%	Fail	8.20	Fail	Pass	4.31	Pass	Pass	1.13	Pass	Fail	9.31	Fail
THREE MILE HILL	G4	SB	649	135	26	810	914	202	35	1151	265	67	9	341	41%	50%	35%	42%	Fail	9.48	Fail	Pass	5.16	Fail	Pass	1.63	Pass	Fail	10.89	Fail
WOOD STREET	G5	NB	346	71	8	425	116	14	1	131	-230	-57	-7	-294	-66%	-80%	-88%	-69%	Fail	15.13	Fail	Pass	8.74	Fail	Pass	3.30	Pass	Fail	17.63	Fail
WOOD STREET	G5	SB	383	78	9	470	111	10	0	121	-272	-68	-9	-349	-71%	-87%	-100%	-74%	Fail	17.31	Fail	Pass	10.25	Fail	Pass	4.24	Pass	Fail	20.30	Fail
0	H1	EB	889	186	35	1110	918	167	33	1118	29	-19	-2	8	3%	-10%	-6%	1%	Pass	0.96	Pass	Pass	1.43	Pass	Pass	0.34	Pass	Pass	0.24	Pass
0	H1	WB	849	177	34	1060	955	175	34	1164	106	-2	0	104	12%	-1%	0%	10%	Pass	3.53	Pass	Pass	0.15	Pass	Pass	0.00	Pass	Pass	3.12	Pass
0	H2	NEB	543	113	22	678	580	126	26	732	37	13	4	54	7%	12%	18%	8%	Pass	1.56	Pass	Pass	1.19	Pass	Pass	0.82	Pass	Pass	2.03	Pass
0	H2	SWB	558	117	22	697	598	144	31	773	40	27	9	76	7%	23%	41%	11%	Pass	1.66	Pass	Pass	2.36	Pass	Pass	1.75	Pass	Pass	2.80	Pass
0	H3	EB	1914	400	76	2390	1878	387	78	2343	-36	-13	2	-47	-2%	-3%	3%	-2%	Pass	0.83	Pass	Pass	0.66	Pass	Pass	0.23	Pass	Pass	0.97	Pass
0	H3	WB	1946	406	77	2429	1903	380	75	2358	-43	-26	-2	-71	-2%	-6%	-3%	-3%	Pass	0.98	Pass	Pass	1.31	Pass	Pass	0.23	Pass	Pass	1.45	Pass
ROUND COPPICE ROAD	J1	NEB	228	35	2	265	267	45	4	316	39	10	2	51	17%	29%	100%	19%	Pass	2.48	Pass	Pass	1.58	Pass	Pass	1.15	Pass	Pass	2.99	Pass
ROUND COPPICE ROAD	J1	SWB	168	26	2	196	233	35	3	271	65	9	1	75	39%	35%	50%	38%	Pass	4.59	Pass	Pass	1.63	Pass	Pass	0.63	Pass	Pass	4.91	Pass
CHURCH ROAD	J2	EB	122	19	1	142	154	15	1	170	32	-4	0	28	26%	-21%	0%	20%	Pass	2.72	Pass	Pass	0.97	Pass	Pass	0.00	Pass	Pass	2.24	Pass
CHURCH ROAD	J2	WB	98	15	1	114	82	13	1	96	-16	-2	0	-18	-16%	-13%	0%	-16%	Pass	1.69	Pass	Pass	0.53	Pass	Pass	0.00	Pass	Pass	1.76	Pass
HALL ROAD	J3	NB	87	13	1	101	72	18	1	91	-15	5	0	-10	-17%	38%	0%	-10%	Pass	1.68	Pass	Pass	1.27	Pass	Pass	0.00	Pass	Pass	1.02	Pass
HALL ROAD	J3	SB	83	13	1	97	77	13	1	91	-6	0	0	-6	-7%	0%	0%	-6%	Pass	0.67	Pass	Pass	0.00	Pass	Pass	0.00	Pass	Pass	0.62	Pass
0	J4	NEB	49	7	0	56	50	3	0	53	1	-4	0	-3	2%	-57%	0%	-5%	Pass	0.14	Pass	Pass	1.79	Pass	Pass	0.00	Pass	Pass	0.41	Pass
0	J4	SWB	52	8	0	60	47	12	1	60	-5	4	1	0	-10%	50%	N/A	0%	Pass	0.71	Pass	Pass	1.26	Pass	Pass	1.41	Pass	Pass	0.00	Pass
0	J5	NWB	24	4	0	28	0	15	0	15	-24	11	0	-13	-100%	275%	0%	-46%	Pass	6.93	Fail	Pass	3.57	Pass	Pass	0.00	Pass	Pass	2.80	Pass
0	J5	SEB	21	3	0	24	0	0	0	0	-21	-3	0	-24	-100%	-100%	0%	-100%	Pass	6.48	Fail	Pass	2.45	Pass	Pass	0.00	Pass	Pass	6.93	Fail
PARSONAGE ROAD	J6	NB	130	20	1	151	133	16	2	151	3	-4	1	0	2%	-20%	100%	0%	Pass	0.26	Pass	Pass	0.94	Pass	Pass	0.82	Pass	Pass	0.00	Pass
PARSONAGE ROAD	J6	SB	100	15	1	116	101	16	2	119	1	1	1	3	1%	7%	100%	3%	Pass	0.10	Pass	Pass	0.25	Pass	Pass	0.82	Pass	Pass	0.28	Pass
0	J7	NWB	195	41	8	244	187	36	5	228	-8	-5	-3	-16	-4%	-12%	-38%	-7%	Pass	0.58	Pass	Pass	0.81	Pass	Pass	1.18	Pass	Pass	1.04	Pass
0	J7	SEB	133	28	5	166	137	28	3	168	4	0	-2	2	3%	0%	-40%	1%	Pass	0.34	Pass	Pass	0.00	Pass	Pass	1.00	Pass	Pass	0.15	Pass
THREMHALL AVENUE	J8	NEB	591	123	23	737	590	118	21	729	-1	-5	-2	-8	0%	-4%	-9%	-1%	Pass	0.04	Pass	Pass	0.46	Pass	Pass	0.43	Pass	Pass	0.30	Pass
THREMHALL AVENUE	J8	SWB	524	109	21	654	559	107	22	688	35	-2	1	34	7%	-2%	5%	5%	Pass	1.50	Pass	Pass	0.19	Pass	Pass	0.22	Pass	Pass	1.31	Pass
0	K1	EB	826	172	33	1031	774	165	31	970	-52	-7	-2	-61	-6%	-4%	-6%	-6%	Pass	1.84	Pass	Pass	0.54	Pass	Pass	0.35	Pass	Pass	1.93	Pass
0	K1	WB	727	152	29	908	733	154	28	915	6	2	-1	7	1%	1%	-3%	1%	Pass	0.22	Pass	Pass	0.16	Pass	Pass	0.19	Pass	Pass	0.23	Pass
HALLINGBURY ROAD	K2	NB	205	43	8	256	217	44	9	270	12	1	1	14	6%	2%	13%	5%	Pass	0.83	Pass	Pass	0.15	Pass	Pass	0.34	Pass	Pass	0.86	Pass
HALLINGBURY ROAD	K2	SB	201	42	8	251	206	44	8	258	5	2	0	7	2%	5%	0%	3%	Pass	0.35	Pass	Pass	0.30	Pass	Pass	0.00	Pass	Pass	0.44	Pass
0	K3	NB	436	91	17	544	434	96	20	550	-2	5	3	6	0%	5%	18%	1%	Pass	0.10	Pass	Pass	0.52	Pass	Pass	0.70	Pass	Pass	0.26	Pass
0	K3	SB	462	96	18	576	465	98	21	584	3	2	3	8	1%	2%	17%	1%	Pass	0.14	Pass	Pass	0.20	Pass	Pass	0.68	Pass	Pass	0.33	Pass
GREAT HADHAM ROAD	K4	EB	89	18	2	109	128	24	3	155	39	6	1	46	44%	33%	50%	42%	Pass	3.74	Pass	Pass	1.31	Pass	Pass	0.63	Pass	Pass	4.00	Pass
GREAT HADHAM ROAD	K4	WB	92	19	2	113	141	27	3	171	49	8	1	58	53%	42%	50%	51%	Pass	4.54	Pass	Pass	1.67	Pass	Pass	0.63	Pass	Pass	4.87	Pass
STORTFORD ROAD	K5	EB	412	86	16	514	373	80	12	465	-39	-6	-4	-49	-9%	-7%	-25%	-10%	Pass	1.97	Pass	Pass	0.66	Pass	Pass	1.07	Pass	Pass	2.21	Pass
STORTFORD ROAD	K5	WB	416	87	16	519	396	80	11	487	-20	-7	-5	-32	-5%	-8%	-31%	-6%	Pass	0.99	Pass	Pass	0.77	Pass	Pass	1.36	Pass	Pass	1.43	Pass
HAZELEND ROAD	K6	NEB	158	24	1	183	103	14	1	118	-55	-10	0	-65	-35%	-42%	0%	-36%	Pass	4.81	Pass	Pass	2.29	Pass	Pass	0.00	Pass	Pass	5.30	Fail
HAZELEND ROAD	K6	SWB	156	24	1	181	109	9	1	119	-47	-15	0	-62	-30%	-63%	0%	-34%	Pass	4.08	Pass	Pass	3.69	Pass	Pass	0.00	Pass	Pass	5.06	Fail
STANSTED ROAD	K7	NEB	445	91	10	546	482	101	12	595	37	10	2	49	8%	11%	20%	9%	Pass	1.72	Pass	Pass	1.02	Pass	Pass	0.60	Pass	Pass	2.05	Pass
STANSTED ROAD	K7	SWB	462	95	10	567	458	108	13	579	-4	13	3	12	-1%	14%	30%	2%	Pass	0.19	Pass	Pass	1.29	Pass	Pass	0.88	Pass	Pass	0.50	Pass
BIRCHANGER LANE	K8	NB	31	5	0	36	27	4	1	32	-4	-1	1	-4	-13%	-20%	N/A	-11%	Pass	0.74	Pass	Pass	0.47	Pass	Pass	1.41	Pass	Pass	0.69	Pass
BIRCHANGER LANE	K8	SB	38	6	0	44	31	5	0	36	-7	-1	0	-8	-18%	-17%	0%	-18%	Pass	1.19	Pass	Pass	0.43	Pass	Pass	0.00	Pass	Pass	1.26	Pass
BALDOCK ROAD	M1	EB	182	38	7	227	204	45	8	257	22	7	1	30	12%	18%	14%	13%	Pass	1.58	Pass	Pass	1.09	Pass	Pass	0.37	Pass	Pass	1.93	Pass
BALDOCK ROAD	M1	WB	188	39	7	234	207	45	9	261	19	6	2	27	10%	15%	29%	12%	Pass	1.35	Pass	Pass	0.93	Pass	Pass	0.71	Pass	Pass	1.72	Pass
LONDON ROAD	M2	NB	207	43	8	258	222	45	8	275	15	2	0	17	7%	5%	0%	7%	Pass	1.02	Pass	Pass	0.30	Pass	Pass	0.00	Pass	Pass	1.04	Pass
LONDON ROAD	M2	SB	180	38	7	225	195	43	9	247	15	5	2	22	8%	13%	29%	10%	Pass	1.10	Pass	Pass	0.79	Pass	Pass	0.71	Pass	Pass	1.43	Pass
LONDON ROAD	M3	NB	42	9	1	52	12	1	0	13	-30	-8	-1	-39	-71%	-89%	-100%	-75%	Pass	5.77	Fail	Pass	3.58	Pass	Pass	1.41	Pass	Pass	6.84	Fail
LONDON ROAD	M3	SB	39	8	1	48	10	2	0	12	-29	-6	-1	-36	-74%	-75%	-100%	-75%	Pass	5.86	Fail	Pass	2.68	Pass	Pass	1.41	Pass	Pass	6.57	Fail
0	M4	NB	1605	586	146	2337	1548	568	142	2258	-57	-18	-4	-79	-4%	-3%	-3%	-3%	Pass	1.44	Pass	Pass	0.75	Pass	Pass	0.33	Pass	Pass	1.65	Pass
0	M4	SB	1334	486	122	1942	1314	493	130	1937	-20	7	8	-5	-1%	1%	7%	0%	Pass	0.55	Pass	Pass	0.32	Pass	Pass	0.71	Pass	Pass	0.11	Pass
LONDON ROAD	M5	NB	322	66	7	395	326	99	7	432	4	33	0	37	1%	50%	0%	9%	Pass	0.22	Pass	Pass	3.63	Pass	Pass	0.00	Pass	Pass	1.82	Pass
LONDON ROAD	M5	SB	318	65	7	390	325	84	9	418	7	19	2	28	2%	29%	29%	7%	Pass	0.39	Pass	Pass	2.20	Pass	Pass	0.71	Pass	Pass	1.39	Pass
WADESMILL ROAD	N1	NB	217	45	9	271	258	55	7	320	41	10	-2	49	19%	22%	-22%	18%	Pass	2.66	Pass	Pass	1.41	Pass	Pass	0.71	Pass	Pass	2.85	Pass
WADESMILL ROAD	N1	SB	179	37	7	223	221	50	8	279	42	13	1	56	23%	35%	14%	25%	Pass	2.97	Pass	Pass	1.97	Pass	Pass	0.37	Pass	Pass	3.53	Pass
0	N2	EB	19	3	0	22	1	0	0	1	-18	-3	0	-21	-95%	-100%	0%	-95%	Pass	5.69	Fail	Pass	2.45	Pass	Pass	0.00	Pass	Pass	6.19	Fail
0	N2	WB	16	2	0	18	0	0	0	0	-16	-2	0	-18	-100%	-100%	0%	-100%	Pass	5.66	Fail	Pass	2.00	Pass	Pass	0.00	Pass	Pass	6.00	Fail
0	N3	EB	59	12	1	72	50	11	1	62	-9	-1	0	-10	-15%	-8%	0%	-14%	Pass	1.22	Pass	Pass	0.29	Pass	Pass	0.00	Pass	Pass	1.22	Pass
0	N3	WB	54	11	1	66	57	8	3	68	3	-3	2	2	6%	-27%	200%	3%	Pass	0.40	Pass	Pass	0.97	Pass	Pass	1.41	Pass	Pass	0.24	Pass
HOLLYCROSS ROAD	N4	NWB	60	9	1	70	80	19	4	103	20	10	3	33	33%	111%	300%	47%	Pass	2.39	Pass	Pass	2.67	Pass	Pass	1.90	Pass	Pass	3.55	Pass
HOLLYCROSS ROAD	N4	SEB	91	14	1	106	96	30	4	130	5	16	3	24	5%	114%	300%	23%	Pass	0.52	Pass	Pass	3.41	Pass	Pass	1.90	Pass	Pass	2.21	Pass
VIADUCT ROAD	N5	NWB	332	69	13	414	264	60	11	335	-68	-9	-2	-79	-20%	-13%	-15%	-19%	Pass	3.94	Pass	Pass	1.12	Pass	Pass	0.58	Pass	Pass	4.08	Pass
VIADUCT ROAD	N5	SEB	361	75	14	450	361	59	12	432	0	-16	-2	-18	0%	-21%	-14%	-4%	Pass	0.00	Pass	Pass	1.95	Pass	Pass	0.55	Pass	Pass	0.86	Pass
0	N6	NB	83	13	1	97	257	1	0	258	174	-12	-1	161	210%	-92%	-100%	166%	Fail	13.35	Fail	Pass	4.54	Pass	Pass	1.41	Pass	Fail	12.08	Fail
0	N6	SB	106	16	1	123	183	65	10	258	77	49	9	135	73%	306%	900%	110%	Pass	6.41	Fail	Pass	7.70	Fail	Pass	3.84	Pass	Fail	9.78	Fail
WARE ROAD	N7	EB	306	64	12	382	174	80	12	266	-132	16	0	-116	-43%	25%	0%	-30%	Fail	8.52	Fail	Pass	1.89	Pass	Pass	0.00	Pass	Fail	6.44	Fail
WARE ROAD	N7	WB	255	53	10	318	161	1	1	163	-94	-52	-9	-155	-37%	-98%	-90%	-49%	Pass	6.52	Fail	Pass	10.01	Fail	Pass	3.84	Pass	Fail	9.99	Fail
WESTMILL ROAD	N8	NWB	324	66	7	397	260	51	7	318	-64	-15	0	-79	-20%	-23%	0%	-20%	Pass	3.75	Pass	Pass	1.96	Pass	Pass	0.00	Pass	Pass	4.18	Pass
WESTMILL ROAD	N8	SEB	293	60	7	360	235	34	5	274	-58	-26	-2	-86	-20%	-43%	-29%	-24%	Pass	3.57	Pass	Pass	3.79	Pass	Pass	0.82	Pass	Pass	4.83	Pass

Link Calibration IP

			IP Observed Flows				IP Modelled Flows				Absolute differences				%age Difference				CAR IP Performance			LGV IP Performance			HGV IP Performance			TOTAL IP Performance		
Road Name	Count ID	Direction	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Flow Difference	GEH	GEH < 5	Flow Difference	GEH	GEH < 5	Flow Difference	GEH	GEH < 5	Flow Difference	GEH	GEH < 5
0	Q1	NB	555	116	22	693	565	121	17	703	10	5	-5	10	2%	4%	-23%	1%	Pass	0.42	Pass	Pass	0.46	Pass	Pass	1.13	Pass	Pass	0.38	Pass
0	Q1	SB	598	125	24	747	604	131	21	756	6	6	-3	9	1%	5%	-13%	1%	Pass	0.24	Pass	Pass	0.53	Pass	Pass	0.63	Pass	Pass	0.33	Pass
0	Q2	NB	69	11	1	81	64	10	4	78	-5	-1	3	-3	-7%	-9%	300%	-4%	Pass	0.61	Pass	Pass	0.31	Pass	Pass	1.90	Pass	Pass	0.34	Pass
0	Q2	SB	60	9	1	70	59	14	6	79	-1	5	5	9	-2%	56%	500%	13%	Pass	0.13	Pass	Pass	1.47	Pass	Pass	2.67	Pass	Pass	1.04	Pass
WESTMILL ROAD	Q3	NB	450	94	18	562	475	102	17	594	25	8	-1	32	6%	9%	-6%	6%	Pass	1.16	Pass	Pass	0.81	Pass	Pass	0.24	Pass	Pass	1.33	Pass
WESTMILL ROAD	Q3	SB	429	90	17	536	453	86	17	556	24	-4	0	20	6%	-4%	0%	4%	Pass	1.14	Pass	Pass	0.43	Pass	Pass	0.00	Pass	Pass	0.86	Pass
WADESMILL ROAD	Q4	NEB	137	28	3	168	121	5	1	127	-16	-23	-2	-41	-12%	-82%	-67%	-24%	Pass	1.41	Pass	Pass	5.66	Fail	Pass	1.41	Pass	Pass	3.38	Pass
WADESMILL ROAD	Q4	SWB	137	28	3	168	137	21	4	162	0	-7	1	-6	0%	-25%	33%	-4%	Pass	0.00	Pass	Pass	1.41	Pass	Pass	0.53	Pass	Pass	0.47	Pass
0	Q5	NB	179	37	7	223	168	35	8	211	-11	-2	1	-12	-6%	-5%	14%	-5%	Pass	0.84	Pass	Pass	0.33	Pass	Pass	0.37	Pass	Pass	0.81	Pass
0	Q5	SB	174	36	7	217	150	42	8	200	-24	6	1	-17	-14%	17%	14%	-8%	Pass	1.89	Pass	Pass	0.96	Pass	Pass	0.37	Pass	Pass	1.18	Pass
WELWYN ROAD	Q6	EB	147	30	3	180	256	76	11	343	109	46	8	163	74%	153%	267%	91%	Fail	7.68	Fail	Pass	6.32	Fail	Pass	3.02	Pass	Fail	10.08	Fail
WELWYN ROAD	Q6	WB	150	31	3	184	124	18	6	148	-26	-13	3	-36	-17%	-42%	100%	-20%	Pass	2.22	Pass	Pass	2.63	Pass	Pass	1.41	Pass	Pass	2.79	Pass
0	Q7	EB	601	125	24	750	533	88	18	639	-68	-37	-6	-111	-11%	-30%	-25%	-15%	Pass	2.86	Pass	Pass	3.59	Pass	Pass	1.31	Pass	Pass	4.21	Pass
0	Q7	WB	703	147	28	878	741	165	26	932	38	18	-2	54	5%	12%	-7%	6%	Pass	1.41	Pass	Pass	1.44	Pass	Pass	0.38	Pass	Pass	1.80	Pass
LOWER HATFIELD ROAD	Q8	NEB	115	24	3	142	114	22	5	141	-1	-2	2	-1	-1%	-8%	67%	-1%	Pass	0.09	Pass	Pass	0.42	Pass	Pass	1.00	Pass	Pass	0.08	Pass
LOWER HATFIELD ROAD	Q8	SWB	103	21	2	126	108	23	4	135	5	2	2	9	5%	10%	100%	7%	Pass	0.49	Pass	Pass	0.43	Pass	Pass	1.15	Pass	Pass	0.79	Pass
0	Q9	NB	1245	260	49	1554	1246	234	41	1521	1	-26	-8	-33	0%	-10%	-16%	-2%	Pass	0.03	Pass	Pass	1.65	Pass	Pass	1.19	Pass	Pass	0.84	Pass
0	Q9	SB	1251	261	50	1562	1286	241	47	1574	35	-20	-3	12	3%	-8%	-6%	1%	Pass	0.98	Pass	Pass	1.26	Pass	Pass	0.43	Pass	Pass	0.30	Pass
HIGH ROAD	Q10	NB	560	117	22	699	549	142	29	720	-11	25	7	21	-2%	21%	32%	3%	Pass	0.47	Pass	Pass	2.20	Pass	Pass	1.39	Pass	Pass	0.79	Pass
HIGH ROAD	Q10	SB	560	117	22	699	542	144	26	712	-18	27	4	13	-3%	23%	18%	2%	Pass	0.77	Pass	Pass	2.36	Pass	Pass	0.82	Pass	Pass	0.49	Pass
HIGH ROAD	Z1	NEB	611	125	14	750	479	114	12	605	-132	-11	-2	-145	-22%	-9%	-14%	-19%	Fail	5.65	Fail	Pass	1.01	Pass	Pass	0.55	Pass	Fail	5.57	Fail
HIGH ROAD	Z1	SWB	613	126	14	753	501	119	13	633	-112	-7	-1	-120	-18%	-6%	-7%	-16%	Fail	4.75	Pass	Pass	0.63	Pass	Pass	0.27	Pass	Fail	4.56	Pass
EASTWICK ROAD	Z2	EB	278	42	3	323	256	40	5	301	-22	-2	2	-22	-8%	-5%	67%	-7%	Pass	1.35	Pass	Pass	0.31	Pass	Pass	1.00	Pass	Pass	1.25	Pass
EASTWICK ROAD	Z2	WB	286	43	3	332	263	39	3	305	-23	-4	0	-27	-8%	-9%	0%	-8%	Pass	1.39	Pass	Pass	0.62	Pass	Pass	0.00	Pass	Pass	1.51	Pass
0	Z3	EB	2448	893	223	3564	2376	871	228	3475	-72	-22	5	-89	-3%	-2%	2%	-2%	Pass	1.47	Pass	Pass	0.74	Pass	Pass	0.33	Pass	Pass	1.50	Pass
0	Z3	WB	2510	916	229	3655	2542	895	232	3669	32	-21	3	14	1%	-2%	1%	0%	Pass	0.64	Pass	Pass	0.70	Pass	Pass	0.20	Pass	Pass	0.23	Pass
0	Z4	NB	1793	654	164	2611	1812	645	161	2618	19	-9	-3	7	1%	-1%	-2%	0%	Pass	0.45	Pass	Pass	0.35	Pass	Pass	0.24	Pass	Pass	0.14	Pass
0	Z4	SB	1688	616	154	2458	1627	566	150	2343	-61	-50	-4	-115	-4%	-8%	-3%	-5%	Pass	1.50	Pass	Pass	2.06	Pass	Pass	0.32	Pass	Pass	2.35	Pass
0	Z5	NB	1948	711	178	2837	2040	689	180	2909	92	-22	2	72	5%	-3%	1%	3%	Pass	2.06	Pass	Pass	0.83	Pass	Pass	0.15	Pass	Pass	1.34	Pass
0	Z5	SB	1885	688	172	2745	1937	610	171	2718	52	-78	-1	-27	3%	-11%	-1%	-1%	Pass	1.19	Pass	Pass	3.06	Pass	Pass	0.08	Pass	Pass	0.52	Pass
0	Z7	NB	1319	481	120	1920	1163	534	130	1827	-156	53	10	-93	-12%	11%	8%	-5%	Pass	4.43	Pass	Pass	2.35	Pass	Pass	0.89	Pass	Pass	2.15	Pass
0	Z7	SB	1286	469	117	1872	1154	452	125	1731	-132	-17	8	-141	-10%	-4%	7%	-8%	Pass	3.78	Pass	Pass	0.79	Pass	Pass	0.73	Pass	Pass	3.32	Pass
0	Z8	EB	2192	799	200	3191	2117	799	204	3120	-75	0	4	-71	-3%	0%	2%	-2%	Pass	1.62	Pass	Pass	0.00	Pass	Pass	0.28	Pass	Pass	1.26	Pass
0	Z8	WB	2245	819	205	3269	2189	827	204	3220	-56	8	-1	-49	-2%	1%	0%	-1%	Pass	1.19	Pass	Pass	0.28	Pass	Pass	0.07	Pass	Pass	0.86	Pass
CHELMSFORD ROAD	Z9	EB	149	31	6	186	163	35	5	203	14	4	-1	17	9%	13%	-17%	9%	Pass	1.12	Pass	Pass	0.70	Pass	Pass	0.43	Pass	Pass	1.22	Pass
CHELMSFORD ROAD	Z9	WB	159	33	6	198	167	36	9	212	8	3	3	14	5%	9%	50%	7%	Pass	0.63	Pass	Pass	0.51	Pass	Pass	1.10	Pass	Pass	0.98	Pass
DUNMOW ROAD	Z10	NB	112	23	2	137	103	16	2	121	-9	-7	0	-16	-8%	-30%	0%	-12%	Pass	0.87	Pass	Pass	1.59	Pass	Pass	0.00	Pass	Pass	1.41	Pass
DUNMOW ROAD	Z10	SB	108	22	2	132	76	19	3	98	-32	-3	1	-34	-30%	-14%	50%	-26%	Pass	3.34	Pass	Pass	0.66	Pass	Pass	0.63	Pass	Pass	3.17	Pass
CHELMSFORD ROAD	Z12	EB	266	56	11	333	306	63	11	380	40	7	0	47	15%	13%	0%	14%	Pass	2.37	Pass	Pass	0.91	Pass	Pass	0.00	Pass	Pass	2.49	Pass
CHELMSFORD ROAD	Z12	WB	271	57	11	339	309	71	13	393	38	14	2	54	14%	25%	18%	16%	Pass	2.23	Pass	Pass	1.75	Pass	Pass	0.58	Pass	Pass	2.82	Pass
0	Z13	EB	112	23	2	137	136	32	4	172	24	9	2	35	21%	39%	100%	26%	Pass	2.16	Pass	Pass	1.72	Pass	Pass	1.15	Pass	Pass	2.82	Pass
0	Z13	WB	100	20	2	122	133	28	3	164	33	8	1	42	33%	40%	50%	34%	Pass	3.06	Pass	Pass	1.63	Pass	Pass	0.63	Pass	Pass	3.51	Pass
0	Z17	NB	433	90	17	540	362	81	11	454	-71	-9	-6	-86	-16%	-10%	-35%	-16%	Pass	3.56	Pass	Pass	0.97	Pass	Pass	1.60	Pass	Pass	3.86	Pass
0	Z17	SB	452	94	18	564	428	82	13	523	-24	-12	-5	-41	-5%	-13%	-28%	-7%	Pass	1.14	Pass	Pass	1.28	Pass	Pass	1.27	Pass	Pass	1.76	Pass
ST JAMES WAY	Z19	NB	239	50	9	298	200	46	7	253	-39	-4	-2	-45	-16%	-8%	-22%	-15%	Pass	2.63	Pass	Pass	0.58	Pass	Pass	0.71	Pass	Pass	2.71	Pass
ST JAMES WAY	Z19	SB	241	50	10	301	221	42	5	268	-20	-8	-5	-33	-8%	-16%	-50%	-11%	Pass	1.32	Pass	Pass	1.18	Pass	Pass	1.83	Pass	Pass	1.96	Pass
0	Z20	EB	765	160	30	955	715	119	21	855	-50	-41	-9	-100	-7%	-26%	-30%	-10%	Pass	1.84	Pass	Pass	3.47	Pass	Pass	1.78	Pass	Pass	3.32	Pass
0	Z20	WB	806	168	32	1006	794	126	19	939	-12	-42	-13	-67	-1%	-25%	-41%	-7%	Pass	0.42	Pass	Pass	3.46	Pass	Pass	2.57	Pass	Pass	2.15	Pass
DUNMOW ROAD	Z21	EB	191	39	4	234	152	28	0	180	-39	-11	-4	-54	-20%	-28%	-100%	-23%	Pass	2.98	Pass	Pass	1.90	Pass	Pass	2.83	Pass	Pass	3.75	Pass
DUNMOW ROAD	Z21	WB	198	41	4	243	151	29	1	181	-47	-12	-3	-62	-24%	-29%	-75%	-26%	Pass	3.56	Pass	Pass	2.03	Pass	Pass	1.90	Pass	Pass	4.26	Pass
HUNSDON ROAD	Z22	NEB	39	8	1	48	30	6	2	38	-9	-2	1	-10	-23%	-25%	100%	-21%	Pass	1.53	Pass	Pass	0.76	Pass	Pass	0.82	Pass	Pass	1.52	Pass
HUNSDON ROAD	Z22	SWB	51	11	1	63	42	8	1	51	-9	-3	0	-12	-18%	-27%	0%	-19%	Pass	1.32	Pass	Pass	0.97	Pass	Pass	0.00	Pass	Pass	1.59	Pass
0	Z23	EB	673	140	27	840	638	121	21	780	-35	-19	-6	-60	-5%	-14%	-22%	-7%	Pass	1.37	Pass	Pass	1.66	Pass	Pass	1.22	Pass	Pass	2.11	Pass
0	Z23	WB	671	140	27	838	610	128	24	762	-61	-12	-3	-76	-9%	-9%	-11%	-9%	Pass	2.41	Pass	Pass	1.04	Pass	Pass	0.59	Pass	Pass	2.69	Pass
0	Z24	NB	86	18	2	106	105	22	3	130	19	4	1	24	22%	22%	50%	23%	Pass	1.94	Pass	Pass	0.89	Pass	Pass	0.63	Pass	Pass	2.21	Pass
0	Z24	SB	82	17	2	101	79	19	3	101	-3	2	1	0	-4%	12%	50%	0%	Pass	0.33	Pass	Pass	0.47	Pass	Pass	0.63	Pass	Pass	0.00	Pass
STATION ROAD	Z25	EB	311	64	7	382	304	60	6	370	-7	-4	-1	-12	-2%	-6%	-14%	-3%	Pass	0.40	Pass	Pass	0.51	Pass	Pass	0.39	Pass	Pass	0.62	Pass
STATION ROAD	Z25	WB	298	61	7	366	295	59	7	361	-3	-2	0	-5	-1%	-3%	0%	-1%	Pass	0.17	Pass	Pass	0.26	Pass	Pass	0.00	Pass	Pass	0.26	Pass
CROOKED MILE	Z26	NB	358	73	8	439	364	77	11	452	6	4	3	13	2%	5%	38%	3%	Pass	0.32	Pass	Pass	0.46	Pass	Pass	0.97	Pass	Pass	0.62	Pass
CROOKED MILE	Z26	SB	361	74	8	443	347	83	11	441	-14	9	3	-2	-4%	12%	38%	0%	Pass	0.74	Pass	Pass	1.02	Pass	Pass	0.97	Pass	Pass	0.10	Pass

Screenline Calibration IP

Screenlines - Observed	TOTAL	TOTAL %age	CARS	CARS %age
Epping_IB_TOTAL	Pass	-2%	Pass	-1%
Epping_OB_TOTAL	Pass	0%	Pass	0%
Sawbridgeworth_IB_TOTAL	Pass	-3%	Pass	-3%
Sawbridgeworth_OB_TOTAL	Pass	-2%	Pass	-2%
Harlow Cordon_IB_TOTAL	Pass	-1%	Pass	-1%
Harlow Cordon_OB_TOTAL	Pass	-2%	Pass	-2%
Stansted_IB_TOTAL	Pass	2%	Pass	2%
Stansted_OB_TOTAL	Pass	4%	Pass	5%
Bishop's Stortford_IB_TOTAL	Pass	-1%	Pass	-2%
Bishop's Stortford_OB_TOTAL	Pass	-1%	Pass	-1%
TOTAL	100%		100%	

Screenlines - Synthetic	TOTAL	TOTAL %age	CARS	CARS %age
Northern_SB_TOTAL	Pass	1%	Pass	0%
Northern_NB_TOTAL	Pass	-1%	Pass	-2%
Ongar_NB_TOTAL	Pass	2%	Pass	1%
Ongar_SB_TOTAL	Pass	0%	Pass	-1%
Chelmsford_EB_TOTAL	Fail	-6%	Fail	-5%
Chelmsford_WB_TOTAL	Pass	-3%	Pass	-3%
Eastern_EB_TOTAL	Pass	0%	Pass	1%
Eastern_WB_TOTAL	Pass	3%	Pass	3%
Ware_IB_TOTAL	Pass	-3%	Pass	-3%
Ware_OB_TOTAL	Pass	-4%	Pass	-4%
West of Ware_WB_TOTAL	Pass	1%	Pass	1%
West of Ware_EB_TOTAL	Pass	1%	Pass	1%
Northern_NoMway_NB_TOTAL	Pass	4%	Pass	1%
Northern_NoMway_SB_TOTAL	Pass	5%	Pass	2%
TOTAL (with motorway)	92%		92%	
TOTAL (without motorway)	92%		92%	

Screenlines - Total (with motorway)	95%		95%	
Screenlines - Total (without motorway)	95%		95%	

				IP Observed Flows				IP Modelled Flows				Absolute differences				%age Difference				CAR IP Performance			LGV IP Performance			HGV IP Performance			TOTAL IP Performance		
Screenline	Road Name	Count ID	Direction	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Flow Difference	GEH	GEH < 4	Flow Difference	GEH	GEH < 4	Flow Difference	GEH	GEH < 4	Flow Difference	GEH	GEH < 4
Epping_IB	BURY LANE	A1	SB	112	23	3	138	149	29	3	181	37	6	0	43	33%	26%	0%	31%	Fail	3.24	Pass	Fail	1.18	Pass	Pass	0.00	Pass	Fail	3.40	Pass
Epping_IB	LINDSEY STREET	A2	EB	76	15	2	93	86	11	0	97	10	-4	-2	4	13%	-27%	-100%	4%	Fail	1.11	Pass	Fail	1.11	Pass	Fail	2.00	Pass	Pass	0.41	Pass
Epping_IB	THORNWOOD ROAD	A3	SB	439	90	10	539	478	86	8	572	39	-4	-2	33	9%	-4%	-20%	6%	Fail	1.82	Pass	Pass	0.43	Pass	Fail	0.67	Pass	Fail	1.40	Pass
Epping_IB	EPPING ROAD	A4	SWB	298	61	7	366	299	64	5	368	1	3	-2	2	0%	5%	-29%	1%	Pass	0.06	Pass	Pass	0.38	Pass	Fail	0.82	Pass	Pass	0.10	Pass
Epping_IB	STONARDS HILL	A5	NWB	65	10	1	76	42	6	1	49	-23	-4	0	-27	-35%	-40%	0%	-36%	Fail	3.14	Pass	Fail	1.41	Pass	Pass	0.00	Pass	Fail	3.42	Pass
Epping_IB	BOWER HILL	A6	NB	99	15	1	115	56	12	0	68	-43	-3	-1	-47	-43%	-20%	-100%	-41%	Fail	4.88	Pass	Fail	0.82	Pass	Fail	1.41	Pass	Fail	4.91	Pass
Epping_IB	BRIDGE HILL	A7	WB	69	10	1	80	104	10	0	114	35	0	-1	34	51%	0%	-100%	43%	Fail	3.76	Pass	Pass	0.00	Pass	Fail	1.41	Pass	Fail	3.45	Pass
Epping_IB	THEYDON ROAD	A8	NB	214	33	2	249	165	45	5	215	-49	12	3	-34	-23%	36%	150%	-14%	Fail	3.56	Pass	Fail	1.92	Pass	Fail	1.60	Pass	Fail	2.23	Pass
Epping_IB	EPPING ROAD	A9	NEB	573	117	13	703	540	102	10	652	-33	-15	-3	-51	-6%	-13%	-23%	-7%	Fail	1.40	Pass	Fail	1.43	Pass	Fail	0.88	Pass	Fail	1.96	Pass
Epping_IB_TOTAL				1945	374	40	2359	1919	365	32	2316	-26	-9	-8	-43	-1%	-2%	-20%	-2%	Pass	0.59	Pass	Pass	0.47	Pass	Fail	1.33	Pass	Pass	0.89	Pass
Epping_OB	BURY LANE	A1	NB	111	23	2	136	86	20	3	109	-25	-3	1	-27	-23%	-13%	50%	-20%	Fail	2.52	Pass	Fail	0.65	Pass	Fail	0.63	Pass	Fail	2.44	Pass
Epping_OB	LINDSEY STREET	A2	WB	71	15	2	88	102	17	0	119	31	2	-2	31	44%	13%	-100%	35%	Fail	3.33	Pass	Fail	0.50	Pass	Fail	2.00	Pass	Fail	3.05	Pass
Epping_OB	THORNWOOD ROAD	A3	NB	459	94	10	563	462	93	10	565	3	-1	0	2	1%	-1%	0%	0%	Pass	0.14	Pass	Pass	0.10	Pass	Pass	0.00	Pass	Pass	0.08	Pass
Epping_OB	EPPING ROAD	A4	NEB	274	56	6	336	269	54	5	328	-5	-2	-1	-8	-2%	-4%	-17%	-2%	Pass	0.30	Pass	Pass	0.27	Pass	Fail	0.43	Pass	Pass	0.44	Pass
Epping_OB	STONARDS HILL	A5	SEB	67	10	1	78	24	5	1	30	-43	-5	0	-48	-64%	-50%	0%	-62%	Fail	6.37	Fail	Fail	1.83	Pass	Pass	0.00	Pass	Fail	6.53	Fail
Epping_OB	BOWER HILL	A6	SB	99	15	1	115	70	9	0	79	-29	-6	-1	-36	-29%	-40%	-100%	-31%	Fail	3.15	Pass	Fail	1.73	Pass	Fail	1.41	Pass	Fail	3.66	Pass
Epping_OB	BRIDGE HILL	A7	EB	65	10	1	76	131	16	0	147	66	6	-1	71	102%	60%	-100%	93%	Fail	6.67	Fail	Fail	1.66	Pass	Fail	1.41	Pass	Fail	6.72	Fail
Epping_OB	THEYDON ROAD	A8	SB	196	30	2	228	203	37	2	242	7	7	0	14	4%	23%	0%	6%	Pass	0.50	Pass	Fail	1.21	Pass	Pass	0.00	Pass	Fail	0.91	Pass
Epping_OB	EPPING ROAD	A9	SWB	577	118	13	708	574	110	14	698	-3	-8	1	-10	-1%	-7%	8%	-1%	Pass	0.13	Pass	Fail	0.75	Pass	Fail	0.27	Pass	Pass	0.38	Pass
Epping_OB_TOTAL				1919	371	38	2328	1921	361	35	2317	2	-10	-3	-11	0%	-3%	-8%	0%	Pass	0.05	Pass	Pass	0.52	Pass	Fail	0.50	Pass	Pass	0.23	Pass
Sawbridgeworth_IB	CAMBRIDGE ROAD	C1	SB	546	114	22	682	536	110	21	667	-10	-4	-1	-15	-2%	-4%	-5%	-2%	Pass	0.43	Pass	Pass	0.38	Pass	Pass	0.22	Pass	Pass	0.58	Pass
Sawbridgeworth_IB	STATION ROAD	C2	WB	150	23	1	174	125	16	0	141	-25	-7	-1	-33	-17%	-30%	-100%	-19%	Fail	2.13	Pass	Fail	1.59	Pass	Fail	1.41	Pass	Fail	2.63	Pass
Sawbridgeworth_IB	SHEERING LOWER ROAD	C3	SB	64	10	1	75	78	15	1	94	14	5	0	19	22%	50%	0%	25%	Fail	1.66	Pass	Fail	1.41	Pass	Pass	0.00	Pass	Fail	2.07	Pass
Sawbridgeworth_IB	SHEERING LOWER ROAD	C4	NB	48	7	0	55	51	12	0	63	3	5	0	8	6%	71%	0%	15%	Fail	0.43	Pass	Fail	1.62	Pass	Pass	0.00	Pass	Fail	1.04	Pass
Sawbridgeworth_IB	HARLOW ROAD	C5	NB	451	94	18	563	480	99	17	596	29	5	-1	33	6%	5%	-6%	6%	Fail	1.34	Pass	Fail	0.51	Pass	Fail	0.24	Pass	Fail	1.37	Pass
Sawbridgeworth_IB	HIGH WYCH ROAD	C6	EB	268	41	2	311	258	43	5	306	-10	2	3	-5	-4%	5%	150%	-2%	Pass	0.62	Pass	Pass	0.31	Pass	Fail	1.60	Pass	Pass	0.28	Pass
Sawbridgeworth_IB	WEST ROAD	C7	EB	126	19	1	146	71	9	2	82	-55	-10	1	-64	-44%	-53%	100%	-44%	Fail	5.54	Fail	Fail	2.67	Pass	Fail	0.82	Pass	Fail	5.99	Fail
Sawbridgeworth_IB_TOTAL				1653	308	45	2006	1599	304	46	1949	-54	-4	1	-57	-3%	-1%	2%	-3%	Pass	1.34	Pass	Pass	0.23	Pass	Pass	0.15	Pass	Pass	1.28	Pass
Sawbridgeworth_OB	CAMBRIDGE ROAD	C1	NB	507	106	20	633	495	107	20	622	-12	1	0	-11	-2%	1%	0%	-2%	Pass	0.54	Pass	Pass	0.10	Pass	Pass	0.00	Pass	Pass	0.44	Pass
Sawbridgeworth_OB	STATION ROAD	C2	EB	134	20	1	155	128	16	1	145	-6	-4	0	-10	-4%	-20%	0%	-6%	Pass	0.52	Pass	Fail	0.94	Pass	Pass	0.00	Pass	Fail	0.82	Pass
Sawbridgeworth_OB	SHEERING LOWER ROAD	C3	NB	76	11	1	88	66	13	0	79	-10	2	-1	-9	-13%	18%	-100%	-10%	Fail	1.19	Pass	Fail	0.58	Pass	Fail	1.41	Pass	Fail	0.98	Pass
Sawbridgeworth_OB	SHEERING LOWER ROAD	C4	SB	48	7	0	55	68	15	0	83	20	8	0	28	42%	114%	0%	51%	Fail	2.63	Pass	Fail	2.41	Pass	Pass	0.00	Pass	Fail	3.37	Pass
Sawbridgeworth_OB	HARLOW ROAD	C5	SB	505	105	20	630	509	103	19	631	4	-2	-1	1	1%	-2%	-5%	0%	Pass	0.18	Pass	Pass	0.20	Pass	Fail	0.23	Pass	Pass	0.04	Pass
Sawbridgeworth_OB	HIGH WYCH ROAD	C6	WB	272	41	2	315	244	37	3	284	-28	-4	1	-31	-10%	-10%	50%	-10%	Fail	1.74	Pass	Fail	0.64	Pass	Fail	0.63	Pass	Fail	1.79	Pass
Sawbridgeworth_OB	WEST ROAD	C7	WB	58	9	1	68	54	9	0	63	-4	0	-1	-5	-7%	0%	-100%	-7%	Fail	0.53	Pass	Pass	0.00	Pass	Fail	1.41	Pass	Fail	0.62	Pass
Sawbridgeworth_OB_TOTAL				1600	299	45	1944	1564	300	43	1907	-36	1	-2	-37	-2%	0%	-4%	-2%	Pass	0.91	Pass	Pass	0.06	Pass	Pass	0.30	Pass	Pass	0.84	Pass

Screenline Calibration IP

				IP Observed Flows				IP Modelled Flows				Absolute differences				%age Difference				CAR IP Performance			LGV IP Performance			HGV IP Performance			TOTAL IP Performance		
Screenline	Road Name	Count ID	Direction	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Flow Difference	GEH	GEH < 4	Flow Difference	GEH	GEH < 4	Flow Difference	GEH	GEH < 4	Flow Difference	GEH	GEH < 4
Harlow Cordon_IB	HARLOW ROAD	D1	SB	476	99	19	594	509	103	19	631	33	4	0	37	7%	4%	0%	6%	Fail	1.49	Pass	Pass	0.40	Pass	Pass	0.00	Pass	Fail	1.50	Pass
Harlow Cordon_IB	GILDEN WAY	D2	SWB	368	75	8	451	381	71	7	459	13	-4	-1	8	4%	-5%	-13%	2%	Pass	0.67	Pass	Fail	0.47	Pass	Fail	0.37	Pass	Pass	0.38	Pass
East of M11_WB	HARLOW COMMON	B6/D3	WB	79	12	1	92	33	7	1	41	-46	-5	0	-51	-58%	-42%	0%	-55%	Fail	6.15	Fail	Fail	1.62	Pass	Pass	0.00	Pass	Fail	6.25	Fail
Harlow Cordon_IB	LONDON ROAD	D4	NB	1057	221	42	1320	1026	228	42	1296	-31	7	0	-24	-3%	3%	0%	-2%	Pass	0.96	Pass	Pass	0.47	Pass	Pass	0.00	Pass	Pass	0.66	Pass
Harlow Cordon_IB	RYE HILL ROAD	D5	NWB	42	6	0	48	53	7	0	60	11	1	0	12	26%	17%	0%	25%	Fail	1.60	Pass	Fail	0.39	Pass	Pass	0.00	Pass	Fail	1.63	Pass
Harlow Cordon_IB	PARSLOE ROAD	D6	NEB	97	15	1	113	62	10	0	72	-35	-5	-1	-41	-36%	-33%	-100%	-36%	Fail	3.93	Pass	Fail	1.41	Pass	Fail	1.41	Pass	Fail	4.26	Pass
Harlow Cordon_IB	WATER LANE	D7	NEB	362	74	8	444	395	82	13	490	33	8	5	46	9%	11%	63%	10%	Fail	1.70	Pass	Fail	0.91	Pass	Fail	1.54	Pass	Fail	2.13	Pass
Harlow Cordon_IB	HARLOW ROAD	D8	EB	103	16	1	120	97	22	3	122	-6	6	2	2	-6%	38%	200%	2%	Fail	0.60	Pass	Fail	1.38	Pass	Fail	1.41	Pass	Pass	0.18	Pass
Harlow Cordon_IB	FIFTH AVENUE ALLENDE AVENUE	D9	SB	594	124	24	742	585	114	19	718	-9	-10	-5	-24	-2%	-8%	-21%	-3%	Pass	0.37	Pass	Fail	0.92	Pass	Fail	1.08	Pass	Pass	0.89	Pass
Harlow Cordon_IB_TOTAL				3178	642	104	3924	3141	644	104	3889	-37	2	0	-35	-1%	0%	0%	-1%	Pass	0.66	Pass	Pass	0.08	Pass	Pass	0.00	Pass	Pass	0.56	Pass
Harlow Cordon_OB	HARLOW ROAD	D1	NB	435	91	17	543	480	99	17	596	45	8	0	53	10%	9%	0%	10%	Fail	2.10	Pass	Fail	0.82	Pass	Pass	0.00	Pass	Fail	2.22	Pass
Harlow Cordon_OB	GILDEN WAY	D2	NEB	345	71	8	424	352	73	11	436	7	2	3	12	2%	3%	38%	3%	Pass	0.37	Pass	Pass	0.24	Pass	Fail	0.97	Pass	Pass	0.58	Pass
Harlow Cordon_OB	HARLOW COMMON	B6/D3	EB	76	12	1	89	35	5	5	45	-41	-7	4	-44	-54%	-58%	400%	-49%	Fail	5.50	Fail	Fail	2.40	Pass	Fail	2.31	Pass	Fail	5.38	Fail
Harlow Cordon_OB	LONDON ROAD	D4	SB	1098	229	44	1371	1093	214	42	1349	-5	-15	-2	-22	0%	-7%	-5%	-2%	Pass	0.15	Pass	Fail	1.01	Pass	Pass	0.30	Pass	Pass	0.60	Pass
Harlow Cordon_OB	RYE HILL ROAD	D5	SEB	38	6	0	44	45	6	0	51	7	0	0	7	18%	0%	0%	16%	Fail	1.09	Pass	Pass	0.00	Pass	Pass	0.00	Pass	Fail	1.02	Pass
Harlow Cordon_OB	PARSLOE ROAD	D6	SWB	111	17	1	129	90	14	0	104	-21	-3	-1	-25	-19%	-18%	-100%	-19%	Fail	2.09	Pass	Fail	0.76	Pass	Fail	1.41	Pass	Fail	2.32	Pass
Harlow Cordon_OB	WATER LANE	D7	SWB	383	78	9	470	417	94	13	524	34	16	4	54	9%	21%	44%	11%	Fail	1.70	Pass	Fail	1.73	Pass	Fail	1.21	Pass	Fail	2.42	Pass
Harlow Cordon_OB	HARLOW ROAD	D8	WB	102	16	1	119	104	21	3	128	2	5	2	9	2%	31%	200%	8%	Pass	0.20	Pass	Fail	1.16	Pass	Fail	1.41	Pass	Fail	0.81	Pass
Harlow Cordon_OB	FIFTH AVENUE ALLENDE AVENUE	D9	NB	652	136	26	814	558	121	22	701	-94	-15	-4	-113	-14%	-11%	-15%	-14%	Fail	3.82	Pass	Fail	1.32	Pass	Fail	0.82	Pass	Fail	4.11	Pass
Harlow Cordon_OB_TOTAL				3240	656	107	4003	3174	647	113	3934	-66	-9	6	-69	-2%	-1%	6%	-2%	Pass	1.17	Pass	Pass	0.35	Pass	Fail	0.57	Pass	Pass	1.10	Pass
Ongar_NB	BRENTWOOD ROAD	F1	NB	177	37	7	221	165	38	10	213	-12	1	3	-8	-7%	3%	43%	-4%	Fail	0.92	Pass	Pass	0.16	Pass	Fail	1.03	Pass	Pass	0.54	Pass
Ongar_NB	LONDON ROAD	F2	NEB	192	40	8	240	206	42	7	255	14	2	-1	15	7%	5%	-13%	6%	Fail	0.99	Pass	Fail	0.31	Pass	Fail	0.37	Pass	Fail	0.95	Pass
Ongar_NB_TOTAL				369	77	15	461	371	80	17	468	2	3	2	7	1%	4%	13%	2%	Pass	0.10	Pass	Pass	0.34	Pass	Fail	0.50	Pass	Pass	0.32	Pass
Ongar_SB	BRENTWOOD ROAD	F1	SB	178	37	7	222	173	46	8	227	-5	9	1	5	-3%	24%	14%	2%	Pass	0.38	Pass	Fail	1.40	Pass	Fail	0.37	Pass	Pass	0.33	Pass
Ongar_SB	LONDON ROAD	F2	SWB	176	37	7	220	176	32	8	216	0	-5	1	-4	0%	-14%	14%	-2%	Pass	0.00	Pass	Fail	0.85	Pass	Fail	0.37	Pass	Pass	0.27	Pass
Ongar_SB_TOTAL				354	74	14	442	349	78	16	443	-5	4	2	1	-1%	5%	14%	0%	Pass	0.27	Pass	Fail	0.46	Pass	Fail	0.52	Pass	Pass	0.05	Pass
Chelmsford_EB	ROXWELL ROAD	G1	EB	344	72	14	430	257	62	9	328	-87	-10	-5	-102	-25%	-14%	-36%	-24%	Fail	5.02	Fail	Fail	1.22	Pass	Fail	1.47	Pass	Fail	5.24	Fail
Chelmsford_EB	CHELMSFORD ROAD	G2	EB	197	30	2	229	217	30	3	250	20	0	1	21	10%	0%	50%	9%	Fail	1.39	Pass	Pass	0.00	Pass	Fail	0.63	Pass	Fail	1.36	Pass
Chelmsford_EB	0	G3	EB	337	70	13	420	312	62	10	384	-25	-8	-3	-36	-7%	-11%	-23%	-9%	Fail	1.39	Pass	Fail	0.98	Pass	Fail	0.88	Pass	Fail	1.80	Pass
Chelmsford_EB	THREE MILE HILL	G4	NB	622	130	25	777	844	184	31	1059	222	54	6	282	36%	42%	24%	36%	Fail	8.20	Fail	Fail	4.31	Pass	Fail	1.13	Pass	Fail	9.31	Fail
Chelmsford_EB	WOOD STREET	G5	NB	346	71	8	425	116	14	1	131	-230	-57	-7	-294	-66%	-80%	-88%	-69%	Fail	15.13	Fail	Fail	8.74	Fail	Fail	3.30	Pass	Fail	17.63	Fail
Chelmsford_EB_TOTAL				1846	373	62	2281	1746	352	54	2152	-100	-21	-8	-129	-5%	-6%	-13%	-6%	Fail	2.36	Pass	Fail	1.10	Pass	Fail	1.05	Pass	Fail	2.74	Pass
Chelmsford_WB	ROXWELL ROAD	G1	WB	334	70	13	417	283	58	9	350	-51	-12	-4	-67	-15%	-17%	-31%	-16%	Fail	2.90	Pass	Fail	1.50	Pass	Fail	1.21	Pass	Fail	3.42	Pass
Chelmsford_WB	CHELMSFORD ROAD	G2	WB	220	33	2	255	235	38	5	278	15	5	3	23	7%	15%	150%	9%	Fail	0.99	Pass	Fail	0.84	Pass	Fail	1.60	Pass	Fail	1.41	Pass
Chelmsford_WB	0	G3	WB	323	68	13	404	306	69	12	387	-17	1	-1	-17	-5%	1%	-8%	-4%	Fail	0.96	Pass	Pass	0.12	Pass	Fail	0.28	Pass	Pass	0.85	Pass
Chelmsford_WB	THREE MILE HILL	G4	SB	649	135	26	810	914	202	35	1151	265	67	9	341	41%	50%	35%	42%	Fail	9.48	Fail	Fail	5.16	Fail	Fail	1.63	Pass	Fail	10.89	Fail
Chelmsford_WB	WOOD STREET	G5	SB	383	78	9	470	111	10	0	121	-272	-68	-9	-349	-71%	-87%	-100%	-74%	Fail	17.31	Fail	Fail	10.25	Fail	Fail	4.24	Pass	Fail	20.30	Fail
Chelmsford_WB_TOTAL				1909	384	63	2356	1849	377	61	2287	-60	-7	-2	-69	-3%	-2%	-3%	-3%	Pass	1.38	Pass	Pass	0.36	Pass	Pass	0.25	Pass	Pass	1.43	Pass
Eastern_EB	0	H1	EB	889	186	35	1110	918	167	33	1118	29	-19	-2	8	3%	-10%	-6%	1%	Pass	0.96	Pass	Fail	1.43	Pass	Fail	0.34	Pass	Pass	0.24	Pass
Eastern_EB	0	H2	NEB	543	113	22	678	580	126	26	732	37	13	4	54	7%	12%	18%	8%	Fail	1.56	Pass	Fail	1.19	Pass	Fail	0.82	Pass	Fail	2.03	Pass
Eastern_EB	0	H3	EB	1914	400	76	2390	1878	387	78	2343	-36	-13	2	-47	-2%	-3%	3%	-2%	Pass	0.83	Pass	Pass	0.66	Pass	Pass	0.23	Pass	Pass	0.97	Pass
Eastern_EB_TOTAL				3346	699	133	4178	3376	680	137	4193	30	-19	4	15	1%	-3%	3%	0%	Pass	0.52	Pass	Pass	0.72	Pass	Pass	0.34	Pass	Pass	0.23	Pass
Eastern_WB	0	H1	WB	849	177	34	1060	955	175	34	1164	106	-2	0	104	12%	-1%	0%	10%	Fail	3.53	Pass	Pass	0.15	Pass	Pass	0.00	Pass	Fail	3.12	Pass
Eastern_WB	0	H2	SWB	558	117	22	697	598	144	31	773	40	27	9	76	7%	23%	41%	11%	Fail	1.66	Pass	Fail	2.36	Pass	Fail	1.75	Pass	Fail	2.80	Pass
Eastern_WB	0	H3	WB	1946	406	77	2429	1903	380	75	2358	-43	-26	-2	-71	-2%	-6%	-3%	-3%	Pass	0.98	Pass	Fail	1.31	Pass	Pass	0.23	Pass	Pass	1.45	Pass
Eastern_WB_TOTAL				3353	700	133	4186	3456	699	140	4295	103	-1	7	109	3%	0%	5%	3%	Pass	1.77	Pass	Pass	0.04	Pass	Fail	0.60	Pass	Pass	1.67	Pass
Stansted_IB	ROUND COPPICE ROAD	J1	NEB	228	35	2	265	267	45	4	316	39	10	2	51	17%	29%	100%	19%	Fail	2.48	Pass	Fail	1.58	Pass	Fail	1.15	Pass	Fail	2.99	Pass
Stansted_IB	CHURCH ROAD	J2	EB	122	19	1	142	154	15	1	170	32	-4	0	28	26%	-21%	0%	20%	Fail	2.72	Pass	Fail	0.97	Pass	Pass	0.00	Pass	Fail	2.24	Pass
Stansted_IB	HALL ROAD	J3	SB	83	13	1	97	77	13	1	91	-6	0	0	-6	-7%	0%	0%	-6%	Fail	0.67	Pass	Pass	0.00	Pass	Pass	0.00	Pass	Fail	0.62	Pass
Stansted_IB	0	J4	SWB	52	8	0	60	47	12	1	60	-5	4	1	0	-10%	50%	N/A	0%	Fail	0.71	Pass	Fail	1.26	Pass	Fail	1.41	Pass	Pass	0.00	Pass
Stansted_IB	0	J5	NWB	24	4	0	28	0	15	0	15	-24	11	0	-13	-100%	275%	0%	-46%	Fail	6.93	Fail	Fail	3.57	Pass	Pass	0.00	Pass	Fail	2.80	Pass
Stansted_IB	PARSONAGE ROAD	J6	NB	130	20	1	151	133	16	2	151	3	-4	1	0	2%	-20%	100%	0%	Pass	0.26	Pass	Fail	0.94	Pass	Fail	0.82	Pass	Pass	0.00	Pass
Stansted_IB	0	J7	NWB	195	41	8	244	187	36	5	228	-8	-5	-3	-16	-4%	-12%	-38%	-7%	Pass	0.58	Pass	Fail	0.81	Pass	Fail	1.18	Pass	Fail	1.04	Pass
Stansted_IB	THREMHALL AVENUE	J8	NEB	591	123	23	737	590	118	21	729	-1	-5	-2	-8	0%	-4%	-9%	-1%	Pass	0.04	Pass	Pass	0.46	Pass	Fail	0.43	Pass	Pass	0.30	Pass
Stansted_IB_TOTAL				1425	263	36	1724	1455	270	35	1760	30	7	-1	36	2%	3%	-3%	2%	Pass	0.79	Pass	Pass	0.43	Pass	Pass	0.17	Pass	Pass	0.86	Pass
Stansted_OB	ROUND COPPICE ROAD	J1	SWB	168	26	2	196	233	35	3	271	65	9	1	75	39%	35%	50%	38%	Fail	4.59	Pass	Fail	1.63	Pass	Fail	0.63	Pass	Fail	4.91	Pass
Stansted_OB	CHURCH ROAD	J2	WB	98	15	1	114	82	13	1	96	-16	-2	0	-18	-16%	-13%	0%	-16%	Fail	1.69	Pass	Fail	0.53	Pass	Pass	0.00	Pass	Fail	1.76	Pass
Stansted_OB	HALL ROAD	J3	NB	87	13	1	101	72	18	1	91	-15	5	0	-10	-17%	38%	0%	-10%	Fail	1.68	Pass	Fail	1.27	Pass	Pass	0.00	Pass	Fail	1.02	Pass
Stansted_OB	0	J4	NEB	49	7	0	56	50	3	0	53	1	-4	0	-3	2%	-57%	0%	-5%	Pass	0.14	Pass	Fail	1.79	Pass	Pass	0.00	Pass	Fail	0.41	Pass
Stansted_OB	0	J5	SEB	21	3	0	24	0	0	0	0	-21	-3	0	-24	-100%	-100%	0%	-100%	Fail	6.48	Fail	Fail	2.45	Pass	Pass	0.00	Pass	Fail	6.93	Fail
Stansted_OB	PARSONAGE ROAD	J6	SB	100	15	1	116	101	16	2	119	1	1	1	3	1%	7%	100%	3%	Pass	0.10	Pass	Fail	0.25	Pass	Fail	0.82	Pass	Pass	0.28	Pass
Stansted_OB	0	J7	SEB	133	28	5	166	137	28	3	168	4	0	-2	2	3%	0%	-40%	1%	Pass	0.34	Pass	Pass	0.00	Pass	Fail	1.00	Pass	Pass	0.15	Pass
Stansted_OB	THREMHALL AVENUE	J8	SWB	524	109	21	654	559	107	22	688	35	-2	1	34	7%	-2%	5%	5%	Fail	1.50	Pass	Pass	0.19	Pass	Pass	0.22	Pass	Fail	1.31	Pass
Stansted_OB_TOTAL				1180	216	31	1427	1234	220	32	1486	54	4	1	59	5%	2%	3%	4%	Pass	1.55	Pass	Pass	0.27	Pass	Pass	0.18	Pass	Pass	1.55	Pass
Bishop's Stortford_IB	0	K1	WB	727	152	29	908	733	154	28	915	6	2	-1	7	1%	1%	-3%	1%	Pass	0.22	Pass	Pass	0.16	Pass	Pass	0.19	Pass	Pass	0.23	Pass
Bishop's Stortford_IB	HALLINGBURY ROAD	K2	NB	205	43	8	256	217	44	9	270	12	1	1	14	6%	2%	13%	5%	Fail	0.83	Pass	Pass	0.15	Pass	Fail	0.34	Pass	Fail	0.86	Pass
Bishop's Stortford_IB	0	K3	NB	436	91	17	544	434	96	20	550	-2	5	3	6	0%	5%	18%	1%	Pass	0.10	Pass	Fail	0.52	Pass	Fail	0.70	Pass	Pass	0.26	Pass
Bishop's Stortford_IB	GREAT HADHAM ROAD	K4	EB	89	18	2	109	128	24	3	155	39	6	1	46	44%	33%	50%	42%	Fail	3.74	Pass	Fail	1.31	Pass	Fail	0.63	Pass	Fail	4.00	Pass
Bishop's Stortford_IB	STORTFORD ROAD	K5	EB	412	86	16	514	373	80	12	465	-39	-6	-4	-49	-9%	-7%	-25%	-10%	Fail	1.97	Pass	Fail	0.66	Pass	Fail	1.07	Pass	Fail	2.21	Pass
Bishop's Stortford_IB	HAZELEND ROAD	K6	SWB	156	24	1	181	109	9	1	119	-47	-15	0	-62	-30%	-63%	0%	-34%	Fail	4.08	Pass	Fail	3.69	Pass	Pass	0.00	Pass	Fail	5.06	Fail
Bishop's Stortford_IB	STANSTED ROAD	K7	SWB	462	95	10	567	458	108	13	579	-4	13	3	12	-1%	14%	30%	2%	Pass	0.19	Pass	Fail	1.29	Pass	Fail	0.88	Pass	Pass	0.50	Pass
Bishop's Stortford_IB	BIRCHANGER LANE	K8	SB	38	6	0	44	31	5	0	36	-7	-1	0	-8	-18%	-17%	0%	-18%	Fail	1.19	Pass	Fail	0.43	Pass	Pass	0.00	Pass	Fail	1.26	Pass
Bishop's Stortford_IB_TOTAL				2525	515	83	3123	2483	520	86	3089	-42	5	3	-34	-2%	1%	4%	-1%	Pass	0.84	Pass	Pass	0.22	Pass	Pass	0.33	Pass	Pass	0.61	Pass
Bishop's Stortford_OB	0	K1	EB	826	172	33	1031	774	165	31	970	-52	-7	-2	-61	-6%	-4%	-6%	-6%	Fail	1.84	Pass	Pass	0.54	Pass	Fail	0.35	Pass	Fail	1.93	Pass
Bishop's Stortford_OB	HALLINGBURY ROAD	K2	SB	201	42	8	251	206	44	8	258	5	2	0	7	2%	5%	0%	3%	Pass	0.35	Pass	Pass	0.30	Pass	Pass	0.00	Pass	Pass	0.44	Pass
Bishop's Stortford_OB	0	K3	SB	462	96	18	576	465	98	21	584	3	2	3	8	1%	2%	17%	1%	Pass	0.14	Pass	Pass	0.20	Pass	Fail	0.68	Pass	Pass	0.33	Pass
Bishop's Stortford_OB	GREAT HADHAM ROAD	K4	WB	92	19	2	113	141	27	3	171	49	8	1	58	53%	42%	50%	51%	Fail	4.54	Pass	Fail	1.67	Pass	Fail	0.63	Pass	Fail	4.87	Pass
Bishop's Stortford_OB	STORTFORD ROAD	K5	WB	416	87	16	519	396	80	11	487	-20	-7	-5	-32	-5%	-8%	-31%	-6%	Pass	0.99	Pass	Fail	0.77	Pass	Fail	1.36	Pass	Fail	1.43	Pass
Bishop's Stortford_OB	HAZELEND ROAD	K6	NEB	158	24	1	183	103	14	1	118	-55	-10	0	-65	-35%	-42%	0%	-36%	Fail	4.81	Pass	Fail	2.29	Pass	Pass	0.00	Pass	Fail	5.30	Fail
Bishop's Stortford_OB	STANSTED ROAD	K7	NEB	445	91	10	546	482	101	12	595	37	10	2	49	8%	11%	20%	9%	Fail	1.72	Pass	Fail	1.02	Pass	Fail	0.60	Pass	Fail	2.05	Pass
Bishop's Stortford_OB	BIRCHANGER LANE	K8	NB	31	5	0	36	27	4	1	32	-4	-1	1	-4	-13%	-20%	N/A	-11%	Fail	0.74	Pass	Fail	0.47	Pass	Fail	1.41	Pass	Fail	0.69	Pass
Bishop's Stortford_OB_TOTAL				2631	536	88	3255	2594	533	88	3215	-37	-3	0	-40	-1%	-1%	0%	-1%	Pass	0.72	Pass	Pass	0.13	Pass	Pass	0.00	Pass	Pass	0.70	Pass

Screenline Calibration IP

				IP Observed Flows				IP Modelled Flows				Absolute differences				%age Difference				CAR IP Performance			LGV IP Performance			HGV IP Performance			TOTAL IP Performance		
Screenline	Road Name	Count ID	Direction	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Flow Difference	GEH	GEH < 4	Flow Difference	GEH	GEH < 4	Flow Difference	GEH	GEH < 4	Flow Difference	GEH	GEH < 4
Northern_NB	BALDOCK ROAD	M1	WB	188	39	7	234	207	45	9	261	19	6	2	27	10%	15%	29%	12%	Fail	1.35	Pass	Fail	0.93	Pass	Fail	0.71	Pass	Fail	1.72	Pass
Northern_NB	LONDON ROAD	M2	NB	207	43	8	258	222	45	8	275	15	2	0	17	7%	5%	0%	7%	Fail	1.02	Pass	Pass	0.30	Pass	Pass	0.00	Pass	Fail	1.04	Pass
Northern_NB	LONDON ROAD	M3	NB	42	9	1	52	12	1	0	13	-30	-8	-1	-39	-71%	-89%	-100%	-75%	Fail	5.77	Fail	Fail	3.58	Pass	Fail	1.41	Pass	Fail	6.84	Fail
North of A120_NB	0	M4	NB	1605	586	146	2337	1548	568	142	2258	-57	-18	-4	-79	-4%	-3%	-3%	-3%	Pass	1.44	Pass	Pass	0.75	Pass	Pass	0.33	Pass	Pass	1.65	Pass
Northern_NB	LONDON ROAD	M5	NB	322	66	7	395	326	99	7	432	4	33	0	37	1%	50%	0%	9%	Pass	0.22	Pass	Fail	3.63	Pass	Pass	0.00	Pass	Fail	1.82	Pass
Northern_NB_TOTAL				2364	743	169	3276	2315	758	166	3239	-49	15	-3	-37	-2%	2%	-2%	-1%	Pass	1.01	Pass	Pass	0.55	Pass	Pass	0.23	Pass	Pass	0.65	Pass
Northern_SB	BALDOCK ROAD	M1	EB	182	38	7	227	204	45	8	257	22	7	1	30	12%	18%	14%	13%	Fail	1.58	Pass	Fail	1.09	Pass	Fail	0.37	Pass	Fail	1.93	Pass
Northern_SB	LONDON ROAD	M2	SB	180	38	7	225	195	43	9	247	15	5	2	22	8%	13%	29%	10%	Fail	1.10	Pass	Fail	0.79	Pass	Fail	0.71	Pass	Fail	1.43	Pass
Northern_SB	LONDON ROAD	M3	SB	39	8	1	48	10	2	0	12	-29	-6	-1	-36	-74%	-75%	-100%	-75%	Fail	5.86	Fail	Fail	2.68	Pass	Fail	1.41	Pass	Fail	6.57	Fail
North of A120_SB	0	M4	SB	1334	486	122	1942	1314	493	130	1937	-20	7	8	-5	-1%	1%	7%	0%	Pass	0.55	Pass	Pass	0.32	Pass	Fail	0.71	Pass	Pass	0.11	Pass
Northern_SB	LONDON ROAD	M5	SB	318	65	7	390	325	84	9	418	7	19	2	28	2%	29%	29%	7%	Pass	0.39	Pass	Fail	2.20	Pass	Fail	0.71	Pass	Fail	1.39	Pass
Northern_SB_TOTAL				2053	635	144	2832	2048	667	156	2871	-5	32	12	39	0%	5%	8%	1%	Pass	0.11	Pass	Fail	1.25	Pass	Fail	0.98	Pass	Pass	0.73	Pass
Ware_IB	WADESMILL ROAD	N1	SB	179	37	7	223	221	50	8	279	42	13	1	56	23%	35%	14%	25%	Fail	2.97	Pass	Fail	1.97	Pass	Fail	0.37	Pass	Fail	3.53	Pass
Ware_IB	0	N2	WB	16	2	0	18	0	0	0	0	-16	-2	0	-18	-100%	-100%	0%	-100%	Fail	5.66	Fail	Fail	2.00	Pass	Pass	0.00	Pass	Fail	6.00	Fail
Ware_IB	0	N3	WB	54	11	1	66	57	8	3	68	3	-3	2	2	6%	-27%	200%	3%	Fail	0.40	Pass	Fail	0.97	Pass	Fail	1.41	Pass	Pass	0.24	Pass
Ware_IB	HOLLYCROSS ROAD	N4	NWB	60	9	1	70	80	19	4	103	20	10	3	33	33%	111%	300%	47%	Fail	2.39	Pass	Fail	2.67	Pass	Fail	1.90	Pass	Fail	3.55	Pass
Ware_IB	VIADUCT ROAD	N5	NWB	332	69	13	414	264	60	11	335	-68	-9	-2	-79	-20%	-13%	-15%	-19%	Fail	3.94	Pass	Fail	1.12	Pass	Fail	0.58	Pass	Fail	4.08	Pass
Ware_IB	0	N6	NB	83	13	1	97	257	1	0	258	174	-12	-1	161	210%	-92%	-100%	166%	Fail	13.35	Fail	Fail	4.54	Pass	Fail	1.41	Pass	Fail	12.08	Fail
Ware_IB	WARE ROAD	N7	EB	306	64	12	382	174	80	12	266	-132	16	0	-116	-43%	25%	0%	-30%	Fail	8.52	Fail	Fail	1.89	Pass	Pass	0.00	Pass	Fail	6.44	Fail
Ware_IB	WESTMILL ROAD	N8	SEB	293	60	7	360	235	34	5	274	-58	-26	-2	-86	-20%	-43%	-29%	-24%	Fail	3.57	Pass	Fail	3.79	Pass	Fail	0.82	Pass	Fail	4.83	Pass
Ware_IB_TOTAL				1323	265	42	1630	1288	252	43	1583	-35	-13	1	-47	-3%	-5%	2%	-3%	Pass	0.97	Pass	Pass	0.81	Pass	Pass	0.15	Pass	Pass	1.17	Pass
Ware_OB	WADESMILL ROAD	N1	NB	217	45	9	271	258	55	7	320	41	10	-2	49	19%	22%	-22%	18%	Fail	2.66	Pass	Fail	1.41	Pass	Fail	0.71	Pass	Fail	2.85	Pass
Ware_OB	0	N2	EB	19	3	0	22	1	0	0	1	-18	-3	0	-21	-95%	-100%	0%	-95%	Fail	5.69	Fail	Fail	2.45	Pass	Pass	0.00	Pass	Fail	6.19	Fail
Ware_OB	0	N3	EB	59	12	1	72	50	11	1	62	-9	-1	0	-10	-15%	-8%	0%	-14%	Fail	1.22	Pass	Fail	0.29	Pass	Pass	0.00	Pass	Fail	1.22	Pass
Ware_OB	HOLLYCROSS ROAD	N4	SEB	91	14	1	106	96	30	4	130	5	16	3	24	5%	114%	300%	23%	Fail	0.52	Pass	Fail	3.41	Pass	Fail	1.90	Pass	Fail	2.21	Pass
Ware_OB	VIADUCT ROAD	N5	SEB	361	75	14	450	361	59	12	432	0	-16	-2	-18	0%	-21%	-14%	-4%	Pass	0.00	Pass	Fail	1.95	Pass	Fail	0.55	Pass	Pass	0.86	Pass
Ware_OB	0	N6	SB	106	16	1	123	183	65	10	258	77	49	9	135	73%	306%	900%	110%	Fail	6.41	Fail	Fail	7.70	Fail	Fail	3.84	Pass	Fail	9.78	Fail
Ware_OB	WARE ROAD	N7	WB	255	53	10	318	161	1	1	163	-94	-52	-9	-155	-37%	-98%	-90%	-49%	Fail	6.52	Fail	Fail	10.01	Fail	Fail	3.84	Pass	Fail	9.99	Fail
Ware_OB	WESTMILL ROAD	N8	NWB	324	66	7	397	260	51	7	318	-64	-15	0	-79	-20%	-23%	0%	-20%	Fail	3.75	Pass	Fail	1.96	Pass	Pass	0.00	Pass	Fail	4.18	Pass
Ware_OB_TOTAL				1432	284	43	1759	1370	272	42	1684	-62	-12	-1	-75	-4%	-4%	-2%	-4%	Pass	1.66	Pass	Pass	0.72	Pass	Pass	0.15	Pass	Pass	1.81	Pass
West of Ware_WB	WESTMILL ROAD	Q3	NB	450	94	18	562	475	102	17	594	25	8	-1	32	6%	9%	-6%	6%	Fail	1.16	Pass	Fail	0.81	Pass	Fail	0.24	Pass	Fail	1.33	Pass
West of Ware_WB	WADESMILL ROAD	Q4	NEB	137	28	3	168	121	5	1	127	-16	-23	-2	-41	-12%	-82%	-67%	-24%	Fail	1.41	Pass	Fail	5.66	Fail	Fail	1.41	Pass	Fail	3.38	Pass
West of Ware_WB	0	Q5	NB	179	37	7	223	168	35	8	211	-11	-2	1	-12	-6%	-5%	14%	-5%	Fail	0.84	Pass	Fail	0.33	Pass	Fail	0.37	Pass	Fail	0.81	Pass
West of Ware_WB	WELWYN ROAD	Q6	WB	150	31	3	184	124	18	6	148	-26	-13	3	-36	-17%	-42%	100%	-20%	Fail	2.22	Pass	Fail	2.63	Pass	Fail	1.41	Pass	Fail	2.79	Pass
West of Ware_WB	0	Q7	WB	703	147	28	878	741	165	26	932	38	18	-2	54	5%	12%	-7%	6%	Fail	1.41	Pass	Fail	1.44	Pass	Fail	0.38	Pass	Fail	1.80	Pass
West of Ware_WB	LOWER HATFIELD ROAD	Q8	SWB	103	21	2	126	108	23	4	135	5	2	2	9	5%	10%	100%	7%	Pass	0.49	Pass	Fail	0.43	Pass	Fail	1.15	Pass	Fail	0.79	Pass
West of Ware_WB	0	Q9	SB	1251	261	50	1562	1286	241	47	1574	35	-20	-3	12	3%	-8%	-6%	1%	Pass	0.98	Pass	Fail	1.26	Pass	Fail	0.43	Pass	Pass	0.30	Pass
West of Ware_WB	HIGH ROAD	Q10	SB	560	117	22	699	542	144	26	712	-18	27	4	13	-3%	23%	18%	2%	Pass	0.77	Pass	Fail	2.36	Pass	Fail	0.82	Pass	Pass	0.49	Pass
West of Ware_WB_TOTAL				3533	736	133	4402	3565	733	135	4433	32	-3	2	31	1%	0%	2%	1%	Pass	0.54	Pass	Pass	0.11	Pass	Pass	0.17	Pass	Pass	0.47	Pass
West of Ware_EB	WESTMILL ROAD	Q3	SB	429	90	17	536	453	86	17	556	24	-4	0	20	6%	-4%	0%	4%	Fail	1.14	Pass	Pass	0.43	Pass	Pass	0.00	Pass	Pass	0.86	Pass
West of Ware_EB	WADESMILL ROAD	Q4	SWB	137	28	3	168	137	21	4	162	0	-7	1	-6	0%	-25%	33%	-4%	Pass	0.00	Pass	Fail	1.41	Pass	Fail	0.53	Pass	Pass	0.47	Pass
West of Ware_EB	0	Q5	SB	174	36	7	217	150	42	8	200	-24	6	1	-17	-14%	17%	14%	-8%	Fail	1.89	Pass	Fail	0.96	Pass	Fail	0.37	Pass	Fail	1.18	Pass
West of Ware_EB	WELWYN ROAD	Q6	EB	147	30	3	180	256	76	11	343	109	46	8	163	74%	153%	267%	91%	Fail	7.68	Fail	Fail	6.32	Fail	Fail	3.02	Pass	Fail	10.08	Fail
West of Ware_EB	0	Q7	EB	601	125	24	750	533	88	18	639	-68	-37	-6	-111	-11%	-30%	-25%	-15%	Fail	2.86	Pass	Fail	3.59	Pass	Fail	1.31	Pass	Fail	4.21	Pass
West of Ware_EB	LOWER HATFIELD ROAD	Q8	NEB	115	24	3	142	114	22	5	141	-1	-2	2	-1	-1%	-8%	67%	-1%	Pass	0.09	Pass	Fail	0.42	Pass	Fail	1.00	Pass	Pass	0.08	Pass
West of Ware_EB	0	Q9	NB	1245	260	49	1554	1246	234	41	1521	1	-26	-8	-33	0%	-10%	-16%	-2%	Pass	0.03	Pass	Fail	1.65	Pass	Fail	1.19	Pass	Pass	0.84	Pass
West of Ware_EB	HIGH ROAD	Q10	NB	560	117	22	699	549	142	29	720	-11	25	7	21	-2%	21%	32%	3%	Pass	0.47	Pass	Fail	2.20	Pass	Fail	1.39	Pass	Pass	0.79	Pass
West of Ware_EB_TOTAL				3408	710	128	4246	3438	711	133	4282	30	1	5	36	1%	0%	4%	1%	Pass	0.51	Pass	Pass	0.04	Pass	Pass	0.44	Pass	Pass	0.55	Pass
Northern_NB	BALDOCK ROAD	M1	WB	188	39	7	234	207	45	9	261	19	6	2	27	10%	15%	29%	12%	Fail	1.35	Pass	Fail	0.93	Pass	Fail	0.71	Pass	Fail	1.72	Pass
Northern_NB	LONDON ROAD	M2	NB	207	43	8	258	222	45	8	275	15	2	0	17	7%	5%	0%	7%	Fail	1.02	Pass	Pass	0.30	Pass	Pass	0.00	Pass	Fail	1.04	Pass
Northern_NB	LONDON ROAD	M3	NB	42	9	1	52	12	1	0	13	-30	-8	-1	-39	-71%	-89%	-100%	-75%	Fail	5.77	Fail	Fail	3.58	Pass	Fail	1.41	Pass	Fail	6.84	Fail
Northern_NB	LONDON ROAD	M5	NB	322	66	7	395	326	99	7	432	4	33	0	37	1%	50%	0%	9%	Pass	0.22	Pass	Fail	3.63	Pass	Pass	0.00	Pass	Fail	1.82	Pass
Northern_NoMway_NB_TOTAL				759	157	23	939	767	190	24	981	8	33	1	42	1%	21%	4%	4%	Pass	0.29	Pass	Fail	2.51	Pass	Pass	0.21	Pass	Pass	1.36	Pass
Northern_SB	BALDOCK ROAD	M1	EB	182	38	7	227	204	45	8	257	22	7	1	30	12%	18%	14%	13%	Fail	1.58	Pass	Fail	1.09	Pass	Fail	0.37	Pass	Fail	1.93	Pass
Northern_SB	LONDON ROAD	M2	SB	180	38	7	225	195	43	9	247	15	5	2	22	8%	13%	29%	10%	Fail	1.10	Pass	Fail	0.79	Pass	Fail	0.71	Pass	Fail	1.43	Pass
Northern_SB	LONDON ROAD	M3	SB	39	8	1	48	10	2	0	12	-29	-6	-1	-36	-74%	-75%	-100%	-75%	Fail	5.86	Fail	Fail	2.68	Pass	Fail	1.41	Pass	Fail	6.57	Fail
Northern_SB	LONDON ROAD	M5	SB	318	65	7	390	325	84	9	418	7	19	2	28	2%	29%	29%	7%	Pass	0.39	Pass	Fail	2.20	Pass	Fail	0.71	Pass	Fail	1.39	Pass
Northern_NoMway_SB_TOTAL				719	149	22	890	734	174	26	934	15	25	4	44	2%	17%	18%	5%	Pass	0.56	Pass	Fail	1.97	Pass	Fail	0.82	Pass	Pass	1.46	Pass

Link Calibration PM

Summary - Observed		TOTAL	CARS	LGV	HGV
DMRB	Pass	86%	90%	100%	100%
	Fail High	4%	1%	0%	0%
	Fail Low	10%	9%	0%	0%
GEH	Pass	85%	83%	95%	100%
	Fail High	2%	2%	3%	0%
	Fail Low	13%	15%	2%	0%

Summary - Synethetic		TOTAL	CARS	LGV	HGV
DMRB	Pass	79%	81%	100%	100%
	Fail High	12%	9%	0%	0%
	Fail Low	9%	9%	0%	0%
GEH	Pass	74%	78%	88%	98%
	Fail High	10%	10%	7%	0%
	Fail Low	15%	12%	5%	2%

Summary - Total		TOTAL	CARS	LGV	HGV
DMRB	Pass	83%	86%	100%	100%
	Fail High	8%	5%	0%	0%
	Fail Low	10%	9%	0%	0%
GEH	Pass	80%	81%	92%	99%
	Fail High	6%	6%	5%	0%
	Fail Low	14%	13%	3%	1%

			EP Observed Flows				EP Modelled Flows				Absolute differences				%age Difference				CAR EP Performance			LGV EP Performance			HGV EP Performance			TOTAL EP Performance		
Road Name	Count ID	Direction	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Flow Difference	GEH	GEH < 5	Flow Difference	GEH	GEH < 5	Flow Difference	GEH	GEH < 5	Flow Difference	GEH	GEH < 5
BURY LANE	A1	NB	255	41	3	299	137	29	1	167	-118	-12	-2	-132	-46%	-29%	-67%	-44%	Fail	8.43	Fail	Pass	2.03	Pass	Pass	1.41	Pass	Fail	8.65	Fail
BURY LANE	A1	SB	237	38	3	278	288	25	3	316	51	-13	0	38	22%	-34%	0%	14%	Pass	3.15	Pass	Pass	2.32	Pass	Pass	0.00	Pass	Pass	2.20	Pass
LINDSEY STREET	A2	EB	127	20	2	149	87	12	0	99	-40	-8	-2	-50	-31%	-40%	-100%	-34%	Pass	3.87	Pass	Pass	2.00	Pass	Pass	2.00	Pass	Pass	4.49	Pass
LINDSEY STREET	A2	WB	198	32	2	232	283	22	0	305	85	-10	-2	73	43%	-31%	-100%	31%	Pass	5.48	Fail	Pass	1.92	Pass	Pass	2.00	Pass	Pass	4.46	Pass
THORNWOOD ROAD	A3	NB	839	135	10	984	773	102	7	882	-66	-33	-3	-102	-8%	-24%	-30%	-10%	Pass	2.32	Pass	Pass	3.03	Pass	Pass	1.03	Pass	Pass	3.34	Pass
THORNWOOD ROAD	A3	SB	525	85	6	616	515	85	5	605	-10	0	-1	-11	-2%	0%	-17%	-2%	Pass	0.44	Pass	Pass	0.00	Pass	Pass	0.43	Pass	Pass	0.45	Pass
EPPING ROAD	A4	NEB	480	77	6	563	420	79	4	503	-60	2	-2	-60	-13%	3%	-33%	-11%	Pass	2.83	Pass	Pass	0.23	Pass	Pass	0.89	Pass	Pass	2.60	Pass
EPPING ROAD	A4	SWB	323	52	4	379	331	53	4	388	8	1	0	9	2%	2%	0%	2%	Pass	0.44	Pass	Pass	0.14	Pass	Pass	0.00	Pass	Pass	0.46	Pass
STONARDS HILL	A5	NWB	125	17	1	143	43	9	2	54	-82	-8	1	-89	-66%	-47%	100%	-62%	Pass	8.95	Fail	Pass	2.22	Pass	Pass	0.82	Pass	Pass	8.97	Fail
STONARDS HILL	A5	SEB	123	17	0	140	87	4	0	91	-36	-13	0	-49	-29%	-76%	0%	-35%	Pass	3.51	Pass	Pass	4.01	Pass	Pass	0.00	Pass	Pass	4.56	Pass
BOWER HILL	A6	NB	109	15	0	124	121	12	1	134	12	-3	1	10	11%	-20%	N/A	8%	Pass	1.12	Pass	Pass	0.82	Pass	Pass	1.41	Pass	Pass	0.88	Pass
BOWER HILL	A6	SB	153	21	1	175	114	13	0	127	-39	-8	-1	-48	-25%	-38%	-100%	-27%	Pass	3.38	Pass	Pass	1.94	Pass	Pass	1.41	Pass	Pass	3.91	Pass
BRIDGE HILL	A7	EB	134	18	1	153	158	19	0	177	24	1	-1	24	18%	6%	-100%	16%	Pass	1.99	Pass	Pass	0.23	Pass	Pass	1.41	Pass	Pass	1.87	Pass
BRIDGE HILL	A7	WB	89	12	0	101	122	8	0	130	33	-4	0	29	37%	-33%	0%	29%	Pass	3.21	Pass	Pass	1.26	Pass	Pass	0.00	Pass	Pass	2.70	Pass
THEYDON ROAD	A8	NB	256	35	1	292	145	22	3	170	-111	-13	2	-122	-43%	-37%	200%	-42%	Fail	7.84	Fail	Pass	2.44	Pass	Pass	1.41	Pass	Fail	8.03	Fail
THEYDON ROAD	A8	SB	225	30	1	256	296	23	1	320	71	-7	0	64	32%	-23%	0%	25%	Pass	4.40	Pass	Pass	1.36	Pass	Pass	0.00	Pass	Pass	3.77	Pass
EPPING ROAD	A9	NEB	635	103	8	746	666	85	6	757	31	-18	-2	11	5%	-17%	-25%	1%	Pass	1.22	Pass	Pass	1.86	Pass	Pass	0.76	Pass	Pass	0.40	Pass
EPPING ROAD	A9	SWB	771	124	9	904	657	114	8	779	-114	-10	-1	-125	-15%	-8%	-11%	-14%	Pass	4.27	Pass	Pass	0.92	Pass	Pass	0.34	Pass	Pass	4.31	Pass
CAMBRIDGE ROAD	C1	NB	766	123	16	905	767	145	20	932	1	22	4	27	0%	18%	25%	3%	Pass	0.04	Pass	Pass	1.90	Pass	Pass	0.94	Pass	Pass	0.89	Pass
CAMBRIDGE ROAD	C1	SB	732	117	16	865	716	129	16	861	-16	12	0	-4	-2%	10%	0%	0%	Pass	0.59	Pass	Pass	1.08	Pass	Pass	0.00	Pass	Pass	0.14	Pass
STATION ROAD	C2	EB	219	30	1	250	174	19	0	193	-45	-11	-1	-57	-21%	-37%	-100%	-23%	Pass	3.21	Pass	Pass	2.22	Pass	Pass	1.41	Pass	Pass	3.83	Pass
STATION ROAD	C2	WB	209	28	1	238	185	14	1	200	-24	-14	0	-38	-11%	-50%	0%	-16%	Pass	1.71	Pass	Pass	3.06	Pass	Pass	0.00	Pass	Pass	2.57	Pass
SHEERING LOWER ROAD	C3	NB	211	28	1	240	190	23	0	213	-21	-5	-1	-27	-10%	-18%	-100%	-11%	Pass	1.48	Pass	Pass	0.99	Pass	Pass	1.41	Pass	Pass	1.79	Pass
SHEERING LOWER ROAD	C3	SB	184	25	1	210	155	21	0	176	-29	-4	-1	-34	-16%	-16%	-100%	-16%	Pass	2.23	Pass	Pass	0.83	Pass	Pass	1.41	Pass	Pass	2.45	Pass
SHEERING LOWER ROAD	C4	NB	226	30	1	257	207	27	0	234	-19	-3	-1	-23	-8%	-10%	-100%	-9%	Pass	1.29	Pass	Pass	0.56	Pass	Pass	1.41	Pass	Pass	1.47	Pass
SHEERING LOWER ROAD	C4	SB	91	12	0	103	96	19	0	115	5	7	0	12	5%	58%	0%	12%	Pass	0.52	Pass	Pass	1.78	Pass	Pass	0.00	Pass	Pass	1.15	Pass
HARLOW ROAD	C5	NB	536	86	11	633	702	138	18	858	166	52	7	225	31%	60%	64%	36%	Fail	6.67	Fail	Pass	4.91	Pass	Pass	1.84	Pass	Fail	8.24	Fail
HARLOW ROAD	C5	SB	482	77	10	569	566	94	11	671	84	17	1	102	17%	22%	10%	18%	Pass	3.67	Pass	Pass	1.84	Pass	Pass	0.31	Pass	Fail	4.10	Pass
HIGH WYCH ROAD	C6	EB	487	66	2	555	330	61	4	395	-157	-5	2	-160	-32%	-8%	100%	-29%	Fail	7.77	Fail	Pass	0.63	Pass	Pass	1.15	Pass	Fail	7.34	Fail
HIGH WYCH ROAD	C6	WB	387	52	2	441	404	57	5	466	17	5	3	25	4%	10%	150%	6%	Pass	0.85	Pass	Pass	0.68	Pass	Pass	1.60	Pass	Pass	1.17	Pass
WEST ROAD	C7	EB	220	30	1	251	233	9	0	242	13	-21	-1	-9	6%	-70%	-100%	-4%	Pass	0.86	Pass	Pass	4.76	Pass	Pass	1.41	Pass	Pass	0.57	Pass
WEST ROAD	C7	WB	163	22	1	186	90	13	0	103	-73	-9	-1	-83	-45%	-41%	-100%	-45%	Pass	6.49	Fail	Pass	2.15	Pass	Pass	1.41	Pass	Pass	6.90	Fail
HARLOW ROAD	D1	NB	624	100	13	737	700	138	18	856	76	38	5	119	12%	38%	38%	16%	Pass	2.95	Pass	Pass	3.48	Pass	Pass	1.27	Pass	Fail	4.22	Pass
HARLOW ROAD	D1	SB	594	95	13	702	566	94	11	671	-28	-1	-2	-31	-5%	-1%	-15%	-4%	Pass	1.16	Pass	Pass	0.10	Pass	Pass	0.58	Pass	Pass	1.18	Pass
GILDEN WAY	D2	NEB	813	131	10	954	749	116	7	872	-64	-15	-3	-82	-8%	-11%	-30%	-9%	Pass	2.29	Pass	Pass	1.35	Pass	Pass	1.03	Pass	Pass	2.71	Pass
GILDEN WAY	D2	SWB	514	83	6	603	545	103	8	656	31	20	2	53	6%	24%	33%	9%	Pass	1.35	Pass	Pass	2.07	Pass	Pass	0.76	Pass	Pass	2.11	Pass
LONDON ROAD	D4	NB	1811	290	38	2139	1849	332	43	2224	38	42	5	85	2%	14%	13%	4%	Pass	0.89	Pass	Pass	2.38	Pass	Pass	0.79	Pass	Pass	1.82	Pass
LONDON ROAD	D4	SB	1586	254	34	1874	1743	274	35	2052	157	20	1	178	10%	8%	3%	9%	Pass	3.85	Pass	Pass	1.23	Pass	Pass	0.17	Pass	Pass	4.02	Pass
RYE HILL ROAD	D5	NWB	146	20	1	167	145	17	0	162	-1	-3	-1	-5	-1%	-15%	-100%	-3%	Pass	0.08	Pass	Pass	0.70	Pass	Pass	1.41	Pass	Pass	0.39	Pass
RYE HILL ROAD	D5	SEB	120	16	0	136	70	16	0	86	-50	0	0	-50	-42%	0%	0%	-37%	Pass	5.13	Fail	Pass	0.00	Pass	Pass	0.00	Pass	Pass	4.75	Pass
PARSLOE ROAD	D6	NEB	360	49	1	410	212	9	1	222	-148	-40	0	-188	-41%	-82%	0%	-46%	Fail	8.75	Fail	Pass	7.43	Fail	Pass	0.00	Pass	Fail	10.58	Fail
PARSLOE ROAD	D6	SWB	191	26	1	218	116	20	1	137	-75	-6	0	-81	-39%	-23%	0%	-37%	Pass	6.05	Fail	Pass	1.25	Pass	Pass	0.00	Pass	Pass	6.08	Fail
WATER LANE	D7	NEB	730	118	9	857	765	125	9	899	35	7	0	42	5%	6%	0%	5%	Pass	1.28	Pass	Pass	0.64	Pass	Pass	0.00	Pass	Pass	1.42	Pass
WATER LANE	D7	SWB	589	95	7	691	676	116	10	802	87	21	3	111	15%	22%	43%	16%	Pass	3.46	Pass	Pass	2.04	Pass	Pass	1.03	Pass	Fail	4.06	Pass
HARLOW ROAD	D8	EB	111	15	0	126	102	81	4	187	-9	66	4	61	-8%	440%	N/A	48%	Pass	0.87	Pass	Pass	9.53	Fail	Pass	2.83	Pass	Pass	4.88	Pass
HARLOW ROAD	D8	WB	302	41	1	344	345	34	2	381	43	-7	1	37	14%	-17%	100%	11%	Pass	2.39	Pass	Pass	1.14	Pass	Pass	0.82	Pass	Pass	1.94	Pass
FIFTH AVENUE ALLENDE AVENUE	D9	NB	957	153	20	1130	883	147	19	1049	-74	-6	-1	-81	-8%	-4%	-5%	-7%	Pass	2.44	Pass	Pass	0.49	Pass	Pass	0.23	Pass	Pass	2.45	Pass
FIFTH AVENUE ALLENDE AVENUE	D9	SB	914	146	19	1079	986	95	18	1099	72	-51	-1	20	8%	-35%	-5%	2%	Pass	2.34	Pass	Pass	4.65	Pass	Pass	0.23	Pass	Pass	0.61	Pass
BRENTWOOD ROAD	F1	NB	325	52	7	384	329	56	6	391	4	4	-1	7	1%	8%	-14%	2%	Pass	0.22	Pass	Pass	0.54	Pass	Pass	0.39	Pass	Pass	0.36	Pass
BRENTWOOD ROAD	F1	SB	271	43	6	320	298	42	10	350	27	-1	4	30	10%	-2%	67%	9%	Pass	1.60	Pass	Pass	0.15	Pass	Pass	1.41	Pass	Pass	1.64	Pass
LONDON ROAD	F2	NEB	519	83	11	613	533	67	8	608	14	-16	-3	-5	3%	-19%	-27%	-1%	Pass	0.61	Pass	Pass	1.85	Pass	Pass	0.97	Pass	Pass	0.20	Pass
LONDON ROAD	F2	SWB	250	40	5	295	240	41	4	285	-10	1	-1	-10	-4%	3%	-20%	-3%	Pass	0.64	Pass	Pass	0.16	Pass	Pass	0.47	Pass	Pass	0.59	Pass

Link Calibration PM

			EP Observed Flows				EP Modelled Flows				Absolute differences				%age Difference				CAR EP Performance			LGV EP Performance			HGV EP Performance			TOTAL EP Performance		
Road Name	Count ID	Direction	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Flow Difference	GEH	GEH < 5	Flow Difference	GEH	GEH < 5	Flow Difference	GEH	GEH < 5	Flow Difference	GEH	GEH < 5
ROXWELL ROAD	G1	EB	707	113	15	835	579	68	4	651	-128	-45	-11	-184	-18%	-40%	-73%	-22%	Fail	5.05	Fail	Pass	4.73	Pass	Pass	3.57	Pass	Fail	6.75	Fail
ROXWELL ROAD	G1	WB	492	79	10	581	517	75	15	607	25	-4	5	26	5%	-5%	50%	4%	Pass	1.11	Pass	Pass	0.46	Pass	Pass	1.41	Pass	Pass	1.07	Pass
CHELMSFORD ROAD	G2	EB	309	42	1	352	330	46	2	378	21	4	1	26	7%	10%	100%	7%	Pass	1.17	Pass	Pass	0.60	Pass	Pass	0.82	Pass	Pass	1.36	Pass
CHELMSFORD ROAD	G2	WB	364	49	1	414	378	53	3	434	14	4	2	20	4%	8%	200%	5%	Pass	0.73	Pass	Pass	0.56	Pass	Pass	1.41	Pass	Pass	0.97	Pass
0	G3	EB	581	93	12	686	645	123	10	778	64	30	-2	92	11%	32%	-17%	13%	Pass	2.58	Pass	Pass	2.89	Pass	Pass	0.60	Pass	Pass	3.40	Pass
0	G3	WB	450	72	10	532	451	72	9	532	1	0	-1	0	0%	0%	-10%	0%	Pass	0.05	Pass	Pass	0.00	Pass	Pass	0.32	Pass	Pass	0.00	Pass
THREE MILE HILL	G4	NB	1144	183	24	1351	1465	226	23	1714	321	43	-1	363	28%	23%	-4%	27%	Fail	8.89	Fail	Pass	3.01	Pass	Pass	0.21	Pass	Fail	9.27	Fail
THREE MILE HILL	G4	SB	1153	184	24	1361	1639	278	31	1948	486	94	7	587	42%	51%	29%	43%	Fail	13.01	Fail	Pass	6.18	Fail	Pass	1.33	Pass	Fail	14.43	Fail
WOOD STREET	G5	NB	489	79	6	574	166	22	4	192	-323	-57	-2	-382	-66%	-72%	-33%	-67%	Fail	17.85	Fail	Pass	8.02	Fail	Pass	0.89	Pass	Fail	19.52	Fail
WOOD STREET	G5	SB	704	114	9	827	180	20	4	204	-524	-94	-5	-623	-74%	-82%	-56%	-75%	Fail	24.92	Fail	Pass	11.48	Fail	Pass	1.96	Pass	Fail	27.44	Fail
0	H1	EB	1835	294	39	2168	2008	263	35	2306	173	-31	-4	138	9%	-11%	-10%	6%	Pass	3.95	Pass	Pass	1.86	Pass	Pass	0.66	Pass	Pass	2.92	Pass
0	H1	WB	1059	169	22	1250	1183	162	23	1368	124	-7	1	118	12%	-4%	5%	9%	Pass	3.70	Pass	Pass	0.54	Pass	Pass	0.21	Pass	Pass	3.26	Pass
0	H2	NEB	1282	205	27	1514	1402	240	26	1668	120	35	-1	154	9%	17%	-4%	10%	Pass	3.28	Pass	Pass	2.35	Pass	Pass	0.19	Pass	Pass	3.86	Pass
0	H2	SWB	791	126	17	934	830	161	20	1011	39	35	3	77	5%	28%	18%	8%	Pass	1.37	Pass	Pass	2.92	Pass	Pass	0.70	Pass	Pass	2.47	Pass
0	H3	EB	3688	590	78	4356	3508	656	79	4243	-180	66	1	-113	-5%	11%	1%	-3%	Pass	3.00	Pass	Pass	2.64	Pass	Pass	0.11	Pass	Pass	1.72	Pass
0	H3	WB	2837	454	60	3351	2786	486	59	3331	-51	32	-1	-20	-2%	7%	-2%	-1%	Pass	0.96	Pass	Pass	1.48	Pass	Pass	0.13	Pass	Pass	0.35	Pass
ROUND COPPICE ROAD	J1	NEB	275	37	1	313	306	43	4	353	31	6	3	40	11%	16%	300%	13%	Pass	1.82	Pass	Pass	0.95	Pass	Pass	1.90	Pass	Pass	2.19	Pass
ROUND COPPICE ROAD	J1	SWB	399	54	2	455	412	57	2	471	13	3	0	16	3%	6%	0%	4%	Pass	0.65	Pass	Pass	0.40	Pass	Pass	0.00	Pass	Pass	0.74	Pass
CHURCH ROAD	J2	EB	212	29	1	242	178	26	1	205	-34	-3	0	-37	-16%	-10%	0%	-15%	Pass	2.43	Pass	Pass	0.57	Pass	Pass	0.00	Pass	Pass	2.47	Pass
CHURCH ROAD	J2	WB	286	39	1	326	274	31	0	305	-12	-8	-1	-21	-4%	-21%	-100%	-6%	Pass	0.72	Pass	Pass	1.35	Pass	Pass	1.41	Pass	Pass	1.18	Pass
HALL ROAD	J3	NB	181	24	1	206	143	26	2	171	-38	2	1	-35	-21%	8%	100%	-17%	Pass	2.99	Pass	Pass	0.40	Pass	Pass	0.82	Pass	Pass	2.55	Pass
HALL ROAD	J3	SB	117	16	0	133	129	23	1	153	12	7	1	20	10%	44%	N/A	15%	Pass	1.08	Pass	Pass	1.59	Pass	Pass	1.41	Pass	Pass	1.67	Pass
0	J4	NEB	128	17	1	146	147	9	0	156	19	-8	-1	10	15%	-47%	-100%	7%	Pass	1.62	Pass	Pass	2.22	Pass	Pass	1.41	Pass	Pass	0.81	Pass
0	J4	SWB	58	8	0	66	58	12	1	71	0	4	1	5	0%	50%	N/A	8%	Pass	0.00	Pass	Pass	1.26	Pass	Pass	1.41	Pass	Pass	0.60	Pass
0	J5	NWB	39	5	0	44	0	22	0	22	-39	17	0	-22	-100%	340%	0%	-50%	Pass	8.83	Fail	Pass	4.63	Pass	Pass	0.00	Pass	Pass	3.83	Pass
0	J5	SEB	42	6	0	48	0	0	0	0	-42	-6	0	-48	-100%	-100%	0%	-100%	Pass	9.17	Fail	Pass	3.46	Pass	Pass	0.00	Pass	Pass	9.80	Fail
PARSONAGE ROAD	J6	NB	190	26	1	217	214	19	2	235	24	-7	1	18	13%	-27%	100%	8%	Pass	1.69	Pass	Pass	1.48	Pass	Pass	0.82	Pass	Pass	1.20	Pass
PARSONAGE ROAD	J6	SB	195	26	1	222	212	59	4	275	17	33	3	53	9%	127%	300%	24%	Pass	1.19	Pass	Pass	5.06	Fail	Pass	1.90	Pass	Pass	3.36	Pass
0	J7	NWB	212	34	4	250	212	27	4	243	0	-7	0	-7	0%	-21%	0%	-3%	Pass	0.00	Pass	Pass	1.27	Pass	Pass	0.00	Pass	Pass	0.45	Pass
0	J7	SEB	335	54	7	396	319	49	5	373	-16	-5	-2	-23	-5%	-9%	-29%	-6%	Pass	0.88	Pass	Pass	0.70	Pass	Pass	0.82	Pass	Pass	1.17	Pass
THREMHALL AVENUE	J8	NEB	681	109	14	804	685	105	13	803	4	-4	-1	-1	1%	-4%	-7%	0%	Pass	0.15	Pass	Pass	0.39	Pass	Pass	0.27	Pass	Pass	0.04	Pass
THREMHALL AVENUE	J8	SWB	790	126	17	933	787	89	10	886	-3	-37	-7	-47	0%	-29%	-41%	-5%	Pass	0.11	Pass	Pass	3.57	Pass	Pass	1.91	Pass	Pass	1.56	Pass
0	K1	EB	1239	198	26	1463	1253	175	20	1448	14	-23	-6	-15	1%	-12%	-23%	-1%	Pass	0.40	Pass	Pass	1.68	Pass	Pass	1.25	Pass	Pass	0.39	Pass
0	K1	WB	1324	212	28	1564	1264	161	18	1443	-60	-51	-10	-121	-5%	-24%	-36%	-8%	Pass	1.67	Pass	Pass	3.73	Pass	Pass	2.09	Pass	Pass	3.12	Pass
HALLINGBURY ROAD	K2	NB	378	60	8	446	384	59	10	453	6	-1	2	7	2%	-2%	25%	2%	Pass	0.31	Pass	Pass	0.13	Pass	Pass	0.67	Pass	Pass	0.33	Pass
HALLINGBURY ROAD	K2	SB	389	62	8	459	388	46	3	437	-1	-16	-5	-22	0%	-26%	-63%	-5%	Pass	0.05	Pass	Pass	2.18	Pass	Pass	2.13	Pass	Pass	1.04	Pass
0	K3	NB	678	108	14	800	689	134	13	836	11	26	-1	36	2%	24%	-7%	5%	Pass	0.42	Pass	Pass	2.36	Pass	Pass	0.27	Pass	Pass	1.26	Pass
0	K3	SB	626	100	13	739	627	115	16	758	1	15	3	19	0%	15%	23%	3%	Pass	0.04	Pass	Pass	1.45	Pass	Pass	0.79	Pass	Pass	0.69	Pass
GREAT HADHAM ROAD	K4	EB	288	46	3	337	341	57	2	400	53	11	-1	63	18%	24%	-33%	19%	Pass	2.99	Pass	Pass	1.53	Pass	Pass	0.63	Pass	Pass	3.28	Pass
GREAT HADHAM ROAD	K4	WB	181	29	2	212	247	53	3	303	66	24	1	91	36%	83%	50%	43%	Pass	4.51	Pass	Pass	3.75	Pass	Pass	0.63	Pass	Pass	5.67	Fail
STORTFORD ROAD	K5	EB	570	91	12	673	574	89	13	676	4	-2	1	3	1%	-2%	8%	0%	Pass	0.17	Pass	Pass	0.21	Pass	Pass	0.28	Pass	Pass	0.12	Pass
STORTFORD ROAD	K5	WB	638	102	14	754	555	64	7	626	-83	-38	-7	-128	-13%	-37%	-50%	-17%	Pass	3.40	Pass	Pass	4.17	Pass	Pass	2.16	Pass	Fail	4.87	Pass
HAZELEND ROAD	K6	NEB	306	41	1	348	201	17	1	219	-105	-24	0	-129	-34%	-59%	0%	-37%	Fail	6.59	Fail	Pass	4.46	Pass	Pass	0.00	Pass	Fail	7.66	Fail
HAZELEND ROAD	K6	SWB	160	22	1	183	83	8	1	92	-77	-14	0	-91	-48%	-64%	0%	-50%	Pass	6.99	Fail	Pass	3.61	Pass	Pass	0.00	Pass	Pass	7.76	Fail
STANSTED ROAD	K7	NEB	768	124	9	901	846	137	9	992	78	13	0	91	10%	10%	0%	10%	Pass	2.75	Pass	Pass	1.14	Pass	Pass	0.00	Pass	Pass	2.96	Pass
STANSTED ROAD	K7	SWB	531	86	6	623	611	90	10	711	80	4	4	88	15%	5%	67%	14%	Pass	3.35	Pass	Pass	0.43	Pass	Pass	1.41	Pass	Pass	3.41	Pass
BIRCHANGER LANE	K8	NB	33	4	0	37	28	4	0	32	-5	0	0	-5	-15%	0%	0%	-14%	Pass	0.91	Pass	Pass	0.00	Pass	Pass	0.00	Pass	Pass	0.85	Pass
BIRCHANGER LANE	K8	SB	60	8	0	68	65	7	0	72	5	-1	0	4	8%	-13%	0%	6%	Pass	0.63	Pass	Pass	0.37	Pass	Pass	0.00	Pass	Pass	0.48	Pass
BALDOCK ROAD	M1	EB	338	54	7	399	407	56	6	469	69	2	-1	70	20%	4%	-14%	18%	Pass	3.58	Pass	Pass	0.27	Pass	Pass	0.39	Pass	Pass	3.36	Pass
BALDOCK ROAD	M1	WB	465	74	10	549	525	92	7	624	60	18	-3	75	13%	24%	-30%	14%	Pass	2.70	Pass	Pass	1.98	Pass	Pass	1.03	Pass	Pass	3.10	Pass
LONDON ROAD	M2	NB	412	66	9	487	394	69	16	479	-18	3	7	-8	-4%	5%	78%	-2%	Pass	0.90	Pass	Pass	0.37	Pass	Pass	1.98	Pass	Pass	0.36	Pass
LONDON ROAD	M2	SB	311	50	7	368	270	62	9	341	-41	12	2	-27	-13%	24%	29%	-7%	Pass	2.41	Pass	Pass	1.60	Pass	Pass	0.71	Pass	Pass	1.43	Pass
LONDON ROAD	M3	NB	88	14	1	103	50	4	0	54	-38	-10	-1	-49	-43%	-71%	-100%	-48%	Pass	4.57	Pass	Pass	3.33	Pass	Pass	1.41	Pass	Pass	5.53	Fail
LONDON ROAD	M3	SB	82	13	1	96	50	4	0	54	-32	-9	-1	-42	-39%	-69%	-100%	-44%	Pass	3.94	Pass	Pass	3.09	Pass	Pass	1.41	Pass	Pass	4.85	Pass
0	M4	NB	1968	422	71	2461	1931	435	56	2422	-37	13	-15	-39	-2%	3%	-21%	-2%	Pass	0.84	Pass	Pass	0.63	Pass	Pass	1.88	Pass	Pass	0.79	Pass
0	M4	SB	2019	433	72	2524	2051	477	56	2584	32	44	-16	60	2%	10%	-22%	2%	Pass	0.71	Pass	Pass	2.06	Pass	Pass	2.00	Pass	Pass	1.19	Pass
LONDON ROAD	M5	NB	482	78	6	566	488	102	7	597	6	24	1	31	1%	31%	17%	5%	Pass	0.27	Pass	Pass	2.53	Pass	Pass	0.39	Pass	Pass	1.29	Pass
LONDON ROAD	M5	SB	593	96	7	696	606	100	9	715	13	4	2	19	2%	4%	29%	3%	Pass	0.53	Pass	Pass	0.40	Pass	Pass	0.71	Pass	Pass	0.72	Pass
WADESMILL ROAD	N1	NB	407	65	9	481	530	79	8	617	123	14	-1	136	30%	22%	-11%	28%	Fail	5.68	Fail	Pass	1.65	Pass	Pass	0.34	Pass	Fail	5.80	Fail
WADESMILL ROAD	N1	SB	324	52	7	383	436	54	9	499	112	2	2	116	35%	4%	29%	30%	Fail	5.75	Fail	Pass	0.27	Pass	Pass	0.71	Pass	Fail	5.52	Fail
0	N2	EB	32	4	0	36	11	0	0	11	-21	-4	0	-25	-66%	-100%	0%	-69%	Pass	4.53	Pass	Pass	2.83	Pass	Pass	0.00	Pass	Pass	5.16	Fail
0	N2	WB	20	3	0	23	2	0	0	2	-18	-3	0	-21	-90%	-100%	0%	-91%	Pass	5.43	Fail	Pass	2.45	Pass	Pass	0.00	Pass	Pass	5.94	Fail
0	N3	EB	127	21	2	150	112	23	1	136	-15	2	-1	-14	-12%	10%	-50%	-9%	Pass	1.37	Pass	Pass	0.43	Pass	Pass	0.82	Pass	Pass	1.17	Pass
0	N3	WB	72	12	1	85	80	35	2	117	8	23	1	32	11%	192%	100%	38%	Pass	0.92	Pass	Pass	4.74	Pass	Pass	0.82	Pass	Pass	3.18	Pass
HOLLYCROSS ROAD	N4	NWB	147	20	1	168	161	42	5	208	14	22	4	40	10%	110%	400%	24%	Pass	1.13	Pass	Pass	3.95	Pass	Pass	2.31	Pass	Pass	2.92	Pass
HOLLYCROSS ROAD	N4	SEB	143	19	1	163	145	53	4	202	2	34	3	39	1%	179%	300%	24%	Pass	0.17	Pass	Pass	5.67	Fail	Pass	1.90	Pass	Pass	2.89	Pass
VIADUCT ROAD	N5	NWB	483	77	10	570	430	87	9	526	-53	10	-1	-44	-11%	13%	-10%	-8%	Pass	2.48	Pass	Pass	1.10	Pass	Pass	0.32	Pass	Pass	1.88	Pass
VIADUCT ROAD	N5	SEB	513	82	11	606	502	68	13	583	-11	-14	2	-23	-2%	-17%	18%	-4%	Pass	0.49	Pass	Pass	1.62	Pass	Pass	0.58	Pass	Pass	0.94	Pass
0	N6	NB	133	18	1	152	191	0	0	191	58	-18	-1	39	44%	-100%	-100%	26%	Pass	4.56	Pass	Pass	6.00	Fail	Pass	1.41	Pass	Pass	2.98	Pass
0	N6	SB	165	22	1	188	256	67	9	332	91	45	8	144	55%	205%	800%	77%	Pass	6.27	Fail	Pass	6.75	Fail	Pass	3.58	Pass	Fail	8.93	Fail
WARE ROAD	N7	EB	483	77	10	570	480	59	12	551	-3	-18	2	-19	-1%	-23%	20%	-3%	Pass	0.14	Pass	Pass	2.18	Pass	Pass	0.60	Pass	Pass	0.80	Pass
WARE ROAD	N7	WB	286	46	6	338	200	3	1	204	-86	-43	-5	-134	-30%	-93%	-83%	-40%	Pass	5.52	Fail	Pass	8.69	Fail	Pass	2.67	Pass	Fail	8.14	Fail
WESTMILL ROAD	N8	NWB	670	108	8	786	559	90	10	659	-111	-18	2	-127	-17%	-17%	25%	-16%	Fail	4.48	Pass	Pass	1.81	Pass	Pass	0.67	Pass	Fail	4.72	Pass
WESTMILL ROAD	N8	SEB	599	97	7	703	464	85	8	557	-135	-12	1	-146	-23%	-12%	14%	-21%	Fail	5.86	Fail	Pass	1.26	Pass	Pass	0.37	Pass	Fail	5.82	Fail

Link Calibration PM

			EP Observed Flows				EP Modelled Flows				Absolute differences				%age Difference				CAR EP Performance			LGV EP Performance			HGV EP Performance			TOTAL EP Performance		
Road Name	Count ID	Direction	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Flow Difference	GEH	GEH < 5	Flow Difference	GEH	GEH < 5	Flow Difference	GEH	GEH < 5	Flow Difference	GEH	GEH < 5
0	Q1	NB	1636	262	35	1933	1642	281	26	1949	6	19	-9	16	0%	7%	-26%	1%	Pass	0.15	Pass	Pass	1.15	Pass	Pass	1.63	Pass	Pass	0.36	Pass
0	Q1	SB	886	142	19	1047	950	132	14	1096	64	-10	-5	49	7%	-7%	-26%	5%	Pass	2.11	Pass	Pass	0.85	Pass	Pass	1.23	Pass	Pass	1.50	Pass
0	Q2	NB	136	18	1	155	266	32	7	305	130	14	6	150	96%	78%	600%	97%	Fail	9.17	Fail	Pass	2.80	Pass	Pass	3.00	Pass	Fail	9.89	Fail
0	Q2	SB	84	11	0	95	104	12	9	125	20	1	9	30	24%	9%	N/A	32%	Pass	2.06	Pass	Pass	0.29	Pass	Pass	4.24	Pass	Pass	2.86	Pass
WESTMILL ROAD	Q3	NB	1153	184	24	1361	1049	175	18	1242	-104	-9	-6	-119	-9%	-5%	-25%	-9%	Pass	3.13	Pass	Pass	0.67	Pass	Pass	1.31	Pass	Pass	3.30	Pass
WESTMILL ROAD	Q3	SB	981	157	21	1159	846	130	19	995	-135	-27	-2	-164	-14%	-17%	-10%	-14%	Pass	4.47	Pass	Pass	2.25	Pass	Pass	0.45	Pass	Pass	5.00	Pass
WADESMILL ROAD	Q4	NEB	367	59	4	430	504	48	9	561	137	-11	5	131	37%	-19%	125%	30%	Fail	6.56	Fail	Pass	1.50	Pass	Pass	1.96	Pass	Fail	5.89	Fail
WADESMILL ROAD	Q4	SWB	258	42	3	303	243	37	5	285	-15	-5	2	-18	-6%	-12%	67%	-6%	Pass	0.95	Pass	Pass	0.80	Pass	Pass	1.00	Pass	Pass	1.05	Pass
0	Q5	NB	454	73	10	537	443	70	12	525	-11	-3	2	-12	-2%	-4%	20%	-2%	Pass	0.52	Pass	Pass	0.35	Pass	Pass	0.60	Pass	Pass	0.52	Pass
0	Q5	SB	174	28	4	206	182	48	10	240	8	20	6	34	5%	71%	150%	17%	Pass	0.60	Pass	Pass	3.24	Pass	Pass	2.27	Pass	Pass	2.28	Pass
WELWYN ROAD	Q6	EB	245	40	3	288	408	84	16	508	163	44	13	220	67%	110%	433%	76%	Fail	9.02	Fail	Pass	5.59	Fail	Pass	4.22	Pass	Fail	11.03	Fail
WELWYN ROAD	Q6	WB	442	71	5	518	290	38	6	334	-152	-33	1	-184	-34%	-46%	20%	-36%	Fail	7.95	Fail	Pass	4.47	Pass	Pass	0.43	Pass	Fail	8.91	Fail
0	Q7	EB	1181	189	25	1395	1124	167	22	1313	-57	-22	-3	-82	-5%	-12%	-12%	-6%	Pass	1.68	Pass	Pass	1.65	Pass	Pass	0.62	Pass	Pass	2.23	Pass
0	Q7	WB	1005	161	21	1187	1194	214	26	1434	189	53	5	247	19%	33%	24%	21%	Fail	5.70	Fail	Pass	3.87	Pass	Pass	1.03	Pass	Fail	6.82	Fail
LOWER HATFIELD ROAD	Q8	NEB	455	73	6	534	446	48	3	497	-9	-25	-3	-37	-2%	-34%	-50%	-7%	Pass	0.42	Pass	Pass	3.21	Pass	Pass	1.41	Pass	Pass	1.63	Pass
LOWER HATFIELD ROAD	Q8	SWB	215	35	3	253	220	30	2	252	5	-5	-1	-1	2%	-14%	-33%	0%	Pass	0.34	Pass	Pass	0.88	Pass	Pass	0.63	Pass	Pass	0.06	Pass
0	Q9	NB	2088	334	44	2466	2210	369	31	2610	122	35	-13	144	6%	10%	-30%	6%	Pass	2.63	Pass	Pass	1.87	Pass	Pass	2.12	Pass	Pass	2.86	Pass
0	Q9	SB	1937	310	41	2288	1888	272	36	2196	-49	-38	-5	-92	-3%	-12%	-12%	-4%	Pass	1.12	Pass	Pass	2.23	Pass	Pass	0.81	Pass	Pass	1.94	Pass
HIGH ROAD	Q10	NB	891	143	19	1053	794	161	31	986	-97	18	12	-67	-11%	13%	63%	-6%	Pass	3.34	Pass	Pass	1.46	Pass	Pass	2.40	Pass	Pass	2.10	Pass
HIGH ROAD	Q10	SB	730	117	15	862	739	204	25	968	9	87	10	106	1%	74%	67%	12%	Pass	0.33	Pass	Pass	6.87	Fail	Pass	2.24	Pass	Pass	3.50	Pass
HIGH ROAD	Z1	NEB	704	114	9	827	563	74	8	645	-141	-40	-1	-182	-20%	-35%	-11%	-22%	Fail	5.60	Fail	Pass	4.13	Pass	Pass	0.34	Pass	Fail	6.71	Fail
HIGH ROAD	Z1	SWB	744	120	9	873	540	128	7	675	-204	8	-2	-198	-27%	7%	-22%	-23%	Fail	8.05	Fail	Pass	0.72	Pass	Pass	0.71	Pass	Fail	7.12	Fail
EASTWICK ROAD	Z2	EB	795	107	3	905	608	71	4	683	-187	-36	1	-222	-24%	-34%	33%	-25%	Fail	7.06	Fail	Pass	3.82	Pass	Pass	0.53	Pass	Fail	7.88	Fail
EASTWICK ROAD	Z2	WB	436	59	2	497	408	47	5	460	-28	-12	3	-37	-6%	-20%	150%	-7%	Pass	1.36	Pass	Pass	1.65	Pass	Pass	1.60	Pass	Pass	1.69	Pass
0	Z3	EB	4429	950	159	5538	4182	901	148	5231	-247	-49	-11	-307	-6%	-5%	-7%	-6%	Pass	3.76	Pass	Pass	1.61	Pass	Pass	0.89	Pass	Pass	4.18	Pass
0	Z3	WB	3738	801	134	4673	3689	792	139	4620	-49	-9	5	-53	-1%	-1%	4%	-1%	Pass	0.80	Pass	Pass	0.32	Pass	Pass	0.43	Pass	Pass	0.78	Pass
0	Z4	NB	3023	648	109	3780	3051	596	71	3718	28	-52	-38	-62	1%	-8%	-35%	-2%	Pass	0.51	Pass	Pass	2.09	Pass	Pass	4.01	Pass	Pass	1.01	Pass
0	Z4	SB	2409	517	86	3012	2286	470	59	2815	-123	-47	-27	-197	-5%	-9%	-31%	-7%	Pass	2.54	Pass	Pass	2.12	Pass	Pass	3.17	Pass	Pass	3.65	Pass
0	Z5	NB	3418	733	123	4274	3713	724	104	4541	295	-9	-19	267	9%	-1%	-15%	6%	Pass	4.94	Pass	Pass	0.33	Pass	Pass	1.78	Pass	Pass	4.02	Pass
0	Z5	SB	2617	561	94	3272	2671	495	72	3238	54	-66	-22	-34	2%	-12%	-23%	-1%	Pass	1.05	Pass	Pass	2.87	Pass	Pass	2.41	Pass	Pass	0.60	Pass
0	Z7	NB	2937	630	105	3672	2638	625	54	3317	-299	-5	-51	-355	-10%	-1%	-49%	-10%	Pass	5.66	Fail	Pass	0.20	Pass	Pass	5.72	Fail	Pass	6.01	Fail
0	Z7	SB	1887	405	68	2360	1591	381	51	2023	-296	-24	-17	-337	-16%	-6%	-25%	-14%	Fail	7.10	Fail	Pass	1.21	Pass	Pass	2.20	Pass	Pass	7.20	Fail
0	Z8	EB	3693	792	133	4618	3721	815	140	4676	28	23	7	58	1%	3%	5%	1%	Pass	0.46	Pass	Pass	0.81	Pass	Pass	0.60	Pass	Pass	0.85	Pass
0	Z8	WB	3212	689	115	4016	3232	720	103	4055	20	31	-12	39	1%	4%	-10%	1%	Pass	0.35	Pass	Pass	1.17	Pass	Pass	1.15	Pass	Pass	0.61	Pass
CHELMSFORD ROAD	Z9	EB	406	65	9	480	293	42	4	339	-113	-23	-5	-141	-28%	-35%	-56%	-29%	Fail	6.04	Fail	Pass	3.14	Pass	Pass	1.96	Pass	Fail	6.97	Fail
CHELMSFORD ROAD	Z9	WB	293	47	6	346	326	42	5	373	33	-5	-1	27	11%	-11%	-17%	8%	Pass	1.88	Pass	Pass	0.75	Pass	Pass	0.43	Pass	Pass	1.42	Pass
DUNMOW ROAD	Z10	NB	288	46	3	337	312	44	10	366	24	-2	7	29	8%	-4%	233%	9%	Pass	1.39	Pass	Pass	0.30	Pass	Pass	2.75	Pass	Pass	1.55	Pass
DUNMOW ROAD	Z10	SB	173	28	2	203	215	13	1	229	42	-15	-1	26	24%	-54%	-50%	13%	Pass	3.02	Pass	Pass	3.31	Pass	Pass	0.82	Pass	Pass	1.77	Pass
CHELMSFORD ROAD	Z12	EB	555	89	12	656	646	127	12	785	91	38	0	129	16%	43%	0%	20%	Pass	3.71	Pass	Pass	3.66	Pass	Pass	0.00	Pass	Fail	4.81	Pass
CHELMSFORD ROAD	Z12	WB	435	70	9	514	465	77	9	551	30	7	0	37	7%	10%	0%	7%	Pass	1.41	Pass	Pass	0.82	Pass	Pass	0.00	Pass	Pass	1.60	Pass
0	Z13	EB	279	45	3	327	283	42	3	328	4	-3	0	1	1%	-7%	0%	0%	Pass	0.24	Pass	Pass	0.45	Pass	Pass	0.00	Pass	Pass	0.06	Pass
0	Z13	WB	173	28	2	203	194	79	6	279	21	51	4	76	12%	182%	200%	37%	Pass	1.55	Pass	Pass	6.97	Fail	Pass	2.00	Pass	Pass	4.90	Pass
0	Z17	NB	682	109	14	805	697	103	13	813	15	-6	-1	8	2%	-6%	-7%	1%	Pass	0.57	Pass	Pass	0.58	Pass	Pass	0.27	Pass	Pass	0.28	Pass
0	Z17	SB	842	135	18	995	759	87	8	854	-83	-48	-10	-141	-10%	-36%	-56%	-14%	Pass	2.93	Pass	Pass	4.56	Pass	Pass	2.77	Pass	Pass	4.64	Pass
ST JAMES WAY	Z19	NB	417	67	9	493	413	60	3	476	-4	-7	-6	-17	-1%	-10%	-67%	-3%	Pass	0.20	Pass	Pass	0.88	Pass	Pass	2.45	Pass	Pass	0.77	Pass
ST JAMES WAY	Z19	SB	477	76	10	563	457	55	4	516	-20	-21	-6	-47	-4%	-28%	-60%	-8%	Pass	0.93	Pass	Pass	2.59	Pass	Pass	2.27	Pass	Pass	2.02	Pass
0	Z20	EB	1872	299	40	2211	1735	239	6	1980	-137	-60	-34	-231	-7%	-20%	-85%	-10%	Pass	3.23	Pass	Pass	3.66	Pass	Pass	7.09	Fail	Pass	5.05	Fail
0	Z20	WB	941	151	20	1112	875	107	5	987	-66	-44	-15	-125	-7%	-29%	-75%	-11%	Pass	2.19	Pass	Pass	3.87	Pass	Pass	4.24	Pass	Pass	3.86	Pass
DUNMOW ROAD	Z21	EB	386	62	5	453	336	44	3	383	-50	-18	-2	-70	-13%	-29%	-40%	-15%	Pass	2.63	Pass	Pass	2.47	Pass	Pass	1.00	Pass	Pass	3.42	Pass
DUNMOW ROAD	Z21	WB	269	43	3	315	225	18	0	243	-44	-25	-3	-72	-16%	-58%	-100%	-23%	Pass	2.80	Pass	Pass	4.53	Pass	Pass	2.45	Pass	Pass	4.31	Pass
HUNSDON ROAD	Z22	NEB	90	15	1	106	93	21	1	115	3	6	0	9	3%	40%	0%	8%	Pass	0.31	Pass	Pass	1.41	Pass	Pass	0.00	Pass	Pass	0.86	Pass
HUNSDON ROAD	Z22	SWB	63	10	1	74	93	11	0	104	30	1	-1	30	48%	10%	-100%	41%	Pass	3.40	Pass	Pass	0.31	Pass	Pass	1.41	Pass	Pass	3.18	Pass
0	Z23	EB	1264	202	27	1493	1221	128	21	1370	-43	-74	-6	-123	-3%	-37%	-22%	-8%	Pass	1.22	Pass	Pass	5.76	Fail	Pass	1.22	Pass	Pass	3.25	Pass
0	Z23	WB	1113	178	24	1315	968	160	23	1151	-145	-18	-1	-164	-13%	-10%	-4%	-12%	Pass	4.50	Pass	Pass	1.38	Pass	Pass	0.21	Pass	Pass	4.67	Pass
0	Z24	NB	263	42	3	308	271	44	2	317	8	2	-1	9	3%	5%	-33%	3%	Pass	0.49	Pass	Pass	0.30	Pass	Pass	0.63	Pass	Pass	0.51	Pass
0	Z24	SB	146	24	2	172	136	80	4	220	-10	56	2	48	-7%	233%	100%	28%	Pass	0.84	Pass	Pass	7.77	Fail	Pass	1.15	Pass	Pass	3.43	Pass
STATION ROAD	Z25	EB	717	116	9	842	590	109	7	706	-127	-7	-2	-136	-18%	-6%	-22%	-16%	Fail	4.97	Pass	Pass	0.66	Pass	Pass	0.71	Pass	Fail	4.89	Pass
STATION ROAD	Z25	WB	457	74	6	537	478	71	7	556	21	-3	1	19	5%	-4%	17%	4%	Pass	0.97	Pass	Pass	0.35	Pass	Pass	0.39	Pass	Pass	0.81	Pass
CROOKED MILE	Z26	NB	917	148	11	1076	932	145	12	1089	15	-3	1	13	2%	-2%	9%	1%	Pass	0.49	Pass	Pass	0.25	Pass	Pass	0.29	Pass	Pass	0.40	Pass
CROOKED MILE	Z26	SB	598	96	7	701	561	101	12	674	-37	5	5	-27	-6%	5%	71%	-4%	Pass	1.54	Pass	Pass	0.50	Pass	Pass	1.62	Pass	Pass	1.03	Pass

Screenline Calibration PM

Screenlines - Observed	TOTAL	TOTAL %age	CARS	CARS %age
Epping_IB_TOTAL	Fail	-6%	Pass	-4%
Epping_OB_TOTAL	Fail	-10%	Fail	-8%
Sawbridgeworth_IB_TOTAL	Pass	-1%	Pass	-3%
Sawbridgeworth_OB_TOTAL	Pass	0%	Pass	-1%
Harlow Cordon_IB_TOTAL	Pass	-2%	Pass	-2%
Harlow Cordon_OB_TOTAL	Pass	0%	Pass	0%
Stansted_IB_TOTAL	Pass	1%	Pass	0%
Stansted_OB_TOTAL	Pass	-3%	Pass	-3%
Bishop's Stortford_IB_TOTAL	Pass	0%	Pass	1%
Bishop's Stortford_OB_TOTAL	Pass	-2%	Pass	-1%
TOTAL	80%		90%	

Screenlines - Synthetic	TOTAL	TOTAL %age	CARS	CARS %age
Northern_SB_TOTAL	Pass	2%	Pass	1%
Northern_NB_TOTAL	Pass	0%	Pass	-1%
Ongar_NB_TOTAL	Pass	0%	Pass	2%
Ongar_SB_TOTAL	Pass	3%	Pass	3%
Chelmsford_EB_TOTAL	Pass	-2%	Pass	-1%
Chelmsford_WB_TOTAL	Pass	0%	Pass	0%
Eastern_EB_TOTAL	Pass	2%	Pass	2%
Eastern_WB_TOTAL	Pass	3%	Pass	2%
Ware_IB_TOTAL	Pass	0%	Pass	-1%
Ware_OB_TOTAL	Pass	0%	Pass	-1%
West of Ware_WB_TOTAL	Pass	1%	Pass	0%
West of Ware_EB_TOTAL	Pass	0%	Pass	0%
Northern_NoMway_NB_TOTAL	Pass	3%	Pass	1%
Northern_NoMway_SB_TOTAL	Pass	1%	Pass	1%
TOTAL (with motorway)	100%		100%	
TOTAL (without motorway)	100%		100%	

Screenlines - Total (with motorway)	91%		95%	
Screenlines - Total (without motorway)	91%		95%	

				EP Observed Flows				EP Modelled Flows				Absolute differences				%age Difference				CAR EP Performance			LGV EP Performance			HGV EP Performance			TOTAL EP Performance		
Screenline	Road Name	Count ID	Direction	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Flow Difference	GEH	GEH < 4	Flow Difference	GEH	GEH < 4	Flow Difference	GEH	GEH < 4	Flow Difference	GEH	GEH < 4
Epping_IB	BURY LANE	A1	SB	237	38	3	278	288	25	3	316	51	-13	0	38	22%	-34%	0%	14%	Fail	3.15	Pass	Fail	2.32	Pass	Pass	0.00	Pass	Fail	2.20	Pass
Epping_IB	LINDSEY STREET	A2	EB	127	20	2	149	87	12	0	99	-40	-8	-2	-50	-31%	-40%	-100%	-34%	Fail	3.87	Pass	Fail	2.00	Pass	Fail	2.00	Pass	Fail	4.49	Pass
Epping_IB	THORNWOOD ROAD	A3	SB	525	85	6	616	515	85	5	605	-10	0	-1	-11	-2%	0%	-17%	-2%	Pass	0.44	Pass	Pass	0.00	Pass	Fail	0.43	Pass	Pass	0.45	Pass
Epping_IB	EPPING ROAD	A4	SWB	323	52	4	379	331	53	4	388	8	1	0	9	2%	2%	0%	2%	Pass	0.44	Pass	Pass	0.14	Pass	Pass	0.00	Pass	Pass	0.46	Pass
Epping_IB	STONARDS HILL	A5	NWB	125	17	1	143	43	9	2	54	-82	-8	1	-89	-66%	-47%	100%	-62%	Fail	8.95	Fail	Fail	2.22	Pass	Fail	0.82	Pass	Fail	8.97	Fail
Epping_IB	BOWER HILL	A6	NB	109	15	0	124	121	12	1	134	12	-3	1	10	11%	-20%	N/A	8%	Fail	1.12	Pass	Fail	0.82	Pass	Fail	1.41	Pass	Fail	0.88	Pass
Epping_IB	BRIDGE HILL	A7	WB	89	12	0	101	122	8	0	130	33	-4	0	29	37%	-33%	0%	29%	Fail	3.21	Pass	Fail	1.26	Pass	Pass	0.00	Pass	Fail	2.70	Pass
Epping_IB	THEYDON ROAD	A8	NB	256	35	1	292	145	22	3	170	-111	-13	2	-122	-43%	-37%	200%	-42%	Fail	7.84	Fail	Fail	2.44	Pass	Fail	1.41	Pass	Fail	8.03	Fail
Epping_IB	EPPING ROAD	A9	NEB	635	103	8	746	666	85	6	757	31	-18	-2	11	5%	-17%	-25%	1%	Pass	1.22	Pass	Fail	1.86	Pass	Fail	0.76	Pass	Pass	0.40	Pass
Epping_IB_TOTAL				2426	377	25	2828	2318	311	24	2653	-108	-66	-1	-175	-4%	-18%	-4%	-6%	Pass	2.22	Pass	Fail	3.56	Pass	Pass	0.20	Pass	Fail	3.34	Pass
Epping_OB	BURY LANE	A1	NB	255	41	3	299	137	29	1	167	-118	-12	-2	-132	-46%	-29%	-67%	-44%	Fail	8.43	Fail	Fail	2.03	Pass	Fail	1.41	Pass	Fail	8.65	Fail
Epping_OB	LINDSEY STREET	A2	WB	198	32	2	232	283	22	0	305	85	-10	-2	73	43%	-31%	-100%	31%	Fail	5.48	Fail	Fail	1.92	Pass	Fail	2.00	Pass	Fail	4.46	Pass
Epping_OB	THORNWOOD ROAD	A3	NB	839	135	10	984	773	102	7	882	-66	-33	-3	-102	-8%	-24%	-30%	-10%	Fail	2.32	Pass	Fail	3.03	Pass	Fail	1.03	Pass	Fail	3.34	Pass
Epping_OB	EPPING ROAD	A4	NEB	480	77	6	563	420	79	4	503	-60	2	-2	-60	-13%	3%	-33%	-11%	Fail	2.83	Pass	Pass	0.23	Pass	Fail	0.89	Pass	Fail	2.60	Pass
Epping_OB	STONARDS HILL	A5	SEB	123	17	0	140	87	4	0	91	-36	-13	0	-49	-29%	-76%	0%	-35%	Fail	3.51	Pass	Fail	4.01	Pass	Pass	0.00	Pass	Fail	4.56	Pass
Epping_OB	BOWER HILL	A6	SB	153	21	1	175	114	13	0	127	-39	-8	-1	-48	-25%	-38%	-100%	-27%	Fail	3.38	Pass	Fail	1.94	Pass	Fail	1.41	Pass	Fail	3.91	Pass
Epping_OB	BRIDGE HILL	A7	EB	134	18	1	153	158	19	0	177	24	1	-1	24	18%	6%	-100%	16%	Fail	1.99	Pass	Fail	0.23	Pass	Fail	1.41	Pass	Fail	1.87	Pass
Epping_OB	THEYDON ROAD	A8	SB	225	30	1	256	296	23	1	320	71	-7	0	64	32%	-23%	0%	25%	Fail	4.40	Pass	Fail	1.38	Pass	Pass	0.00	Pass	Fail	3.77	Pass
Epping_OB	EPPING ROAD	A9	SWB	771	124	9	904	657	114	8	779	-114	-10	-1	-125	-15%	-8%	-11%	-14%	Fail	4.27	Pass	Fail	0.92	Pass	Fail	0.34	Pass	Fail	4.31	Pass
Epping_OB_TOTAL				3178	495	33	3706	2925	405	21	3351	-253	-90	-12	-355	-8%	-18%	-36%	-10%	Fail	4.58	Pass	Fail	4.24	Pass	Fail	2.31	Pass	Fail	5.98	Fail
Sawbridgeworth_IB	CAMBRIDGE ROAD	C1	SB	732	117	16	865	716	129	16	861	-16	12	0	-4	-2%	10%	0%	0%	Pass	0.59	Pass	Fail	1.08	Pass	Pass	0.00	Pass	Pass	0.14	Pass
Sawbridgeworth_IB	STATION ROAD	C2	WB	209	28	1	238	185	14	1	200	-24	-14	0	-38	-11%	-50%	0%	-16%	Fail	1.71	Pass	Fail	3.06	Pass	Pass	0.00	Pass	Fail	2.57	Pass
Sawbridgeworth_IB	SHEERING LOWER ROAD	C3	SB	184	25	1	210	155	21	0	176	-29	-4	-1	-34	-16%	-16%	-100%	-16%	Fail	2.23	Pass	Fail	0.83	Pass	Fail	1.41	Pass	Fail	2.45	Pass
Sawbridgeworth_IB	SHEERING LOWER ROAD	C4	NB	226	30	1	257	207	27	0	234	-19	-3	-1	-23	-8%	-10%	-100%	-9%	Fail	1.29	Pass	Fail	0.56	Pass	Fail	1.41	Pass	Fail	1.47	Pass
Sawbridgeworth_IB	HARLOW ROAD	C5	NB	536	86	11	633	702	138	18	858	166	52	7	225	31%	60%	64%	36%	Fail	6.67	Fail	Fail	4.91	Pass	Fail	1.84	Pass	Fail	8.24	Fail
Sawbridgeworth_IB	HIGH WYCH ROAD	C6	EB	487	66	2	555	330	61	4	395	-157	-5	2	-160	-32%	-8%	100%	-29%	Fail	7.77	Fail	Fail	0.63	Pass	Fail	1.15	Pass	Fail	7.34	Fail
Sawbridgeworth_IB	WEST ROAD	C7	EB	220	30	1	251	233	9	0	242	13	-21	-1	-9	6%	-70%	-100%	-4%	Fail	0.86	Pass	Fail	4.76	Pass	Fail	1.41	Pass	Pass	0.57	Pass
Sawbridgeworth_IB_TOTAL				2594	382	33	3009	2528	399	39	2966	-66	17	6	-43	-3%	4%	18%	-1%	Pass	1.30	Pass	Pass	0.86	Pass	Fail	1.00	Pass	Pass	0.79	Pass
Sawbridgeworth_OB	CAMBRIDGE ROAD	C1	NB	766	123	16	905	767	145	20	932	1	22	4	27	0%	18%	25%	3%	Pass	0.04	Pass	Fail	1.90	Pass	Fail	0.94	Pass	Pass	0.89	Pass
Sawbridgeworth_OB	STATION ROAD	C2	EB	219	30	1	250	174	19	0	193	-45	-11	-1	-57	-21%	-37%	-100%	-23%	Fail	3.21	Pass	Fail	2.22	Pass	Fail	1.41	Pass	Fail	3.83	Pass
Sawbridgeworth_OB	SHEERING LOWER ROAD	C3	NB	211	28	1	240	190	23	0	213	-21	-5	-1	-27	-10%	-18%	-100%	-11%	Fail	1.48	Pass	Fail	0.99	Pass	Fail	1.41	Pass	Fail	1.79	Pass
Sawbridgeworth_OB	SHEERING LOWER ROAD	C4	SB	91	12	0	103	96	19	0	115	5	7	0	12	5%	58%	0%	12%	Fail	0.52	Pass	Fail	1.78	Pass	Pass	0.00	Pass	Fail	1.15	Pass
Sawbridgeworth_OB	HARLOW ROAD	C5	SB	482	77	10	569	566	94	11	671	84	17	1	102	17%	22%	10%	18%	Fail	3.67	Pass	Fail	1.84	Pass	Fail	0.31	Pass	Fail	4.10	Pass
Sawbridgeworth_OB	HIGH WYCH ROAD	C6	WB	387	52	2	441	404	57	5	466	17	5	3	25	4%	10%	150%	6%	Pass	0.85	Pass	Fail	0.68	Pass	Fail	1.60	Pass	Fail	1.17	Pass
Sawbridgeworth_OB	WEST ROAD	C7	WB	163	22	1	186	90	13	0	103	-73	-9	-1	-83	-45%	-41%	-100%	-45%	Fail	6.49	Fail	Fail	2.15	Pass	Fail	1.41	Pass	Fail	6.90	Fail
Sawbridgeworth_OB_TOTAL				2319	344	31	2694	2287	370	36	2693	-32	26	5	-1	-1%	8%	16%	0%	Pass	0.67	Pass	Fail	1.38	Pass	Fail	0.86	Pass	Pass	0.02	Pass

				EP Observed Flows				EP Modelled Flows				Absolute differences				%age Difference				CAR EP Performance			LGV EP Performance			HGV EP Performance			TOTAL EP Performance		
Screenline	Road Name	Count ID	Direction	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Flow Difference	GEH	GEH < 4	Flow Difference	GEH	GEH < 4	Flow Difference	GEH	GEH < 4	Flow Difference	GEH	GEH < 4
Harlow Cordon_IB	HARLOW ROAD	D1	SB	594	95	13	702	566	94	11	671	-28	-1	-2	-31	-5%	-1%	-15%	-4%	Pass	1.16	Pass	Pass	0.10	Pass	Fail	0.58	Pass	Pass	1.18	Pass
Harlow Cordon_IB	GILDEN WAY	D2	SWB	514	83	6	603	545	103	8	656	31	20	2	53	6%	24%	33%	9%	Fail	1.35	Pass	Fail	2.07	Pass	Fail	0.76	Pass	Fail	2.11	Pass
East of M11_WB	HARLOW COMMON	B6/D3	WB	194	26	1	221	80	9	0	89	-114	-17	-1	-132	-59%	-65%	-100%	-60%	Fail	9.74	Fail	Fail	4.06	Pass	Fail	1.41	Pass	Fail	10.60	Fail
Harlow Cordon_IB	LONDON ROAD	D4	NB	1811	290	38	2139	1849	332	43	2224	38	42	5	85	2%	14%	13%	4%	Pass	0.89	Pass	Fail	2.38	Pass	Fail	0.79	Pass	Pass	1.82	Pass
Harlow Cordon_IB	RYE HILL ROAD	D5	NWB	146	20	1	167	145	17	0	162	-1	-3	-1	-5	-1%	-15%	-100%	-3%	Pass	0.08	Pass	Fail	0.70	Pass	Fail	1.41	Pass	Pass	0.39	Pass
Harlow Cordon_IB	PARSLOE ROAD	D6	NEB	360	49	1	410	212	9	1	222	-148	-40	0	-188	-41%	-82%	0%	-46%	Fail	8.75	Fail	Fail	7.43	Fail	Pass	0.00	Pass	Fail	10.58	Fail
Harlow Cordon_IB	WATER LANE	D7	NEB	730	118	9	857	765	125	9	899	35	7	0	42	5%	6%	0%	5%	Pass	1.28	Pass	Fail	0.64	Pass	Pass	0.00	Pass	Pass	1.42	Pass
Harlow Cordon_IB	HARLOW ROAD	D8	EB	111	15	0	126	102	81	4	187	-9	66	4	61	-8%	440%	N/A	48%	Fail	0.87	Pass	Fail	9.53	Fail	Fail	2.83	Pass	Fail	4.88	Pass
Harlow Cordon_IB	FIFTH AVENUE ALLENDE AVENUE	D9	SB	914	146	19	1079	986	95	18	1099	72	-51	-1	20	8%	-35%	-5%	2%	Fail	2.34	Pass	Fail	4.65	Pass	Fail	0.23	Pass	Pass	0.61	Pass
Harlow Cordon_IB_TOTAL				5374	842	88	6304	5250	865	94	6209	-124	23	6	-95	-2%	3%	7%	-2%	Pass	1.70	Pass	Pass	0.79	Pass	Fail	0.63	Pass	Pass	1.20	Pass
Harlow Cordon_OB	HARLOW ROAD	D1	NB	624	100	13	737	700	138	18	856	76	38	5	119	12%	38%	38%	16%	Fail	2.95	Pass	Fail	3.48	Pass	Fail	1.27	Pass	Fail	4.22	Pass
Harlow Cordon_OB	GILDEN WAY	D2	NEB	813	131	10	954	749	116	7	872	-64	-15	-3	-82	-8%	-11%	-30%	-9%	Fail	2.29	Pass	Fail	1.35	Pass	Fail	1.03	Pass	Fail	2.71	Pass
Harlow Cordon_OB	HARLOW COMMON	B6/D3	EB	141	19	1	161	31	6	2	39	-110	-13	1	-122	-78%	-68%	100%	-76%	Fail	11.86	Fail	Fail	3.68	Pass	Fail	0.82	Pass	Fail	12.20	Fail
Harlow Cordon_OB	LONDON ROAD	D4	SB	1586	254	34	1874	1743	274	35	2052	157	20	1	178	10%	8%	3%	9%	Fail	3.85	Pass	Fail	1.23	Pass	Pass	0.17	Pass	Fail	4.02	Pass
Harlow Cordon_OB	RYE HILL ROAD	D5	SEB	120	16	0	136	70	16	0	86	-50	0	0	-50	-42%	0%	0%	-37%	Fail	5.13	Fail	Pass	0.00	Pass	Pass	0.00	Pass	Fail	4.75	Pass
Harlow Cordon_OB	PARSLOE ROAD	D6	SWB	191	26	1	218	116	20	1	137	-75	-6	0	-81	-39%	-23%	0%	-37%	Fail	6.05	Fail	Fail	1.25	Pass	Pass	0.00	Pass	Fail	6.08	Fail
Harlow Cordon_OB	WATER LANE	D7	SWB	589	95	7	691	676	116	10	802	87	21	3	111	15%	22%	43%	16%	Fail	3.46	Pass	Fail	2.04	Pass	Fail	1.03	Pass	Fail	4.06	Pass
Harlow Cordon_OB	HARLOW ROAD	D8	WB	302	41	1	344	345	34	2	381	43	-7	1	37	14%	-17%	100%	11%	Fail	2.39	Pass	Fail	1.14	Pass	Fail	0.82	Pass	Fail	1.94	Pass
Harlow Cordon_OB	FIFTH AVENUE ALLENDE AVENUE	D9	NB	957	153	20	1130	883	147	19	1049	-74	-6	-1	-81	-8%	-4%	-5%	-7%	Fail	2.44	Pass	Pass	0.49	Pass	Fail	0.23	Pass	Fail	2.45	Pass
Harlow Cordon_OB_TOTAL				5323	835	87	6245	5313	867	94	6274	-10	32	7	29	0%	4%	8%	0%	Pass	0.14	Pass	Pass	1.10	Pass	Fail	0.74	Pass	Pass	0.37	Pass
Ongar_NB	BRENTWOOD ROAD	F1	NB	325	52	7	384	329	56	6	391	4	4	-1	7	1%	8%	-14%	2%	Pass	0.22	Pass	Fail	0.54	Pass	Fail	0.39	Pass	Pass	0.36	Pass
Ongar_NB	LONDON ROAD	F2	NEB	519	83	11	613	533	67	8	608	14	-16	-3	-5	3%	-19%	-27%	-1%	Pass	0.61	Pass	Fail	1.85	Pass	Fail	0.97	Pass	Pass	0.20	Pass
Ongar_NB_TOTAL				844	135	18	997	862	123	14	999	18	-12	-4	2	2%	-9%	-22%	0%	Pass	0.62	Pass	Fail	1.06	Pass	Fail	1.00	Pass	Pass	0.06	Pass
Ongar_SB	BRENTWOOD ROAD	F1	SB	271	43	6	320	298	42	10	350	27	-1	4	30	10%	-2%	67%	9%	Fail	1.60	Pass	Pass	0.15	Pass	Fail	1.41	Pass	Fail	1.64	Pass
Ongar_SB	LONDON ROAD	F2	SWB	250	40	5	295	240	41	4	285	-10	1	-1	-10	-4%	3%	-20%	-3%	Pass	0.64	Pass	Pass	0.16	Pass	Fail	0.47	Pass	Pass	0.59	Pass
Ongar_SB_TOTAL				521	83	11	615	538	83	14	635	17	0	3	20	3%	0%	27%	3%	Pass	0.74	Pass	Pass	0.00	Pass	Fail	0.85	Pass	Pass	0.80	Pass
Chelmsford_EB	ROXWELL ROAD	G1	EB	707	113	15	835	579	68	4	651	-128	-45	-11	-184	-18%	-40%	-73%	-22%	Fail	5.05	Fail	Fail	4.73	Pass	Fail	3.57	Pass	Fail	6.75	Fail
Chelmsford_EB	CHELMSFORD ROAD	G2	EB	309	42	1	352	330	46	2	378	21	4	1	26	7%	10%	100%	7%	Fail	1.17	Pass	Fail	0.60	Pass	Fail	0.82	Pass	Fail	1.36	Pass
Chelmsford_EB	0	G3	EB	581	93	12	686	645	123	10	778	64	30	-2	92	11%	32%	-17%	13%	Fail	2.58	Pass	Fail	2.89	Pass	Fail	0.60	Pass	Fail	3.40	Pass
Chelmsford_EB	THREE MILE HILL	G4	NB	1144	183	24	1351	1465	226	23	1714	321	43	-1	363	28%	23%	-4%	27%	Fail	8.89	Fail	Fail	3.01	Pass	Pass	0.21	Pass	Fail	9.27	Fail
Chelmsford_EB	WOOD STREET	G5	NB	489	79	6	574	166	22	4	192	-323	-57	-2	-382	-66%	-72%	-33%	-67%	Fail	17.85	Fail	Fail	8.02	Fail	Fail	0.89	Pass	Fail	19.52	Fail
Chelmsford_EB_TOTAL				3230	510	58	3798	3185	485	43	3713	-45	-25	-15	-85	-1%	-5%	-26%	-2%	Pass	0.79	Pass	Pass	1.12	Pass	Fail	2.11	Pass	Pass	1.39	Pass
Chelmsford_WB	ROXWELL ROAD	G1	WB	492	79	10	581	517	75	15	607	25	-4	5	26	5%	-5%	50%	4%	Fail	1.11	Pass	Fail	0.46	Pass	Fail	1.41	Pass	Pass	1.07	Pass
Chelmsford_WB	CHELMSFORD ROAD	G2	WB	364	49	1	414	378	53	3	434	14	4	2	20	4%	8%	200%	5%	Pass	0.73	Pass	Fail	0.56	Pass	Fail	1.41	Pass	Pass	0.97	Pass
Chelmsford_WB	0	G3	WB	450	72	10	532	451	72	9	532	1	0	-1	0	0%	0%	-10%	0%	Pass	0.05	Pass	Pass	0.00	Pass	Fail	0.32	Pass	Pass	0.00	Pass
Chelmsford_WB	THREE MILE HILL	G4	SB	1153	184	24	1361	1639	278	31	1948	486	94	7	587	42%	51%	29%	43%	Fail	13.01	Fail	Fail	6.18	Fail	Fail	1.33	Pass	Fail	14.43	Fail
Chelmsford_WB	WOOD STREET	G5	SB	704	114	9	827	180	20	4	204	-524	-94	-5	-623	-74%	-82%	-56%	-75%	Fail	24.92	Fail	Fail	11.48	Fail	Fail	1.96	Pass	Fail	27.44	Fail
Chelmsford_WB_TOTAL				3163	498	54	3715	3165	498	62	3725	2	0	8	10	0%	0%	15%	0%	Pass	0.04	Pass	Pass	0.00	Pass	Fail	1.05	Pass	Pass	0.16	Pass
Eastern_EB	0	H1	EB	1835	294	39	2168	2008	263	35	2306	173	-31	-4	138	9%	-11%	-10%	6%	Fail	3.95	Pass	Fail	1.86	Pass	Fail	0.66	Pass	Fail	2.92	Pass
Eastern_EB	0	H2	NEB	1282	205	27	1514	1402	240	26	1668	120	35	-1	154	9%	17%	-4%	10%	Fail	3.28	Pass	Fail	2.35	Pass	Pass	0.19	Pass	Fail	3.86	Pass
Eastern_EB	0	H3	EB	3688	590	78	4356	3508	656	79	4243	-180	66	1	-113	-5%	11%	1%	-3%	Pass	3.00	Pass	Fail	2.64	Pass	Pass	0.11	Pass	Pass	1.72	Pass
Eastern_EB_TOTAL				6805	1089	144	8038	6918	1159	140	8217	113	70	-4	179	2%	6%	-3%	2%	Pass	1.36	Pass	Fail	2.09	Pass	Pass	0.34	Pass	Pass	1.99	Pass
Eastern_WB	0	H1	WB	1059	169	22	1250	1183	162	23	1368	124	-7	1	118	12%	-4%	5%	9%	Fail	3.70	Pass	Pass	0.54	Pass	Pass	0.21	Pass	Fail	3.26	Pass
Eastern_WB	0	H2	SWB	791	126	17	934	830	161	20	1011	39	35	3	77	5%	28%	18%	8%	Pass	1.37	Pass	Fail	2.92	Pass	Fail	0.70	Pass	Fail	2.47	Pass
Eastern_WB	0	H3	WB	2837	454	60	3351	2786	486	59	3331	-51	32	-1	-20	-2%	7%	-2%	-1%	Pass	0.96	Pass	Fail	1.48	Pass	Pass	0.13	Pass	Pass	0.35	Pass
Eastern_WB_TOTAL				4687	749	99	5535	4799	809	102	5710	112	60	3	175	2%	8%	3%	3%	Pass	1.63	Pass	Fail	2.15	Pass	Pass	0.30	Pass	Pass	2.33	Pass
Stansted_IB	ROUND COPPICE ROAD	J1	NEB	275	37	1	313	306	43	4	353	31	6	3	40	11%	16%	300%	13%	Fail	1.82	Pass	Fail	0.95	Pass	Fail	1.90	Pass	Fail	2.19	Pass
Stansted_IB	CHURCH ROAD	J2	EB	212	29	1	242	178	26	1	205	-34	-3	0	-37	-16%	-10%	0%	-15%	Fail	2.43	Pass	Fail	0.57	Pass	Pass	0.00	Pass	Fail	2.47	Pass
Stansted_IB	HALL ROAD	J3	SB	117	16	0	133	129	23	1	153	12	7	1	20	10%	44%	N/A	15%	Fail	1.08	Pass	Fail	1.59	Pass	Fail	1.41	Pass	Fail	1.67	Pass
Stansted_IB	0	J4	SWB	58	8	0	66	58	12	1	71	0	4	1	5	0%	50%	N/A	8%	Pass	0.00	Pass	Fail	1.26	Pass	Fail	1.41	Pass	Fail	0.60	Pass
Stansted_IB	0	J5	NWB	39	5	0	44	0	22	0	22	-39	17	0	-22	-100%	340%	0%	-50%	Fail	8.83	Fail	Fail	4.63	Pass	Pass	0.00	Pass	Fail	3.83	Pass
Stansted_IB	PARSONAGE ROAD	J6	NB	190	26	1	217	214	19	2	235	24	-7	1	18	13%	-27%	100%	8%	Fail	1.69	Pass	Fail	1.48	Pass	Fail	0.82	Pass	Fail	1.20	Pass
Stansted_IB	0	J7	NWB	212	34	4	250	212	27	4	243	0	-7	0	-7	0%	-21%	0%	-3%	Pass	0.00	Pass	Fail	1.27	Pass	Pass	0.00	Pass	Pass	0.45	Pass
Stansted_IB	THREMHALL AVENUE	J8	NEB	681	109	14	804	685	105	13	803	4	-4	-1	-1	1%	-4%	-7%	0%	Pass	0.15	Pass	Pass	0.39	Pass	Fail	0.27	Pass	Pass	0.04	Pass
Stansted_IB_TOTAL				1784	264	21	2069	1782	277	26	2085	-2	13	5	16	0%	5%	24%	1%	Pass	0.05	Pass	Pass	0.79	Pass	Fail	1.03	Pass	Pass	0.35	Pass
Stansted_OB	ROUND COPPICE ROAD	J1	SWB	399	54	2	455	412	57	2	471	13	3	0	16	3%	6%	0%	4%	Pass	0.65	Pass	Fail	0.40	Pass	Pass	0.00	Pass	Pass	0.74	Pass
Stansted_OB	CHURCH ROAD	J2	WB	286	39	1	326	274	31	0	305	-12	-8	-1	-21	-4%	-21%	-100%	-6%	Pass	0.72	Pass	Fail	1.35	Pass	Fail	1.41	Pass	Fail	1.18	Pass
Stansted_OB	HALL ROAD	J3	NB	181	24	1	206	143	26	2	171	-38	2	1	-35	-21%	8%	100%	-17%	Fail	2.99	Pass	Fail	0.40	Pass	Fail	0.82	Pass	Fail	2.55	Pass
Stansted_OB	0	J4	NEB	128	17	1	146	147	9	0	156	19	-8	-1	10	15%	-47%	-100%	7%	Fail	1.62	Pass	Fail	2.22	Pass	Fail	1.41	Pass	Fail	0.81	Pass
Stansted_OB	0	J5	SEB	42	6	0	48	0	0	0	0	-42	-6	0	-48	-100%	-100%	0%	-100%	Fail	9.17	Fail	Fail	3.46	Pass	Pass	0.00	Pass	Fail	9.80	Fail
Stansted_OB	PARSONAGE ROAD	J6	SB	195	26	1	222	212	59	4	275	17	33	3	53	9%	127%	300%	24%	Fail	1.19	Pass	Fail	5.06	Fail	Fail	1.90	Pass	Fail	3.36	Pass
Stansted_OB	0	J7	SEB	335	54	7	396	319	49	5	373	-16	-5	-2	-23	-5%	-9%	-29%	-6%	Pass	0.88	Pass	Fail	0.70	Pass	Fail	0.82	Pass	Fail	1.17	Pass
Stansted_OB	THREMHALL AVENUE	J8	SWB	790	126	17	933	787	89	10	886	-3	-37	-7	-47	0%	-29%	-41%	-5%	Pass	0.11	Pass	Fail	3.57	Pass	Fail	1.91	Pass	Fail	1.56	Pass
Stansted_OB_TOTAL				2356	346	30	2732	2294	320	23	2637	-62	-26	-7	-95	-3%	-8%	-23%	-3%	Pass	1.29	Pass	Fail	1.42	Pass	Fail	1.36	Pass	Pass	1.83	Pass
Bishop's Stortford_IB	0	K1	WB	1324	212	28	1564	1264	161	18	1443	-60	-51	-10	-121	-5%	-24%	-36%	-8%	Pass	1.67	Pass	Fail	3.73	Pass	Fail	2.09	Pass	Fail	3.12	Pass
Bishop's Stortford_IB	HALLINGBURY ROAD	K2	NB	378	60	8	446	384	59	10	453	6	-1	2	7	2%	-2%	25%	2%	Pass	0.31	Pass	Pass	0.13	Pass	Fail	0.67	Pass	Pass	0.33	Pass
Bishop's Stortford_IB	0	K3	NB	678	108	14	800	689	134	13	836	11	26	-1	36	2%	24%	-7%	5%	Pass	0.42	Pass	Fail	2.36	Pass	Fail	0.27	Pass	Pass	1.26	Pass
Bishop's Stortford_IB	GREAT HADHAM ROAD	K4	EB	288	46	3	337	341	57	2	400	53	11	-1	63	18%	24%	-33%	19%	Fail	2.99	Pass	Fail	1.53	Pass	Fail	0.63	Pass	Fail	3.28	Pass
Bishop's Stortford_IB	STORTFORD ROAD	K5	EB	570	91	12	673	574	89	13	676	4	-2	1	3	1%	-2%	8%	0%	Pass	0.17	Pass	Pass	0.21	Pass	Fail	0.28	Pass	Pass	0.12	Pass
Bishop's Stortford_IB	HAZELEND ROAD	K6	SWB	160	22	1	183	83	8	1	92	-77	-14	0	-91	-48%	-64%	0%	-50%	Fail	6.99	Fail	Fail	3.61	Pass	Pass	0.00	Pass	Fail	7.76	Fail
Bishop's Stortford_IB	STANSTED ROAD	K7	SWB	531	86	6	623	611	90	10	711	80	4	4	88	15%	5%	67%	14%	Fail	3.35	Pass	Pass	0.43	Pass	Fail	1.41	Pass	Fail	3.41	Pass
Bishop's Stortford_IB	BIRCHANGER LANE	K8	SB	60	8	0	68	65	7	0	72	5	-1	0	4	8%	-13%	0%	6%	Fail	0.63	Pass	Fail	0.37	Pass	Pass	0.00	Pass	Fail	0.48	Pass
Bishop's Stortford_IB_TOTAL				3989	633	72	4694	4011	605	67	4683	22	-28	-5	-11	1%	-4%	-7%	0%	Pass	0.35	Pass	Pass	1.13	Pass	Fail	0.60	Pass	Pass	0.16	Pass
Bishop's Stortford_OB	0	K1	EB	1239	198	26	1463	1253	175	20	1448	14	-23	-6	-15	1%	-12%	-23%	-1%	Pass	0.40	Pass	Fail	1.68	Pass	Fail	1.25	Pass	Pass	0.39	Pass
Bishop's Stortford_OB	HALLINGBURY ROAD	K2	SB	389	62	8	459	388	46	3	437	-1	-16	-5	-22	0%	-26%	-63%	-5%	Pass	0.05	Pass	Fail	2.18	Pass	Fail	2.13	Pass	Pass	1.04	Pass
Bishop's Stortford_OB	0	K3	SB	626	100	13	739	627	115	16	758	1	15	3	19	0%	15%	23%	3%	Pass	0.04	Pass	Fail	1.45	Pass	Fail	0.79	Pass	Pass	0.69	Pass
Bishop's Stortford_OB	GREAT HADHAM ROAD	K4	WB	181	29	2	212	247	53	3	303	66	24	1	91	36%	83%	50%	43%	Fail	4.51	Pass	Fail	3.75	Pass	Fail	0.63	Pass	Fail	5.67	Fail
Bishop's Stortford_OB	STORTFORD ROAD	K5	WB	638	102	14	754	555	64	7	626	-83	-38	-7	-128	-13%	-37%	-50%	-17%	Fail	3.40	Pass	Fail	4.17	Pass	Fail	2.16	Pass	Fail	4.87	Pass
Bishop's Stortford_OB	HAZELEND ROAD	K6	NEB	306	41	1	348	201	17	1	219	-105	-24	0	-129	-34%	-59%	0%	-37%	Fail	6.59	Fail	Fail	4.46	Pass	Pass	0.00	Pass	Fail	7.66	Fail
Bishop's Stortford_OB	STANSTED ROAD	K7	NEB	768	124	9	901	846	137	9	992	78	13	0	91	10%	10%	0%	10%	Fail	2.75	Pass	Fail	1.14	Pass	Pass	0.00	Pass	Fail	2.96	Pass
Bishop's Stortford_OB	BIRCHANGER LANE	K8	NB	33	4	0	37	28	4	0	32	-5	0	0	-5	-15%	0%	0%	-14%	Fail	0.91	Pass	Pass	0.00	Pass	Pass	0.00	Pass	Fail	0.85	Pass
Bishop's Stortford_OB_TOTAL				4180	660	73	4913	4145	611	59	4815	-35	-49	-14	-98	-1%	-7%	-19%	-2%	Pass	0.54	Pass	Fail	1.94	Pass	Fail	1.72	Pass	Pass	1.41	Pass

Screenline Calibration PM

				EP Observed Flows				EP Modelled Flows				Absolute differences				%age Difference				CAR EP Performance			LGV EP Performance			HGV EP Performance			TOTAL EP Performance		
Screenline	Road Name	Count ID	Direction	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Flow Difference	GEH	GEH < 4	Flow Difference	GEH	GEH < 4	Flow Difference	GEH	GEH < 4	Flow Difference	GEH	GEH < 4
Northern_NB	BALDOCK ROAD	M1	WB	465	74	10	549	525	92	7	624	60	18	-3	75	13%	24%	-30%	14%	Fail	2.70	Pass	Fail	1.98	Pass	Fail	1.03	Pass	Fail	3.10	Pass
Northern_NB	LONDON ROAD	M2	NB	412	66	9	487	394	69	16	479	-18	3	7	-8	-4%	5%	78%	-2%	Pass	0.90	Pass	Pass	0.37	Pass	Fail	1.98	Pass	Pass	0.36	Pass
Northern_NB	LONDON ROAD	M3	NB	88	14	1	103	50	4	0	54	-38	-10	-1	-49	-43%	-71%	-100%	-48%	Fail	4.57	Pass	Fail	3.33	Pass	Fail	1.41	Pass	Fail	5.53	Fail
North of A120_NB	0	M4	NB	1968	422	71	2461	1931	435	56	2422	-37	13	-15	-39	-2%	3%	-21%	-2%	Pass	0.84	Pass	Pass	0.63	Pass	Fail	1.88	Pass	Pass	0.79	Pass
Northern_NB	LONDON ROAD	M5	NB	482	78	6	566	488	102	7	597	6	24	1	31	1%	31%	17%	5%	Pass	0.27	Pass	Fail	2.53	Pass	Fail	0.39	Pass	Fail	1.29	Pass
Northern_NB_TOTAL				3415	654	97	4166	3388	702	86	4176	-27	48	-11	10	-1%	7%	-11%	0%	Pass	0.46	Pass	Fail	1.84	Pass	Fail	1.15	Pass	Pass	0.15	Pass
Northern_SB	BALDOCK ROAD	M1	EB	338	54	7	399	407	56	6	469	69	2	-1	70	20%	4%	-14%	18%	Fail	3.58	Pass	Pass	0.27	Pass	Fail	0.39	Pass	Fail	3.36	Pass
Northern_SB	LONDON ROAD	M2	SB	311	50	7	368	270	62	9	341	-41	12	2	-27	-13%	24%	29%	-7%	Fail	2.41	Pass	Fail	1.60	Pass	Fail	0.71	Pass	Fail	1.43	Pass
Northern_SB	LONDON ROAD	M3	SB	82	13	1	96	50	4	0	54	-32	-9	-1	-42	-39%	-69%	-100%	-44%	Fail	3.94	Pass	Fail	3.09	Pass	Fail	1.41	Pass	Fail	4.85	Pass
North of A120_SB	0	M4	SB	2019	433	72	2524	2051	477	56	2584	32	44	-16	60	2%	10%	-22%	2%	Pass	0.71	Pass	Fail	2.06	Pass	Fail	2.00	Pass	Pass	1.19	Pass
Northern_SB	LONDON ROAD	M5	SB	593	96	7	696	606	100	9	715	13	4	2	19	2%	4%	29%	3%	Pass	0.53	Pass	Pass	0.40	Pass	Fail	0.71	Pass	Pass	0.72	Pass
Northern_SB_TOTAL				3343	646	94	4083	3384	699	80	4163	41	53	-14	80	1%	8%	-15%	2%	Pass	0.71	Pass	Fail	2.04	Pass	Fail	1.50	Pass	Pass	1.25	Pass
Ware_IB	WADESMILL ROAD	N1	SB	324	52	7	383	436	54	9	499	112	2	2	116	35%	4%	29%	30%	Fail	5.75	Fail	Pass	0.27	Pass	Fail	0.71	Pass	Fail	5.52	Fail
Ware_IB	0	N2	WB	20	3	0	23	2	0	0	2	-18	-3	0	-21	-90%	-100%	0%	-91%	Fail	5.43	Fail	Fail	2.45	Pass	Pass	0.00	Pass	Fail	5.94	Fail
Ware_IB	0	N3	WB	72	12	1	85	80	35	2	117	8	23	1	32	11%	192%	100%	38%	Fail	0.92	Pass	Fail	4.74	Pass	Fail	0.82	Pass	Fail	3.18	Pass
Ware_IB	HOLLYCROSS ROAD	N4	NWB	147	20	1	168	161	42	5	208	14	22	4	40	10%	110%	400%	24%	Fail	1.13	Pass	Fail	3.95	Pass	Fail	2.31	Pass	Fail	2.92	Pass
Ware_IB	VIADUCT ROAD	N5	NWB	483	77	10	570	430	87	9	526	-53	10	-1	-44	-11%	13%	-10%	-6%	Fail	2.48	Pass	Fail	1.10	Pass	Fail	0.32	Pass	Fail	1.88	Pass
Ware_IB	0	N6	NB	133	18	1	152	191	0	0	191	58	-18	-1	39	44%	-100%	-100%	26%	Fail	4.56	Pass	Fail	6.00	Fail	Fail	1.41	Pass	Fail	2.98	Pass
Ware_IB	WARE ROAD	N7	EB	483	77	10	570	480	59	12	551	-3	-18	2	-19	-1%	-23%	20%	-3%	Pass	0.14	Pass	Fail	2.18	Pass	Fail	0.60	Pass	Pass	0.80	Pass
Ware_IB	WESTMILL ROAD	N8	SEB	599	97	7	703	464	85	8	557	-135	-12	1	-146	-23%	-12%	14%	-21%	Fail	5.86	Fail	Fail	1.26	Pass	Fail	0.37	Pass	Fail	5.82	Fail
Ware_IB_TOTAL				2261	356	37	2654	2244	362	45	2651	-17	6	8	-3	-1%	2%	22%	0%	Pass	0.36	Pass	Pass	0.32	Pass	Fail	1.25	Pass	Pass	0.06	Pass
Ware_OB	WADESMILL ROAD	N1	NB	407	65	9	481	530	79	8	617	123	14	-1	136	30%	22%	-11%	28%	Fail	5.68	Fail	Fail	1.65	Pass	Fail	0.34	Pass	Fail	5.80	Fail
Ware_OB	0	N2	EB	32	4	0	36	11	0	0	11	-21	-4	0	-25	-66%	-100%	0%	-69%	Fail	4.53	Pass	Fail	2.83	Pass	Pass	0.00	Pass	Fail	5.16	Fail
Ware_OB	0	N3	EB	127	21	2	150	112	23	1	136	-15	2	-1	-14	-12%	10%	-50%	-9%	Fail	1.37	Pass	Fail	0.43	Pass	Fail	0.82	Pass	Fail	1.17	Pass
Ware_OB	HOLLYCROSS ROAD	N4	SEB	143	19	1	163	145	53	4	202	2	34	3	39	1%	179%	300%	24%	Pass	0.17	Pass	Fail	5.67	Fail	Fail	1.90	Pass	Fail	2.89	Pass
Ware_OB	VIADUCT ROAD	N5	SEB	513	82	11	606	502	68	13	583	-11	-14	2	-23	-2%	-17%	18%	-4%	Pass	0.49	Pass	Fail	1.62	Pass	Fail	0.58	Pass	Pass	0.94	Pass
Ware_OB	0	N6	SB	165	22	1	188	256	67	9	332	91	45	8	144	55%	205%	800%	77%	Fail	6.27	Fail	Fail	6.75	Fail	Fail	3.58	Pass	Fail	8.93	Fail
Ware_OB	WARE ROAD	N7	WB	286	46	6	338	200	3	1	204	-86	-43	-5	-134	-30%	-93%	-83%	-40%	Fail	5.52	Fail	Fail	8.69	Fail	Fail	2.67	Pass	Fail	8.14	Fail
Ware_OB	WESTMILL ROAD	N8	NWB	670	108	8	786	559	90	10	659	-111	-18	2	-127	-17%	-17%	25%	-16%	Fail	4.48	Pass	Fail	1.81	Pass	Fail	0.67	Pass	Fail	4.72	Pass
Ware_OB_TOTAL				2343	367	38	2748	2315	383	46	2744	-28	16	8	-4	-1%	4%	21%	0%	Pass	0.58	Pass	Pass	0.83	Pass	Fail	1.23	Pass	Pass	0.08	Pass
West of Ware_WB	WESTMILL ROAD	Q3	NB	1153	184	24	1361	1049	175	18	1242	-104	-9	-6	-119	-9%	-5%	-25%	-9%	Fail	3.13	Pass	Pass	0.67	Pass	Fail	1.31	Pass	Fail	3.30	Pass
West of Ware_WB	WADESMILL ROAD	Q4	NEB	367	59	4	430	504	48	9	561	137	-11	5	131	37%	-19%	125%	30%	Fail	6.56	Fail	Fail	1.50	Pass	Fail	1.96	Pass	Fail	5.89	Fail
West of Ware_WB	0	Q5	NB	454	73	10	537	443	70	12	525	-11	-3	2	-12	-2%	-4%	20%	-2%	Pass	0.52	Pass	Pass	0.35	Pass	Fail	0.60	Pass	Pass	0.52	Pass
West of Ware_WB	WELWYN ROAD	Q6	WB	442	71	5	518	290	38	6	334	-152	-33	1	-184	-34%	-46%	20%	-36%	Fail	7.95	Fail	Fail	4.47	Pass	Fail	0.43	Pass	Fail	8.91	Fail
West of Ware_WB	0	Q7	WB	1005	161	21	1187	1194	214	26	1434	189	53	5	247	19%	33%	24%	21%	Fail	5.70	Fail	Fail	3.87	Pass	Fail	1.03	Pass	Fail	6.82	Fail
West of Ware_WB	LOWER HATFIELD ROAD	Q8	SWB	215	35	3	253	220	30	2	252	5	-5	-1	-1	2%	-14%	-33%	0%	Pass	0.34	Pass	Fail	0.88	Pass	Fail	0.63	Pass	Pass	0.06	Pass
West of Ware_WB	0	Q9	SB	1937	310	41	2288	1888	272	36	2196	-49	-38	-5	-92	-3%	-12%	-12%	-4%	Pass	1.12	Pass	Fail	2.23	Pass	Fail	0.81	Pass	Pass	1.94	Pass
West of Ware_WB	HIGH ROAD	Q10	SB	730	117	15	862	739	204	25	968	9	87	10	106	1%	74%	67%	12%	Pass	0.33	Pass	Fail	6.87	Fail	Fail	2.24	Pass	Fail	3.50	Pass
West of Ware_WB_TOTAL				6303	1010	123	7436	6327	1051	134	7512	24	41	11	76	0%	4%	9%	1%	Pass	0.30	Pass	Pass	1.28	Pass	Fail	0.97	Pass	Pass	0.88	Pass
West of Ware_EB	WESTMILL ROAD	Q3	SB	981	157	21	1159	846	130	19	995	-135	-27	-2	-164	-14%	-17%	-10%	-14%	Fail	4.47	Pass	Fail	2.25	Pass	Fail	0.45	Pass	Fail	5.00	Pass
West of Ware_EB	WADESMILL ROAD	Q4	SWB	258	42	3	303	243	37	5	285	-15	-5	2	-18	-6%	-12%	67%	-6%	Fail	0.95	Pass	Fail	0.80	Pass	Fail	1.00	Pass	Fail	1.05	Pass
West of Ware_EB	0	Q5	SB	174	28	4	206	182	48	10	240	8	20	6	34	5%	71%	150%	17%	Pass	0.60	Pass	Fail	3.24	Pass	Fail	2.27	Pass	Fail	2.28	Pass
West of Ware_EB	WELWYN ROAD	Q6	EB	245	40	3	288	408	84	16	508	163	44	13	220	67%	110%	433%	76%	Fail	9.02	Fail	Fail	5.59	Fail	Fail	4.22	Pass	Fail	11.03	Fail
West of Ware_EB	0	Q7	EB	1181	189	25	1395	1124	167	22	1313	-57	-22	-3	-82	-5%	-12%	-12%	-6%	Pass	1.68	Pass	Fail	1.65	Pass	Fail	0.62	Pass	Fail	2.23	Pass
West of Ware_EB	LOWER HATFIELD ROAD	Q8	NEB	455	73	6	534	446	48	3	497	-9	-25	-3	-37	-2%	-34%	-50%	-7%	Pass	0.42	Pass	Fail	3.21	Pass	Fail	1.41	Pass	Fail	1.63	Pass
West of Ware_EB	0	Q9	NB	2088	334	44	2466	2210	369	31	2610	122	35	-13	144	6%	10%	-30%	6%	Fail	2.63	Pass	Fail	1.87	Pass	Fail	2.12	Pass	Fail	2.86	Pass
West of Ware_EB	HIGH ROAD	Q10	NB	891	143	19	1053	794	161	31	986	-97	18	12	-67	-11%	13%	63%	-6%	Fail	3.34	Pass	Fail	1.46	Pass	Fail	2.40	Pass	Fail	2.10	Pass
West of Ware_EB_TOTAL				6273	1006	125	7404	6253	1044	137	7434	-20	38	12	30	0%	4%	10%	0%	Pass	0.25	Pass	Pass	1.19	Pass	Fail	1.05	Pass	Pass	0.35	Pass
Northern_NB	BALDOCK ROAD	M1	WB	465	74	10	549	525	92	7	624	60	18	-3	75	13%	24%	-30%	14%	Fail	2.70	Pass	Fail	1.98	Pass	Fail	1.03	Pass	Fail	3.10	Pass
Northern_NB	LONDON ROAD	M2	NB	412	66	9	487	394	69	16	479	-18	3	7	-8	-4%	5%	78%	-2%	Pass	0.90	Pass	Pass	0.37	Pass	Fail	1.98	Pass	Pass	0.36	Pass
Northern_NB	LONDON ROAD	M3	NB	88	14	1	103	50	4	0	54	-38	-10	-1	-49	-43%	-71%	-100%	-48%	Fail	4.57	Pass	Fail	3.33	Pass	Fail	1.41	Pass	Fail	5.53	Fail
Northern_NB	LONDON ROAD	M5	NB	482	78	6	566	488	102	7	597	6	24	1	31	1%	31%	17%	5%	Pass	0.27	Pass	Fail	2.53	Pass	Fail	0.39	Pass	Fail	1.29	Pass
Northern_NoMway_NB_TOTAL				1447	232	26	1705	1457	267	30	1754	10	35	4	49	1%	15%	15%	3%	Pass	0.26	Pass	Fail	2.22	Pass	Fail	0.76	Pass	Pass	1.18	Pass
Northern_SB	BALDOCK ROAD	M1	EB	338	54	7	399	407	56	6	469	69	2	-1	70	20%	4%	-14%	18%	Fail	3.58	Pass	Pass	0.27	Pass	Fail	0.39	Pass	Fail	3.36	Pass
Northern_SB	LONDON ROAD	M2	SB	311	50	7	368	270	62	9	341	-41	12	2	-27	-13%	24%	29%	-7%	Fail	2.41	Pass	Fail	1.60	Pass	Fail	0.71	Pass	Fail	1.43	Pass
Northern_SB	LONDON ROAD	M3	SB	82	13	1	96	50	4	0	54	-32	-9	-1	-42	-39%	-69%	-100%	-44%	Fail	3.94	Pass	Fail	3.09	Pass	Fail	1.41	Pass	Fail	4.85	Pass
Northern_SB	LONDON ROAD	M5	SB	593	96	7	696	606	100	9	715	13	4	2	19	2%	4%	29%	3%	Pass	0.53	Pass	Pass	0.40	Pass	Fail	0.71	Pass	Pass	0.72	Pass
Northern_NoMway_SB_TOTAL				1324	213	22	1559	1333	222	24	1579	9	9	2	20	1%	4%	9%	1%	Pass	0.25	Pass	Pass	0.61	Pass	Fail	0.42	Pass	Pass	0.50	Pass

Appendix D. Link and Screenline Validation

Link Validation AM

Summary		TOTAL	CARS	LGV	HGV
DMRB	Pass	81%	79%	98%	100%
	Fail High	2%	6%	0%	0%
	Fail Low	17%	15%	2%	0%
GEH	Pass	63%	63%	94%	96%
	Fail High	10%	12%	2%	0%
	Fail Low	27%	25%	4%	4%

			MP Observed Flows				MP Modelled Flows				Absolute differences				%age Difference				CAR MP Performance			LGV MP Performance			HGV MP Performance			TOTAL MP Performance		
Road Name	Count ID	Direction	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Flow Difference	GEH	GEH < 5	Flow Difference	GEH	GEH < 5	Flow Difference	GEH	GEH < 5	Flow Difference	GEH	GEH < 5
0	B1	NB	272	52	17	341	208	39	25	272	-64	-13	8	-69	-24%	-25%	47%	-20%	Pass	4.13	Pass	Pass	1.93	Pass	Pass	1.75	Pass	Pass	3.94	Pass
0	B1	SB	318	61	20	399	281	54	26	361	-37	-7	6	-38	-12%	-11%	30%	-10%	Pass	2.14	Pass	Pass	0.92	Pass	Pass	1.25	Pass	Pass	1.95	Pass
SAWBRIDGEWORTH ROAD	B2	EB	180	22	2	204	148	10	0	158	-32	-12	-2	-46	-18%	-55%	-100%	-23%	Pass	2.50	Pass	Pass	3.00	Pass	Pass	2.00	Pass	Pass	3.42	Pass
SAWBRIDGEWORTH ROAD	B2	WB	227	27	3	257	135	16	0	151	-92	-11	-3	-106	-41%	-41%	-100%	-41%	Pass	6.84	Fail	Pass	2.37	Pass	Pass	2.45	Pass	Fail	7.42	Fail
THE STREET	B3	EB	291	46	8	345	375	57	9	441	84	11	1	96	29%	24%	13%	28%	Pass	4.60	Pass	Pass	1.53	Pass	Pass	0.34	Pass	Pass	4.84	Pass
THE STREET	B3	WB	579	91	16	686	599	97	20	716	20	6	4	30	3%	7%	25%	4%	Pass	0.82	Pass	Pass	0.62	Pass	Pass	0.94	Pass	Pass	1.13	Pass
MATCHING ROAD	B4	EB	43	5	1	49	99	14	2	115	56	9	1	66	130%	180%	100%	135%	Pass	6.65	Fail	Pass	2.92	Pass	Pass	0.82	Pass	Pass	7.29	Fail
MATCHING ROAD	B4	WB	58	7	1	66	80	9	2	91	22	2	1	25	38%	29%	100%	38%	Pass	2.65	Pass	Pass	0.71	Pass	Pass	0.82	Pass	Pass	2.82	Pass
HOBBS CROSS ROAD	B5	EB	112	14	1	127	40	5	1	46	-72	-9	0	-81	-64%	-64%	0%	-64%	Pass	8.26	Fail	Pass	2.92	Pass	Pass	0.00	Pass	Pass	8.71	Fail
HOBBS CROSS ROAD	B5	WB	100	12	1	113	62	4	3	69	-38	-8	2	-44	-38%	-67%	200%	-39%	Pass	4.22	Pass	Pass	2.83	Pass	Pass	1.41	Pass	Pass	4.61	Pass
HARLOW COMMON	B6/D3	EB	181	22	2	205	39	4	3	46	-142	-18	1	-159	-78%	-82%	50%	-78%	Fail	13.54	Fail	Pass	4.99	Pass	Pass	0.63	Pass	Fail	14.19	Fail
HARLOW COMMON	B6/D3	WB	103	12	1	116	129	9	2	140	26	-3	1	24	25%	-25%	100%	21%	Pass	2.41	Pass	Pass	0.93	Pass	Pass	0.82	Pass	Pass	2.12	Pass
HASTINGWOOD ROAD	B7	NEB	101	12	1	114	168	13	0	181	67	1	-1	67	66%	8%	-100%	59%	Pass	5.78	Fail	Pass	0.28	Pass	Pass	1.41	Pass	Pass	5.52	Fail
HASTINGWOOD ROAD	B7	SWB	155	19	2	176	91	17	0	108	-64	-2	-2	-68	-41%	-11%	-100%	-39%	Pass	5.77	Fail	Pass	0.47	Pass	Pass	2.00	Pass	Pass	5.71	Fail
CANES LANE	B8	NWB	601	116	39	756	761	75	23	859	160	-41	-16	103	27%	-35%	-41%	14%	Fail	6.13	Fail	Pass	4.20	Pass	Pass	2.87	Pass	Pass	3.62	Pass
CANES LANE	B8	SEB	444	85	28	557	452	60	20	532	8	-25	-8	-25	2%	-29%	-29%	-4%	Pass	0.38	Pass	Pass	2.94	Pass	Pass	1.63	Pass	Pass	1.07	Pass
EDINBURGH WAY	E1	EB	517	100	33	650	695	184	68	947	178	84	35	297	34%	84%	106%	46%	Fail	7.23	Fail	Pass	7.05	Fail	Pass	4.93	Pass	Fail	10.51	Fail
EDINBURGH WAY	E1	WB	891	172	57	1120	880	172	52	1104	-11	0	-5	-16	-1%	0%	-9%	-1%	Pass	0.37	Pass	Pass	0.00	Pass	Pass	0.68	Pass	Pass	0.48	Pass
FIRST AVENUE MANDELA AVENUE	E2	EB	601	73	8	682	720	51	8	779	119	-22	0	97	20%	-30%	0%	14%	Fail	4.63	Pass	Pass	2.79	Pass	Pass	0.00	Pass	Pass	3.59	Pass
FIRST AVENUE MANDELA AVENUE	E2	WB	971	117	12	1100	1057	148	25	1230	86	31	13	130	9%	26%	108%	12%	Pass	2.70	Pass	Pass	2.69	Pass	Pass	3.02	Pass	Pass	3.81	Pass
SECOND AVENUE	E3	EB	554	107	36	697	558	149	46	753	4	42	10	56	1%	39%	28%	8%	Pass	0.17	Pass	Pass	3.71	Pass	Pass	1.56	Pass	Pass	2.08	Pass
SECOND AVENUE	E3	WB	802	154	51	1007	862	212	65	1139	60	58	14	132	7%	38%	27%	13%	Pass	2.08	Pass	Pass	4.29	Pass	Pass	1.84	Pass	Pass	4.03	Pass
SOUTHERN WAY	E4	EB	690	133	44	867	705	38	6	749	15	-95	-38	-118	2%	-71%	-86%	-14%	Pass	0.57	Pass	Pass	10.27	Fail	Pass	7.60	Fail	Pass	4.15	Pass
SOUTHERN WAY	E4	WB	922	178	59	1159	595	58	10	663	-327	-120	-49	-496	-35%	-67%	-83%	-43%	Fail	11.87	Fail	Fail	11.05	Fail	Pass	8.34	Fail	Fail	16.43	Fail
MAUNDS HATCH	E5	NEB	213	26	3	242	151	15	0	166	-62	-11	-3	-76	-29%	-42%	-100%	-31%	Pass	4.60	Pass	Pass	2.43	Pass	Pass	2.45	Pass	Pass	5.32	Fail
MAUNDS HATCH	E5	SWB	238	29	3	270	286	24	0	310	48	-5	-3	40	20%	-17%	-100%	15%	Pass	2.97	Pass	Pass	0.97	Pass	Pass	2.45	Pass	Pass	2.35	Pass
0	L1	NWB	17	2	0	19	2	2	2	6	-15	0	2	-13	-88%	0%	N/A	-68%	Pass	4.87	Pass	Pass	0.00	Pass	Pass	2.00	Pass	Pass	3.68	Pass
0	L1	SEB	13	2	0	15	6	1	0	7	-7	-1	0	-8	-54%	-50%	0%	-53%	Pass	2.27	Pass	Pass	0.82	Pass	Pass	0.00	Pass	Pass	2.41	Pass
0	L2	NB	21	3	0	24	3	1	0	4	-18	-2	0	-20	-86%	-67%	0%	-83%	Pass	5.20	Fail	Pass	1.41	Pass	Pass	0.00	Pass	Pass	5.35	Fail
0	L2	SB	32	4	0	36	24	1	0	25	-8	-3	0	-11	-25%	-75%	0%	-31%	Pass	1.51	Pass	Pass	1.90	Pass	Pass	0.00	Pass	Pass	1.99	Pass
0	L3	NB	49	6	1	56	29	7	2	38	-20	1	1	-18	-41%	17%	100%	-32%	Pass	3.20	Pass	Pass	0.39	Pass	Pass	0.82	Pass	Pass	2.63	Pass
0	L3	SB	99	12	1	112	37	6	2	45	-62	-6	1	-67	-63%	-50%	100%	-60%	Pass	7.52	Fail	Pass	2.00	Pass	Pass	0.82	Pass	Pass	7.56	Fail
THE STREET	L4	NB	118	14	2	134	132	14	3	149	14	0	1	15	12%	0%	50%	11%	Pass	1.25	Pass	Pass	0.00	Pass	Pass	0.63	Pass	Pass	1.26	Pass
THE STREET	L4	SB	175	21	2	198	142	17	4	163	-33	-4	2	-35	-19%	-19%	100%	-18%	Pass	2.62	Pass	Pass	0.92	Pass	Pass	1.15	Pass	Pass	2.61	Pass
0	L5	NB	322	51	9	382	299	80	6	385	-23	29	-3	3	-7%	57%	-33%	1%	Pass	1.31	Pass	Pass	3.58	Pass	Pass	1.10	Pass	Pass	0.15	Pass
0	L5	SB	438	69	12	519	335	44	11	390	-103	-25	-1	-129	-24%	-36%	-8%	-25%	Fail	5.24	Fail	Pass	3.33	Pass	Pass	0.29	Pass	Fail	6.05	Fail
NORTH HALL ROAD	L6	NB	66	8	1	75	120	12	2	134	54	4	1	59	82%	50%	100%	79%	Pass	5.60	Fail	Pass	1.26	Pass	Pass	0.82	Pass	Pass	5.77	Fail
NORTH HALL ROAD	L6	SB	42	5	1	48	91	19	3	113	49	14	2	65	117%	280%	200%	135%	Pass	6.01	Fail	Pass	4.04	Pass	Pass	1.41	Pass	Pass	7.24	Fail
STATION ROAD	Z6	NB	128	20	4	152	130	22	9	161	2	2	5	9	2%	10%	125%	6%	Pass	0.18	Pass	Pass	0.44	Pass	Pass	1.96	Pass	Pass	0.72	Pass
STATION ROAD	Z6	SB	304	48	9	361	253	53	23	329	-51	5	14	-32	-17%	10%	156%	-9%	Pass	3.06	Pass	Pass	0.70	Pass	Pass	3.50	Pass	Pass	1.72	Pass
ONGAR ROAD	Z11	NEB	117	18	3	138	140	26	9	175	23	8	6	37	20%	44%	200%	27%	Pass	2.03	Pass	Pass	1.71	Pass	Pass	2.45	Pass	Pass	2.96	Pass
ONGAR ROAD	Z11	SWB	255	40	7	302	227	42	9	278	-28	2	2	-24	-11%	5%	29%	-8%	Pass	1.80	Pass	Pass	0.31	Pass	Pass	0.71	Pass	Pass	1.41	Pass
LONDON ROAD	Z14	NB	382	60	11	453	299	60	11	370	-83	0	0	-83	-22%	0%	0%	-18%	Pass	4.50	Pass	Pass	0.00	Pass	Pass	0.00	Pass	Pass	4.09	Pass
LONDON ROAD	Z14	SB	360	57	10	427	364	63	19	446	4	6	9	19	1%	11%	90%	4%	Pass	0.21	Pass	Pass	0.77	Pass	Pass	2.36	Pass	Pass	0.91	Pass
OBREY WAY	Z15	NB	195	23	2	220	86	18	0	104	-109	-5	-2	-116	-56%	-22%	-100%	-53%	Fail	9.20	Fail	Pass	1.10	Pass	Pass	2.00	Pass	Fail	9.11	Fail
OBREY WAY	Z15	SB	256	31	3	290	131	31	4	166	-125	0	1	-124	-49%	0%	33%	-43%	Fail	8.99	Fail	Pass	0.00	Pass	Pass	0.53	Pass	Fail	8.21	Fail
GREAT HADHAM ROAD	Z16	EB	217	34	6	257	162	21	9	192	-55	-13	3	-65	-25%	-38%	50%	-25%	Pass	4.00	Pass	Pass	2.48	Pass	Pass	1.10	Pass	Pass	4.34	Pass
GREAT HADHAM ROAD	Z16	WB	240	38	7	285	228	19	2	249	-12	-19	-5	-36	-5%	-50%	-71%	-13%	Pass	0.78	Pass	Pass	3.56	Pass	Pass	2.36	Pass	Pass	2.20	Pass
HADHAM ROAD	Z18	EB	533	84	15	632	283	51	12	346	-250	-33	-3	-286	-47%	-39%	-20%	-45%	Fail	12.38	Fail	Pass	4.02	Pass	Pass	0.82	Pass	Fail	12.93	Fail
HADHAM ROAD	Z18	WB	353	56	10	419	245	47	16	308	-108	-9	6	-111	-31%	-16%	60%	-26%	Fail	6.25	Fail	Pass	1.25	Pass	Pass	1.66	Pass	Fail	5.82	Fail
0	Z27	NB	609	117	39	765	678	89	30	797	69	-28	-9	32	11%	-24%	-23%	4%	Pass	2.72	Pass	Pass	2.76	Pass	Pass	1.53	Pass	Pass	1.15	Pass
0	Z27	SB	989	191	63	1243	753	200	70	1023	-236	9	7	-220	-24%	5%	11%	-18%	Fail	8.00	Fail	Pass	0.64	Pass	Pass	0.86	Pass	Fail	6.54	Fail

Screenline Validation AM

Screenline	TOTAL	TOTAL %age	CARS	CARS %age
Harlow Screenline_EB_TOTAL	Fail	8%	Fail	10%
Harlow Screenline_WB_TOTAL	Pass	-5%	Pass	-4%
East of M11_EB_TOTAL	Fail	-6%	Pass	-4%
East of M11_WB_TOTAL	Pass	-4%	Pass	-1%
North of A120_NB_TOTAL	Pass	4%	Pass	-1%
North of A120_SB_TOTAL	Fail	-20%	Fail	-21%
	50%		67%	

				MP Observed Flows				MP Modelled Flows				Absolute differences				%age Difference				CAR MP Performance			LGV MP Performance			HGV MP Performance			TOTAL MP Performance		
Screenline	Road Name	Count ID	Direction	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Flow Difference	GEH	GEH < 4	Flow Difference	GEH	GEH < 4	Flow Difference	GEH	GEH < 4	Flow Difference	GEH	GEH < 4
Harlow Screenline_EB	EDINBURGH WAY	E1	EB	517	100	33	650	695	184	68	947	178	84	35	297	34%	84%	106%	46%	Fail	7.23	Fail	Fail	7.05	Fail	Fail	4.93	Pass	Fail	10.51	Fail
Harlow Screenline_EB	FIRST AVENUE MANDELA AVENUE	E2	EB	601	73	8	682	720	51	8	779	119	-22	0	97	20%	-30%	0%	14%	Fail	4.63	Pass	Fail	2.79	Pass	Pass	0.00	Pass	Fail	3.59	Pass
Harlow Screenline_EB	SECOND AVENUE	E3	EB	554	107	36	697	558	149	46	753	4	42	10	56	1%	39%	28%	8%	Pass	0.17	Pass	Fail	3.71	Pass	Fail	1.56	Pass	Fail	2.08	Pass
Harlow Screenline_EB	SOUTHERN WAY	E4	EB	690	133	44	867	705	38	6	749	15	-95	-38	-118	2%	-71%	-86%	-14%	Pass	0.57	Pass	Fail	10.27	Fail	Fail	7.60	Fail	Fail	4.15	Pass
Harlow Screenline_EB	MAUNDS HATCH	E5	NEB	213	26	3	242	151	15	0	166	-62	-11	-3	-76	-29%	-42%	-100%	-31%	Fail	4.60	Pass	Fail	2.43	Pass	Fail	2.45	Pass	Fail	5.32	Fail
Harlow Screenline_EB_TOTAL				2575	439	124	3138	2829	437	128	3394	254	-2	4	256	10%	0%	3%	8%	Fail	4.89	Pass	Pass	0.10	Pass	Pass	0.36	Pass	Fail	4.48	Pass
Harlow Screenline_WB	EDINBURGH WAY	E1	WB	891	172	57	1120	880	172	52	1104	-11	0	-5	-16	-1%	0%	-9%	-1%	Pass	0.37	Pass	Pass	0.00	Pass	Fail	0.68	Pass	Pass	0.48	Pass
Harlow Screenline_WB	FIRST AVENUE MANDELA AVENUE	E2	WB	971	117	12	1100	1057	148	25	1230	86	31	13	130	9%	26%	108%	12%	Fail	2.70	Pass	Fail	2.69	Pass	Fail	3.02	Pass	Fail	3.81	Pass
Harlow Screenline_WB	SECOND AVENUE	E3	WB	802	154	51	1007	862	212	65	1139	60	58	14	132	7%	38%	27%	13%	Fail	2.08	Pass	Fail	4.29	Pass	Fail	1.84	Pass	Fail	4.03	Pass
Harlow Screenline_WB	SOUTHERN WAY	E4	WB	922	178	59	1159	595	58	10	663	-327	-120	-49	-496	-35%	-67%	-83%	-43%	Fail	11.87	Fail	Fail	11.05	Fail	Fail	8.34	Fail	Fail	16.43	Fail
Harlow Screenline_WB	MAUNDS HATCH	E5	SWB	238	29	3	270	286	24	0	310	48	-5	-3	40	20%	-17%	-100%	15%	Fail	2.97	Pass	Fail	0.97	Pass	Fail	2.45	Pass	Fail	2.35	Pass
Harlow Screenline_WB_TOTAL				3824	650	182	4656	3680	614	152	4446	-144	-36	-30	-210	-4%	-6%	-16%	-5%	Pass	2.35	Pass	Fail	1.43	Pass	Fail	2.32	Pass	Pass	3.11	Pass
East of M11_EB	0	B1	SB	318	61	20	399	281	54	26	361	-37	-7	6	-38	-12%	-11%	30%	-10%	Fail	2.14	Pass	Fail	0.92	Pass	Fail	1.25	Pass	Fail	1.95	Pass
East of M11_EB	SAWBRIDGEWORTH ROAD	B2	EB	180	22	2	204	148	10	0	158	-32	-12	-2	-46	-18%	-55%	-100%	-23%	Fail	2.50	Pass	Fail	3.00	Pass	Fail	2.00	Pass	Fail	3.42	Pass
East of M11_EB	THE STREET	B3	EB	291	46	8	345	375	57	9	441	84	11	1	96	29%	24%	13%	28%	Fail	4.60	Pass	Fail	1.53	Pass	Fail	0.34	Pass	Fail	4.84	Pass
East of M11_EB	MATCHING ROAD	B4	EB	43	5	1	49	99	14	2	115	56	9	1	66	130%	180%	100%	135%	Fail	6.65	Fail	Fail	2.92	Pass	Fail	0.82	Pass	Fail	7.29	Fail
East of M11_EB	HOBBS CROSS ROAD	B5	EB	112	14	1	127	40	5	1	46	-72	-9	0	-81	-64%	-64%	0%	-64%	Fail	8.26	Fail	Fail	2.92	Pass	Pass	0.00	Pass	Fail	8.71	Fail
Harlow Cordon_OB,East of M11_EB	HARLOW COMMON	B6/D3	EB	181	22	2	205	39	4	3	46	-142	-18	1	-159	-78%	-82%	50%	-78%	Fail	13.54	Fail	Fail	4.99	Pass	Fail	0.63	Pass	Fail	14.19	Fail
East of M11_EB	HASTINGWOOD ROAD	B7	NEB	101	12	1	114	168	13	0	181	67	1	-1	67	66%	8%	-100%	59%	Fail	5.78	Fail	Fail	0.28	Pass	Fail	1.41	Pass	Fail	5.52	Fail
East of M11_EB	CANES LANE	B8	SEB	444	85	28	557	452	60	20	532	8	-25	-8	-25	2%	-29%	-29%	-4%	Pass	0.38	Pass	Fail	2.94	Pass	Fail	1.63	Pass	Pass	1.07	Pass
East of M11_EB_TOTAL				1670	267	63	2000	1602	217	61	1880	-68	-50	-2	-120	-4%	-19%	-3%	-6%	Pass	1.68	Pass	Fail	3.21	Pass	Pass	0.25	Pass	Fail	2.72	Pass
East of M11_WB	0	B1	NB	272	52	17	341	208	39	25	272	-64	-13	8	-69	-24%	-25%	47%	-20%	Fail	4.13	Pass	Fail	1.93	Pass	Fail	1.75	Pass	Fail	3.94	Pass
East of M11_WB	SAWBRIDGEWORTH ROAD	B2	WB	227	27	3	257	135	16	0	151	-92	-11	-3	-106	-41%	-41%	-100%	-41%	Fail	6.84	Fail	Fail	2.37	Pass	Fail	2.45	Pass	Fail	7.42	Fail
East of M11_WB	THE STREET	B3	WB	579	91	16	686	599	97	20	716	20	6	4	30	3%	7%	25%	4%	Pass	0.82	Pass	Fail	0.62	Pass	Fail	0.94	Pass	Pass	1.13	Pass
East of M11_WB	MATCHING ROAD	B4	WB	58	7	1	66	80	9	2	91	22	2	1	25	38%	29%	100%	38%	Fail	2.65	Pass	Fail	0.71	Pass	Fail	0.82	Pass	Fail	2.82	Pass
East of M11_WB	HOBBS CROSS ROAD	B5	WB	100	12	1	113	62	4	3	69	-38	-8	2	-44	-38%	-67%	200%	-39%	Fail	4.22	Pass	Fail	2.83	Pass	Fail	1.41	Pass	Fail	4.61	Pass
East of M11_WB,Harlow Cordon_IB	HARLOW COMMON	B6/D3	WB	103	12	1	116	129	9	2	140	26	-3	1	24	25%	-25%	100%	21%	Fail	2.41	Pass	Fail	0.93	Pass	Fail	0.82	Pass	Fail	2.12	Pass
East of M11_WB	HASTINGWOOD ROAD	B7	SWB	155	19	2	176	91	17	0	108	-64	-2	-2	-68	-41%	-11%	-100%	-39%	Fail	5.77	Fail	Fail	0.47	Pass	Fail	2.00	Pass	Fail	5.71	Fail
East of M11_WB	CANES LANE	B8	NWB	601	116	39	756	761	75	23	859	160	-41	-16	103	27%	-35%	-41%	14%	Fail	6.13	Fail	Fail	4.20	Pass	Fail	2.87	Pass	Fail	3.62	Pass
East of M11_WB_TOTAL				2095	336	80	2511	2065	266	75	2406	-30	-70	-5	-105	-1%	-21%	-6%	-4%	Pass	0.66	Pass	Fail	4.03	Pass	Fail	0.57	Pass	Pass	2.12	Pass
North of A120_NB	0	L1	NWB	17	2	0	19	2	2	2	6	-15	0	2	-13	-88%	0%	N/A	-68%	Fail	4.87	Pass	Pass	0.00	Pass	Fail	2.00	Pass	Fail	3.68	Pass
North of A120_NB	0	L2	NB	21	3	0	24	3	1	0	4	-18	-2	0	-20	-86%	-67%	0%	-83%	Fail	5.20	Fail	Fail	1.41	Pass	Pass	0.00	Pass	Fail	5.35	Fail
North of A120_NB	0	L3	NB	49	6	1	56	29	7	2	38	-20	1	1	-18	-41%	17%	100%	-32%	Fail	3.20	Pass	Fail	0.39	Pass	Fail	0.82	Pass	Fail	2.63	Pass
North of A120_NB	THE STREET	L4	NB	118	14	2	134	132	14	3	149	14	0	1	15	12%	0%	50%	11%	Fail	1.25	Pass	Pass	0.00	Pass	Fail	0.63	Pass	Fail	1.26	Pass
North of A120_NB	0	L5	NB	322	51	9	382	299	80	6	385	-23	29	-3	3	-7%	57%	-33%	1%	Fail	1.31	Pass	Fail	3.58	Pass	Fail	1.10	Pass	Pass	0.15	Pass
North of A120_NB	NORTH HALL ROAD	L6	NB	66	8	1	75	120	12	2	134	54	4	1	59	82%	50%	100%	79%	Fail	5.60	Fail	Fail	1.26	Pass	Fail	0.82	Pass	Fail	5.77	Fail
North of A120_NB_TOTAL				593	84	13	690	585	116	15	716	-8	32	2	26	-1%	38%	15%	4%	Pass	0.33	Pass	Fail	3.20	Pass	Fail	0.53	Pass	Pass	0.98	Pass
North of A120_SB	0	L1	SEB	13	2	0	15	6	1	0	7	-7	-1	0	-8	-54%	-50%	0%	-53%	Fail	2.27	Pass	Fail	0.82	Pass	Pass	0.00	Pass	Fail	2.41	Pass
North of A120_SB	0	L2	SB	32	4	0	36	24	1	0	25	-8	-3	0	-11	-25%	-75%	0%	-31%	Fail	1.51	Pass	Fail	1.90	Pass	Pass	0.00	Pass	Fail	1.99	Pass
North of A120_SB	0	L3	SB	99	12	1	112	37	6	2	45	-62	-6	1	-67	-63%	-50%	100%	-60%	Fail	7.52	Fail	Fail	2.00	Pass	Fail	0.82	Pass	Fail	7.56	Fail
North of A120_SB	THE STREET	L4	SB	175	21	2	198	142	17	4	163	-33	-4	2	-35	-19%	-19%	100%	-18%	Fail	2.62	Pass	Fail	0.92	Pass	Fail	1.15	Pass	Fail	2.61	Pass
North of A120_SB	0	L5	SB	438	69	12	519	335	44	11	390	-103	-25	-1	-129	-24%	-36%	-8%	-25%	Fail	5.24	Fail	Fail	3.33	Pass	Fail	0.29	Pass	Fail	6.05	Fail
North of A120_SB	NORTH HALL ROAD	L6	SB	42	5	1	48	91	19	3	113	49	14	2	65	117%	280%	200%	135%	Fail	6.01	Fail	Fail	4.04	Pass	Fail	1.41	Pass	Fail	7.24	Fail
North of A120_SB_TOTAL				799	113	16	928	635	88	20	743	-164	-25	4	-185	-21%	-22%	25%	-20%	Fail	6.12	Fail	Fail	2.49	Pass	Fail	0.94	Pass	Fail	6.40	Fail

Link Validation IP

Summary		TOTAL	CARS	LGV	HGV
DMRB	Pass	85%	90%	100%	100%
	Fail High	2%	4%	0%	0%
	Fail Low	13%	6%	0%	0%
GEH	Pass	65%	73%	92%	98%
	Fail High	10%	6%	2%	0%
	Fail Low	25%	21%	6%	2%

			IP Observed Flows				IP Modelled Flows				Absolute differences				%age Difference				CAR IP Performance			LGV IP Performance			HGV IP Performance			TOTAL IP Performance		
Road Name	Count ID	Direction	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Flow Difference	GEH	GEH < 5	Flow Difference	GEH	GEH < 5	Flow Difference	GEH	GEH < 5	Flow Difference	GEH	GEH < 5
0	B1	NB	130	27	5	162	130	26	9	165	0	-1	4	3	0%	-4%	80%	2%	Pass	0.00	Pass	Pass	0.19	Pass	Pass	1.51	Pass	Pass	0.23	Pass
0	B1	SB	137	29	5	171	133	27	7	167	-4	-2	2	-4	-3%	-7%	40%	-2%	Pass	0.34	Pass	Pass	0.38	Pass	Pass	0.82	Pass	Pass	0.31	Pass
SAWBRIDGEWORTH ROAD	B2	EB	104	16	1	121	93	10	0	103	-11	-6	-1	-18	-11%	-38%	-100%	-15%	Pass	1.11	Pass	Pass	1.66	Pass	Pass	1.41	Pass	Pass	1.70	Pass
SAWBRIDGEWORTH ROAD	B2	WB	112	17	1	130	68	8	0	76	-44	-9	-1	-54	-39%	-53%	-100%	-42%	Pass	4.64	Pass	Pass	2.55	Pass	Pass	1.41	Pass	Pass	5.32	Fail
THE STREET	B3	EB	174	36	4	214	245	52	7	304	71	16	3	90	41%	44%	75%	42%	Pass	4.91	Pass	Pass	2.41	Pass	Pass	1.28	Pass	Pass	5.59	Fail
THE STREET	B3	WB	210	43	5	258	272	51	5	328	62	8	0	70	30%	19%	0%	27%	Pass	3.99	Pass	Pass	1.17	Pass	Pass	0.00	Pass	Pass	4.09	Pass
MATCHING ROAD	B4	EB	43	7	0	50	57	9	3	69	14	2	3	19	33%	29%	N/A	38%	Pass	1.98	Pass	Pass	0.71	Pass	Pass	2.45	Pass	Pass	2.46	Pass
MATCHING ROAD	B4	WB	40	6	0	46	40	6	1	47	0	0	1	1	0%	0%	N/A	2%	Pass	0.00	Pass	Pass	0.00	Pass	Pass	1.41	Pass	Pass	0.15	Pass
HOBBS CROSS ROAD	B5	EB	42	6	0	48	14	2	2	18	-28	-4	2	-30	-67%	-67%	N/A	-63%	Pass	5.29	Fail	Pass	2.00	Pass	Pass	2.00	Pass	Pass	5.22	Fail
HOBBS CROSS ROAD	B5	WB	38	6	0	44	38	3	5	46	0	-3	5	2	0%	-50%	N/A	5%	Pass	0.00	Pass	Pass	1.41	Pass	Pass	3.16	Pass	Pass	0.30	Pass
HARLOW COMMON	B6/D3	EB	76	12	1	89	35	5	5	45	-41	-7	4	-44	-54%	-58%	400%	-49%	Pass	5.50	Fail	Pass	2.40	Pass	Pass	2.31	Pass	Pass	5.38	Fail
HARLOW COMMON	B6/D3	WB	79	12	1	92	33	7	1	41	-46	-5	0	-51	-58%	-42%	0%	-55%	Pass	6.15	Fail	Pass	1.62	Pass	Pass	0.00	Pass	Pass	6.25	Fail
HASTINGWOOD ROAD	B7	NEB	63	10	1	74	134	24	0	158	71	14	-1	84	113%	140%	-100%	114%	Pass	7.15	Fail	Pass	3.40	Pass	Pass	1.41	Pass	Pass	7.80	Fail
HASTINGWOOD ROAD	B7	SWB	60	9	1	70	118	19	2	139	58	10	1	69	97%	111%	100%	99%	Pass	6.15	Fail	Pass	2.67	Pass	Pass	0.82	Pass	Pass	6.75	Fail
CANES LANE	B8	NWB	361	75	14	450	395	60	10	465	34	-15	-4	15	9%	-20%	-29%	3%	Pass	1.75	Pass	Pass	1.83	Pass	Pass	1.15	Pass	Pass	0.70	Pass
CANES LANE	B8	SEB	353	74	14	441	363	55	12	430	10	-19	-2	-11	3%	-26%	-14%	-2%	Pass	0.53	Pass	Pass	2.37	Pass	Pass	0.55	Pass	Pass	0.53	Pass
EDINBURGH WAY	E1	EB	546	114	22	682	427	133	28	588	-119	19	6	-94	-22%	17%	27%	-14%	Fail	5.40	Fail	Pass	1.71	Pass	Pass	1.20	Pass	Pass	3.73	Pass
EDINBURGH WAY	E1	WB	591	123	23	737	569	146	34	749	-22	23	11	12	-4%	19%	48%	2%	Pass	0.91	Pass	Pass	1.98	Pass	Pass	2.06	Pass	Pass	0.44	Pass
FIRST AVENUE MANDELA AVENUE	E2	EB	653	99	6	758	605	67	5	677	-48	-32	-1	-81	-7%	-32%	-17%	-11%	Pass	1.91	Pass	Pass	3.51	Pass	Pass	0.43	Pass	Pass	3.02	Pass
FIRST AVENUE MANDELA AVENUE	E2	WB	608	92	6	706	682	70	10	762	74	-22	4	56	12%	-24%	67%	8%	Pass	2.91	Pass	Pass	2.44	Pass	Pass	1.41	Pass	Pass	2.07	Pass
SECOND AVENUE	E3	EB	635	133	25	793	880	166	18	1064	245	33	-7	271	39%	25%	-28%	34%	Fail	8.90	Fail	Pass	2.70	Pass	Pass	1.51	Pass	Fail	8.89	Fail
SECOND AVENUE	E3	WB	692	144	27	863	813	158	20	991	121	14	-7	128	17%	10%	-26%	15%	Fail	4.41	Pass	Pass	1.14	Pass	Pass	1.44	Pass	Pass	4.20	Pass
SOUTHERN WAY	E4	EB	582	121	23	726	514	51	3	568	-68	-70	-20	-158	-12%	-58%	-87%	-22%	Pass	2.90	Pass	Pass	7.55	Fail	Pass	5.55	Fail	Fail	6.21	Fail
SOUTHERN WAY	E4	WB	557	116	22	695	463	52	4	519	-94	-64	-18	-176	-17%	-55%	-82%	-25%	Pass	4.16	Pass	Pass	6.98	Fail	Pass	4.99	Pass	Fail	7.14	Fail
MAUNDS HATCH	E5	NEB	92	14	1	107	77	7	0	84	-15	-7	-1	-23	-16%	-50%	-100%	-21%	Pass	1.63	Pass	Pass	2.16	Pass	Pass	1.41	Pass	Pass	2.35	Pass
MAUNDS HATCH	E5	SWB	85	13	1	99	62	7	0	69	-23	-6	-1	-30	-27%	-46%	-100%	-30%	Pass	2.68	Pass	Pass	1.90	Pass	Pass	1.41	Pass	Pass	3.27	Pass
0	L1	NWB	19	3	0	22	3	0	1	4	-16	-3	1	-18	-84%	-100%	N/A	-82%	Pass	4.82	Pass	Pass	2.45	Pass	Pass	1.41	Pass	Pass	4.99	Pass
0	L1	SEB	23	3	0	26	4	1	1	6	-19	-2	1	-20	-83%	-67%	N/A	-77%	Pass	5.17	Fail	Pass	1.41	Pass	Pass	1.41	Pass	Pass	5.00	Fail
0	L2	NB	11	2	0	13	4	0	0	4	-7	-2	0	-9	-64%	-100%	0%	-69%	Pass	2.56	Pass	Pass	2.00	Pass	Pass	0.00	Pass	Pass	3.09	Pass
0	L2	SB	3	1	0	4	3	0	0	3	0	-1	0	-1	0%	-100%	0%	-25%	Pass	0.00	Pass	Pass	1.41	Pass	Pass	0.00	Pass	Pass	0.53	Pass
0	L3	NB	56	9	1	66	30	6	0	36	-26	-3	-1	-30	-46%	-33%	-100%	-45%	Pass	3.96	Pass	Pass	1.10	Pass	Pass	1.41	Pass	Pass	4.20	Pass
0	L3	SB	53	8	0	61	32	6	2	40	-21	-2	2	-21	-40%	-25%	N/A	-34%	Pass	3.22	Pass	Pass	0.76	Pass	Pass	2.00	Pass	Pass	2.96	Pass
THE STREET	L4	NB	91	14	1	106	94	16	2	112	3	2	1	6	3%	14%	100%	6%	Pass	0.31	Pass	Pass	0.52	Pass	Pass	0.82	Pass	Pass	0.57	Pass
THE STREET	L4	SB	111	17	1	129	103	13	1	117	-8	-4	0	-12	-7%	-24%	0%	-9%	Pass	0.77	Pass	Pass	1.03	Pass	Pass	0.00	Pass	Pass	1.08	Pass
0	L5	NB	192	39	4	235	203	84	2	289	11	45	-2	54	6%	115%	-50%	23%	Pass	0.78	Pass	Pass	5.74	Fail	Pass	1.15	Pass	Pass	3.34	Pass
0	L5	SB	215	44	5	264	214	51	4	269	-1	7	-1	5	0%	16%	-20%	2%	Pass	0.07	Pass	Pass	1.02	Pass	Pass	0.47	Pass	Pass	0.31	Pass
NORTH HALL ROAD	L6	NB	43	6	0	49	54	8	1	63	11	2	1	14	26%	33%	N/A	29%	Pass	1.58	Pass	Pass	0.76	Pass	Pass	1.41	Pass	Pass	1.87	Pass
NORTH HALL ROAD	L6	SB	36	5	0	41	64	14	2	80	28	9	2	39	78%	180%	N/A	95%	Pass	3.96	Pass	Pass	2.92	Pass	Pass	2.00	Pass	Pass	5.01	Fail
STATION ROAD	Z6	NB	107	22	2	131	71	13	4	88	-36	-9	2	-43	-34%	-41%	100%	-33%	Pass	3.82	Pass	Pass	2.15	Pass	Pass	1.15	Pass	Pass	4.11	Pass
STATION ROAD	Z6	SB	124	26	3	153	76	18	6	100	-48	-8	3	-53	-39%	-31%	100%	-35%	Pass	4.80	Pass	Pass	1.71	Pass	Pass	1.41	Pass	Pass	4.71	Pass
ONGAR ROAD	Z11	NEB	102	21	2	125	111	22	6	139	9	1	4	14	9%	5%	200%	11%	Pass	0.87	Pass	Pass	0.22	Pass	Pass	2.00	Pass	Pass	1.22	Pass
ONGAR ROAD	Z11	SWB	102	21	2	125	102	28	4	134	0	7	2	9	0%	33%	100%	7%	Pass	0.00	Pass	Pass	1.41	Pass	Pass	1.15	Pass	Pass	0.79	Pass
LONDON ROAD	Z14	NB	321	66	7	394	279	62	12	353	-42	-4	5	-41	-13%	-6%	71%	-10%	Pass	2.42	Pass	Pass	0.50	Pass	Pass	1.62	Pass	Pass	2.12	Pass
LONDON ROAD	Z14	SB	336	69	7	412	267	58	13	338	-69	-11	6	-74	-21%	-16%	86%	-18%	Pass	3.97	Pass	Pass	1.38	Pass	Pass	1.90	Pass	Pass	3.82	Pass
OBREY WAY	Z15	NB	129	20	1	150	56	12	1	69	-73	-8	0	-81	-57%	-40%	0%	-54%	Pass	7.59	Fail	Pass	2.00	Pass	Pass	0.00	Pass	Pass	7.74	Fail
OBREY WAY	Z15	SB	118	18	1	137	61	15	1	77	-57	-3	0	-60	-48%	-17%	0%	-44%	Pass	6.03	Fail	Pass	0.74	Pass	Pass	0.00	Pass	Pass	5.80	Fail
GREAT HADHAM ROAD	Z16	EB	217	44	5	266	108	16	3	127	-109	-28	-2	-139	-50%	-64%	-40%	-52%	Fail	8.55	Fail	Pass	5.11	Fail	Pass	1.00	Pass	Fail	9.92	Fail
GREAT HADHAM ROAD	Z16	WB	201	41	4	246	110	16	0	126	-91	-25	-4	-120	-45%	-61%	-100%	-49%	Pass	7.30	Fail	Pass	4.68	Pass	Pass	2.83	Pass	Fail	8.80	Fail
HADHAM ROAD	Z18	EB	266	54	6	326	178	34	4	216	-88	-20	-2	-110	-33%	-37%	-33%	-34%	Pass	5.91	Fail	Pass	3.02	Pass	Pass	0.89	Pass	Fail	6.68	Fail
HADHAM ROAD	Z18	WB	296	61	7	364	176	38	1	215	-120	-23	-6	-149	-41%	-38%	-86%	-41%	Fail	7.81	Fail	Pass	3.27	Pass	Pass	3.00	Pass	Fail	8.76	Fail
0	Z27	NB	416	87	16	519	343	63	10	416	-73	-24	-6	-103	-18%	-28%	-38%	-20%	Pass	3.75	Pass	Pass	2.77	Pass	Pass	1.66	Pass	Fail	4.76	Pass
0	Z27	SB	393	82	16	491	351	79	14	444	-42	-3	-2	-47	-11%	-4%	-13%	-10%	Pass	2.18	Pass	Pass	0.33	Pass	Pass	0.52	Pass	Pass	2.17	Pass

Screenline Validation IP

Screenline	TOTAL	TOTAL %age	CARS	CARS %age
Harlow Screenline_EB_TOTAL	Pass	-3%	Pass	0%
Harlow Screenline_WB_TOTAL	Pass	0%	Pass	2%
East of M11_EB_TOTAL	Fail	7%	Fail	8%
East of M11_WB_TOTAL	Pass	4%	Fail	6%
North of A120_NB_TOTAL	Pass	3%	Fail	-6%
North of A120_SB_TOTAL	Pass	-2%	Pass	-5%
	83%		50%	

				IP Observed Flows				IP Modelled Flows				Absolute differences				%age Difference				CAR IP Performance			LGV IP Performance			HGV IP Performance			TOTAL IP Performance		
Screenline	Road Name	Count ID	Direction	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Flow Difference	GEH	GEH < 4	Flow Difference	GEH	GEH < 4	Flow Difference	GEH	GEH < 4	Flow Difference	GEH	GEH < 4
Harlow Screenline_EB	EDINBURGH WAY	E1	EB	546	114	22	682	427	133	28	588	-119	19	6	-94	-22%	17%	27%	-14%	Fail	5.40	Fail	Fail	1.71	Pass	Fail	1.20	Pass	Fail	3.73	Pass
Harlow Screenline_EB	FIRST AVENUE MANDELA AVENUE	E2	EB	653	99	6	758	605	67	5	677	-48	-32	-1	-81	-7%	-32%	-17%	-11%	Fail	1.91	Pass	Fail	3.51	Pass	Fail	0.43	Pass	Fail	3.02	Pass
Harlow Screenline_EB	SECOND AVENUE	E3	EB	635	133	25	793	880	166	18	1064	245	33	-7	271	39%	25%	-28%	34%	Fail	8.90	Fail	Fail	2.70	Pass	Fail	1.51	Pass	Fail	8.89	Fail
Harlow Screenline_EB	SOUTHERN WAY	E4	EB	582	121	23	726	514	51	3	568	-68	-70	-20	-158	-12%	-58%	-87%	-22%	Fail	2.90	Pass	Fail	7.55	Fail	Fail	5.55	Fail	Fail	6.21	Fail
Harlow Screenline_EB	MAUNDS HATCH	E5	NEB	92	14	1	107	77	7	0	84	-15	-7	-1	-23	-16%	-50%	-100%	-21%	Fail	1.63	Pass	Fail	2.16	Pass	Fail	1.41	Pass	Fail	2.35	Pass
Harlow Screenline_EB_TOTAL				2508	481	77	3066	2503	424	54	2981	-5	-57	-23	-85	0%	-12%	-30%	-3%	Pass	0.10	Pass	Fail	2.68	Pass	Fail	2.84	Pass	Pass	1.55	Pass
Harlow Screenline_WB	EDINBURGH WAY	E1	WB	591	123	23	737	569	146	34	749	-22	23	11	12	-4%	19%	48%	2%	Pass	0.91	Pass	Fail	1.98	Pass	Fail	2.06	Pass	Pass	0.44	Pass
Harlow Screenline_WB	FIRST AVENUE MANDELA AVENUE	E2	WB	608	92	6	706	682	70	10	762	74	-22	4	56	12%	-24%	67%	8%	Fail	2.91	Pass	Fail	2.44	Pass	Fail	1.41	Pass	Fail	2.07	Pass
Harlow Screenline_WB	SECOND AVENUE	E3	WB	692	144	27	863	813	158	20	991	121	14	-7	128	17%	10%	-26%	15%	Fail	4.41	Pass	Fail	1.14	Pass	Fail	1.44	Pass	Fail	4.20	Pass
Harlow Screenline_WB	SOUTHERN WAY	E4	WB	557	116	22	695	463	52	4	519	-94	-64	-18	-176	-17%	-55%	-82%	-25%	Fail	4.16	Pass	Fail	6.98	Fail	Fail	4.99	Pass	Fail	7.14	Fail
Harlow Screenline_WB	MAUNDS HATCH	E5	SWB	85	13	1	99	62	7	0	69	-23	-6	-1	-30	-27%	-46%	-100%	-30%	Fail	2.68	Pass	Fail	1.90	Pass	Fail	1.41	Pass	Fail	3.27	Pass
Harlow Screenline_WB_TOTAL				2533	488	79	3100	2589	433	68	3090	56	-55	-11	-10	2%	-11%	-14%	0%	Pass	1.11	Pass	Fail	2.56	Pass	Fail	1.28	Pass	Pass	0.18	Pass
East of M11_EB	0	B1	SB	137	29	5	171	133	27	7	167	-4	-2	2	-4	-3%	-7%	40%	-2%	Pass	0.34	Pass	Fail	0.38	Pass	Fail	0.82	Pass	Pass	0.31	Pass
East of M11_EB	SAWBRIDGEWORTH ROAD	B2	EB	104	16	1	121	93	10	0	103	-11	-6	-1	-18	-11%	-38%	-100%	-15%	Fail	1.11	Pass	Fail	1.66	Pass	Fail	1.41	Pass	Fail	1.70	Pass
East of M11_EB	THE STREET	B3	EB	174	36	4	214	245	52	7	304	71	16	3	90	41%	44%	75%	42%	Fail	4.91	Pass	Fail	2.41	Pass	Fail	1.28	Pass	Fail	5.59	Fail
East of M11_EB	MATCHING ROAD	B4	EB	43	7	0	50	57	9	3	69	14	2	3	19	33%	29%	N/A	38%	Fail	1.98	Pass	Fail	0.71	Pass	Fail	2.45	Pass	Fail	2.46	Pass
East of M11_EB	HOBBS CROSS ROAD	B5	EB	42	6	0	48	14	2	2	18	-28	-4	2	-30	-67%	-67%	N/A	-63%	Fail	5.29	Fail	Fail	2.00	Pass	Fail	2.00	Pass	Fail	5.22	Fail
Harlow Cordon_OB,East of M11_EB	HARLOW COMMON	B6/D3	EB	76	12	1	89	35	5	5	45	-41	-7	4	-44	-54%	-58%	400%	-49%	Fail	5.50	Fail	Fail	2.40	Pass	Fail	2.31	Pass	Fail	5.38	Fail
East of M11_EB	HASTINGWOOD ROAD	B7	NEB	63	10	1	74	134	24	0	158	71	14	-1	84	113%	140%	-100%	114%	Fail	7.15	Fail	Fail	3.40	Pass	Fail	1.41	Pass	Fail	7.80	Fail
East of M11_EB	CANES LANE	B8	SEB	353	74	14	441	363	55	12	430	10	-19	-2	-11	3%	-26%	-14%	-2%	Pass	0.53	Pass	Fail	2.37	Pass	Fail	0.55	Pass	Pass	0.53	Pass
East of M11_EB_TOTAL				992	190	26	1208	1074	184	36	1294	82	-6	10	86	8%	-3%	38%	7%	Fail	2.55	Pass	Pass	0.44	Pass	Fail	1.80	Pass	Fail	2.43	Pass
East of M11_WB	0	B1	NB	130	27	5	162	130	26	9	165	0	-1	4	3	0%	-4%	80%	2%	Pass	0.00	Pass	Pass	0.19	Pass	Fail	1.51	Pass	Pass	0.23	Pass
East of M11_WB	SAWBRIDGEWORTH ROAD	B2	WB	112	17	1	130	68	8	0	76	-44	-9	-1	-54	-39%	-53%	-100%	-42%	Fail	4.64	Pass	Fail	2.55	Pass	Fail	1.41	Pass	Fail	5.32	Fail
East of M11_WB	THE STREET	B3	WB	210	43	5	258	272	51	5	328	62	8	0	70	30%	19%	0%	27%	Fail	3.99	Pass	Fail	1.17	Pass	Pass	0.00	Pass	Fail	4.09	Pass
East of M11_WB	MATCHING ROAD	B4	WB	40	6	0	46	40	6	1	47	0	0	1	1	0%	0%	N/A	2%	Pass	0.00	Pass	Pass	0.00	Pass	Fail	1.41	Pass	Pass	0.15	Pass
East of M11_WB	HOBBS CROSS ROAD	B5	WB	38	6	0	44	38	3	5	46	0	-3	5	2	0%	-50%	N/A	5%	Pass	0.00	Pass	Fail	1.41	Pass	Fail	3.16	Pass	Pass	0.30	Pass
East of M11_WB,Harlow Cordon_IB	HARLOW COMMON	B6/D3	WB	79	12	1	92	33	7	1	41	-46	-5	0	-51	-58%	-42%	0%	-55%	Fail	6.15	Fail	Fail	1.62	Pass	Pass	0.00	Pass	Fail	6.25	Fail
East of M11_WB	HASTINGWOOD ROAD	B7	SWB	60	9	1	70	118	19	2	139	58	10	1	69	97%	111%	100%	99%	Fail	6.15	Fail	Fail	2.67	Pass	Fail	0.82	Pass	Fail	6.75	Fail
East of M11_WB	CANES LANE	B8	NWB	361	75	14	450	395	60	10	465	34	-15	-4	15	9%	-20%	-29%	3%	Fail	1.75	Pass	Fail	1.83	Pass	Fail	1.15	Pass	Pass	0.70	Pass
East of M11_WB_TOTAL				1030	195	27	1252	1094	180	33	1307	64	-15	6	55	6%	-8%	22%	4%	Fail	1.96	Pass	Fail	1.10	Pass	Fail	1.10	Pass	Pass	1.54	Pass
North of A120_NB	0	L1	NWB	19	3	0	22	3	0	1	4	-16	-3	1	-18	-84%	-100%	N/A	-82%	Fail	4.82	Pass	Fail	2.45	Pass	Fail	1.41	Pass	Fail	4.99	Pass
North of A120_NB	0	L2	NB	11	2	0	13	4	0	0	4	-7	-2	0	-9	-64%	-100%	0%	-69%	Fail	2.56	Pass	Fail	2.00	Pass	Pass	0.00	Pass	Fail	3.09	Pass
North of A120_NB	0	L3	NB	56	9	1	66	30	6	0	36	-26	-3	-1	-30	-46%	-33%	-100%	-45%	Fail	3.96	Pass	Fail	1.10	Pass	Fail	1.41	Pass	Fail	4.20	Pass
North of A120_NB	THE STREET	L4	NB	91	14	1	106	94	16	2	112	3	2	1	6	3%	14%	100%	6%	Pass	0.31	Pass	Fail	0.52	Pass	Fail	0.82	Pass	Fail	0.57	Pass
North of A120_NB	0	L5	NB	192	39	4	235	203	84	2	289	11	45	-2	54	6%	115%	-50%	23%	Fail	0.78	Pass	Fail	5.74	Fail	Fail	1.15	Pass	Fail	3.34	Pass
North of A120_NB	NORTH HALL ROAD	L6	NB	43	6	0	49	54	8	1	63	11	2	1	14	26%	33%	N/A	29%	Fail	1.58	Pass	Fail	0.76	Pass	Fail	1.41	Pass	Fail	1.87	Pass
North of A120_NB_TOTAL				412	73	6	491	388	114	6	508	-24	41	0	17	-6%	56%	0%	3%	Fail	1.20	Pass	Fail	4.24	Pass	Pass	0.00	Pass	Pass	0.76	Pass
North of A120_SB	0	L1	SEB	23	3	0	26	4	1	1	6	-19	-2	1	-20	-83%	-67%	N/A	-77%	Fail	5.17	Fail	Fail	1.41	Pass	Fail	1.41	Pass	Fail	5.00	Fail
North of A120_SB	0	L2	SB	3	1	0	4	3	0	0	3	0	-1	0	-1	0%	-100%	0%	-25%	Pass	0.00	Pass	Fail	1.41	Pass	Pass	0.00	Pass	Fail	0.53	Pass
North of A120_SB	0	L3	SB	53	8	0	61	32	6	2	40	-21	-2	2	-21	-40%	-25%	N/A	-34%	Fail	3.22	Pass	Fail	0.76	Pass	Fail	2.00	Pass	Fail	2.96	Pass
North of A120_SB	THE STREET	L4	SB	111	17	1	129	103	13	1	117	-8	-4	0	-12	-7%	-24%	0%	-9%	Fail	0.77	Pass	Fail	1.03	Pass	Pass	0.00	Pass	Fail	1.08	Pass
North of A120_SB	0	L5	SB	215	44	5	264	214	51	4	269	-1	7	-1	5	0%	16%	-20%	2%	Pass	0.07	Pass	Fail	1.02	Pass	Fail	0.47	Pass	Pass	0.31	Pass
North of A120_SB	NORTH HALL ROAD	L6	SB	36	5	0	41	64	14	2	80	28	9	2	39	78%	180%	N/A	95%	Fail	3.96	Pass	Fail	2.92	Pass	Fail	2.00	Pass	Fail	5.01	Fail
North of A120_SB_TOTAL				441	78	6	525	420	85	10	515	-21	7	4	-10	-5%	9%	67%	-2%	Pass	1.01	Pass	Fail	0.78	Pass	Fail	1.41	Pass	Pass	0.44	Pass

Link Validation PM

Summary		TOTAL	CARS	LGV	HGV
DMRB	Pass	67%	73%	100%	100%
	Fail High	10%	6%	0%	0%
	Fail Low	23%	21%	0%	0%
GEH	Pass	63%	67%	90%	100%
	Fail High	10%	8%	2%	0%
	Fail Low	27%	25%	8%	0%

			EP Observed Flows				EP Modelled Flows				Absolute differences				%age Difference				CAR EP Performance			LGV EP Performance			HGV EP Performance			TOTAL EP Performance		
Road Name	Count ID	Direction	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Flow Difference	GEH	GEH < 5	Flow Difference	GEH	GEH < 5	Flow Difference	GEH	GEH < 5	Flow Difference	GEH	GEH < 5
0	B1	NB	288	46	6	340	243	38	5	286	-45	-8	-1	-54	-16%	-17%	-17%	-16%	Pass	2.76	Pass	Pass	1.23	Pass	Pass	0.43	Pass	Pass	3.05	Pass
0	B1	SB	264	42	6	312	233	28	3	264	-31	-14	-3	-48	-12%	-33%	-50%	-15%	Pass	1.97	Pass	Pass	2.37	Pass	Pass	1.41	Pass	Pass	2.83	Pass
SAWBRIDGEWORTH ROAD	B2	EB	211	28	1	240	101	9	0	110	-110	-19	-1	-130	-52%	-68%	-100%	-54%	Fail	8.81	Fail	Pass	4.42	Pass	Pass	1.41	Pass	Fail	9.83	Fail
SAWBRIDGEWORTH ROAD	B2	WB	185	25	1	211	137	11	1	149	-48	-14	0	-62	-26%	-56%	0%	-29%	Pass	3.78	Pass	Pass	3.30	Pass	Pass	0.00	Pass	Pass	4.62	Pass
THE STREET	B3	EB	490	79	6	575	505	76	5	586	15	-3	-1	11	3%	-4%	-17%	2%	Pass	0.67	Pass	Pass	0.34	Pass	Pass	0.43	Pass	Pass	0.46	Pass
THE STREET	B3	WB	295	48	4	347	416	80	7	503	121	32	3	156	41%	67%	75%	45%	Fail	6.42	Fail	Pass	4.00	Pass	Pass	1.28	Pass	Fail	7.57	Fail
MATCHING ROAD	B4	EB	57	8	0	65	71	13	3	87	14	5	3	22	25%	63%	N/A	34%	Pass	1.75	Pass	Pass	1.54	Pass	Pass	2.45	Pass	Pass	2.52	Pass
MATCHING ROAD	B4	WB	44	6	0	50	58	8	1	67	14	2	1	17	32%	33%	N/A	34%	Pass	1.96	Pass	Pass	0.76	Pass	Pass	1.41	Pass	Pass	2.22	Pass
HOBBS CROSS ROAD	B5	EB	57	8	0	65	27	5	0	32	-30	-3	0	-33	-53%	-38%	0%	-51%	Pass	4.63	Pass	Pass	1.18	Pass	Pass	0.00	Pass	Pass	4.74	Pass
HOBBS CROSS ROAD	B5	WB	116	16	0	132	69	6	2	77	-47	-10	2	-55	-41%	-63%	N/A	-42%	Pass	4.89	Pass	Pass	3.02	Pass	Pass	2.00	Pass	Pass	5.38	Fail
HARLOW COMMON	B6/D3	EB	141	19	1	161	31	6	2	39	-110	-13	1	-122	-78%	-68%	100%	-76%	Fail	11.86	Fail	Pass	3.68	Pass	Pass	0.82	Pass	Fail	12.20	Fail
HARLOW COMMON	B6/D3	WB	194	26	1	221	80	9	0	89	-114	-17	-1	-132	-59%	-65%	-100%	-60%	Fail	9.74	Fail	Pass	4.06	Pass	Pass	1.41	Pass	Fail	10.60	Fail
HASTINGWOOD ROAD	B7	NEB	150	20	1	171	326	20	3	349	176	0	2	178	117%	0%	200%	104%	Fail	11.41	Fail	Pass	0.00	Pass	Pass	1.41	Pass	Fail	11.04	Fail
HASTINGWOOD ROAD	B7	SWB	76	10	0	86	83	14	0	97	7	4	0	11	9%	40%	0%	13%	Pass	0.79	Pass	Pass	1.15	Pass	Pass	0.00	Pass	Pass	1.15	Pass
CANES LANE	B8	NWB	511	82	11	604	550	60	6	616	39	-22	-5	12	8%	-27%	-45%	2%	Pass	1.69	Pass	Pass	2.61	Pass	Pass	1.71	Pass	Pass	0.49	Pass
CANES LANE	B8	SEB	682	109	14	805	503	89	13	605	-179	-20	-1	-200	-26%	-18%	-7%	-25%	Fail	7.35	Fail	Pass	2.01	Pass	Pass	0.27	Pass	Fail	7.53	Fail
EDINBURGH WAY	E1	EB	809	129	17	955	903	180	22	1105	94	51	5	150	12%	40%	29%	16%	Pass	3.21	Pass	Pass	4.10	Pass	Pass	1.13	Pass	Fail	4.67	Pass
EDINBURGH WAY	E1	WB	773	124	16	913	788	153	23	964	15	29	7	51	2%	23%	44%	6%	Pass	0.54	Pass	Pass	2.46	Pass	Pass	1.59	Pass	Pass	1.66	Pass
FIRST AVENUE MANDELA AVENUE	E2	EB	965	130	4	1099	1097	108	5	1210	132	-22	1	111	14%	-17%	25%	10%	Pass	4.11	Pass	Pass	2.02	Pass	Pass	0.47	Pass	Pass	3.27	Pass
FIRST AVENUE MANDELA AVENUE	E2	WB	563	76	2	641	734	77	8	819	171	1	6	178	30%	1%	300%	28%	Fail	6.71	Fail	Pass	0.11	Pass	Pass	2.68	Pass	Fail	6.59	Fail
SECOND AVENUE	E3	EB	1047	167	22	1236	1190	185	18	1393	143	18	-4	157	14%	11%	-18%	13%	Pass	4.28	Pass	Pass	1.36	Pass	Pass	0.89	Pass	Pass	4.33	Pass
SECOND AVENUE	E3	WB	703	112	15	830	778	207	20	1005	75	95	5	175	11%	85%	33%	21%	Pass	2.76	Pass	Pass	7.52	Fail	Pass	1.20	Pass	Fail	5.78	Fail
SOUTHERN WAY	E4	EB	746	119	16	881	681	64	4	749	-65	-55	-12	-132	-9%	-46%	-75%	-15%	Pass	2.43	Pass	Pass	5.75	Fail	Pass	3.79	Pass	Pass	4.62	Pass
SOUTHERN WAY	E4	WB	769	123	16	908	578	39	2	619	-191	-84	-14	-289	-25%	-68%	-88%	-32%	Fail	7.36	Fail	Pass	9.33	Fail	Pass	4.67	Pass	Fail	10.46	Fail
MAUNDS HATCH	E5	NEB	418	57	2	477	199	16	0	215	-219	-41	-2	-262	-52%	-72%	-100%	-55%	Fail	12.47	Fail	Pass	6.79	Fail	Pass	2.00	Pass	Fail	14.09	Fail
MAUNDS HATCH	E5	SWB	165	22	1	188	99	6	0	105	-66	-16	-1	-83	-40%	-73%	-100%	-44%	Pass	5.74	Fail	Pass	4.28	Pass	Pass	1.41	Pass	Pass	6.86	Fail
0	L1	NWB	12	2	0	14	3	2	0	5	-9	0	0	-9	-75%	0%	0%	-64%	Pass	3.29	Pass	Pass	0.00	Pass	Pass	0.00	Pass	Pass	2.92	Pass
0	L1	SEB	11	1	0	12	5	1	1	7	-6	0	1	-5	-55%	0%	N/A	-42%	Pass	2.12	Pass	Pass	0.00	Pass	Pass	1.41	Pass	Pass	1.62	Pass
0	L2	NB	30	4	0	34	27	2	0	29	-3	-2	0	-5	-10%	-50%	0%	-15%	Pass	0.56	Pass	Pass	1.15	Pass	Pass	0.00	Pass	Pass	0.89	Pass
0	L2	SB	13	2	0	15	5	1	0	6	-8	-1	0	-9	-62%	-50%	0%	-60%	Pass	2.67	Pass	Pass	0.82	Pass	Pass	0.00	Pass	Pass	2.78	Pass
0	L3	NB	69	9	0	78	90	10	0	100	21	1	0	22	30%	11%	0%	28%	Pass	2.36	Pass	Pass	0.32	Pass	Pass	0.00	Pass	Pass	2.33	Pass
0	L3	SB	54	7	0	61	26	5	1	32	-28	-2	1	-29	-52%	-29%	N/A	-48%	Pass	4.43	Pass	Pass	0.82	Pass	Pass	1.41	Pass	Pass	4.25	Pass
THE STREET	L4	NB	168	23	1	192	180	20	2	202	12	-3	1	10	7%	-13%	100%	5%	Pass	0.91	Pass	Pass	0.65	Pass	Pass	0.82	Pass	Pass	0.71	Pass
THE STREET	L4	SB	118	16	0	134	113	12	2	127	-5	-4	2	-7	-4%	-25%	N/A	-5%	Pass	0.47	Pass	Pass	1.07	Pass	Pass	2.00	Pass	Pass	0.61	Pass
0	L5	NB	389	63	5	457	370	57	3	430	-19	-6	-2	-27	-5%	-10%	-40%	-6%	Pass	0.98	Pass	Pass	0.77	Pass	Pass	1.00	Pass	Pass	1.28	Pass
0	L5	SB	337	54	4	395	347	43	4	394	10	-11	0	-1	3%	-20%	0%	0%	Pass	0.54	Pass	Pass	1.58	Pass	Pass	0.00	Pass	Pass	0.05	Pass
NORTH HALL ROAD	L6	NB	51	7	0	58	77	11	1	89	26	4	1	31	51%	57%	N/A	53%	Pass	3.25	Pass	Pass	1.33	Pass	Pass	1.41	Pass	Pass	3.62	Pass
NORTH HALL ROAD	L6	SB	55	7	0	62	113	23	2	138	58	16	2	76	105%	229%	N/A	123%	Pass	6.33	Fail	Pass	4.13	Pass	Pass	2.00	Pass	Pass	7.60	Fail
STATION ROAD	Z6	NB	229	37	3	269	263	54	4	321	34	17	1	52	15%	46%	33%	19%	Pass	2.17	Pass	Pass	2.52	Pass	Pass	0.53	Pass	Pass	3.03	Pass
STATION ROAD	Z6	SB	144	23	2	169	128	24	4	156	-16	1	2	-13	-11%	4%	100%	-8%	Pass	1.37	Pass	Pass	0.21	Pass	Pass	1.15	Pass	Pass	1.02	Pass
ONGAR ROAD	Z11	NEB	248	40	3	291	263	29	3	295	15	-11	0	4	6%	-28%	0%	1%	Pass	0.94	Pass	Pass	1.87	Pass	Pass	0.00	Pass	Pass	0.23	Pass
ONGAR ROAD	Z11	SWB	145	23	2	170	189	38	4	231	44	15	2	61	30%	65%	100%	36%	Pass	3.40	Pass	Pass	2.72	Pass	Pass	1.15	Pass	Pass	4.31	Pass
LONDON ROAD	Z14	NB	391	63	5	459	349	68	9	426	-42	5	4	-33	-11%	8%	80%	-7%	Pass	2.18	Pass	Pass	0.62	Pass	Pass	1.51	Pass	Pass	1.57	Pass
LONDON ROAD	Z14	SB	462	75	6	543	363	71	11	445	-99	-4	5	-98	-21%	-5%	83%	-18%	Pass	4.87	Pass	Pass	0.47	Pass	Pass	1.71	Pass	Pass	4.41	Pass
OBREY WAY	Z15	NB	281	38	1	320	139	24	1	164	-142	-14	0	-156	-51%	-37%	0%	-49%	Fail	9.80	Fail	Pass	2.51	Pass	Pass	0.00	Pass	Fail	10.03	Fail
OBREY WAY	Z15	SB	157	21	1	179	114	16	2	132	-43	-5	1	-47	-27%	-24%	100%	-26%	Pass	3.69	Pass	Pass	1.16	Pass	Pass	0.82	Pass	Pass	3.77	Pass
GREAT HADHAM ROAD	Z16	EB	392	63	5	460	207	29	1	237	-185	-34	-4	-223	-47%	-54%	-80%	-48%	Fail	10.69	Fail	Pass	5.01	Fail	Pass	2.31	Pass	Fail	11.95	Fail
GREAT HADHAM ROAD	Z16	WB	279	45	3	327	159	21	1	181	-120	-24	-2	-146	-43%	-53%	-67%	-45%	Fail	8.11	Fail	Pass	4.18	Pass	Pass	1.41	Pass	Fail	9.16	Fail
HADHAM ROAD	Z18	EB	382	62	5	449	283	42	3	328	-99	-20	-2	-121	-26%	-32%	-40%	-27%	Pass	5.43	Fail	Pass	2.77	Pass	Pass	1.00	Pass	Fail	6.14	Fail
HADHAM ROAD	Z18	WB	432	70	5	507	242	39	3	284	-190	-31	-2	-223	-44%	-44%	-40%	-44%	Fail	10.35	Fail	Pass	4.20	Pass	Pass	1.00	Pass	Fail	11.21	Fail
0	Z27	NB	1144	183	24	1351	937	173	20	1130	-207	-10	-4	-221	-18%	-5%	-17%	-16%	Fail	6.42	Fail	Pass	0.75	Pass	Pass	0.85	Pass	Fail	6.27	Fail
0	Z27	SB	656	105	14	775	621	103	13	737	-35	-2	-1	-38	-5%	-2%	-7%	-5%	Pass	1.39	Pass	Pass	0.20	Pass	Pass	0.27	Pass	Pass	1.38	Pass

Screenline Validation PM

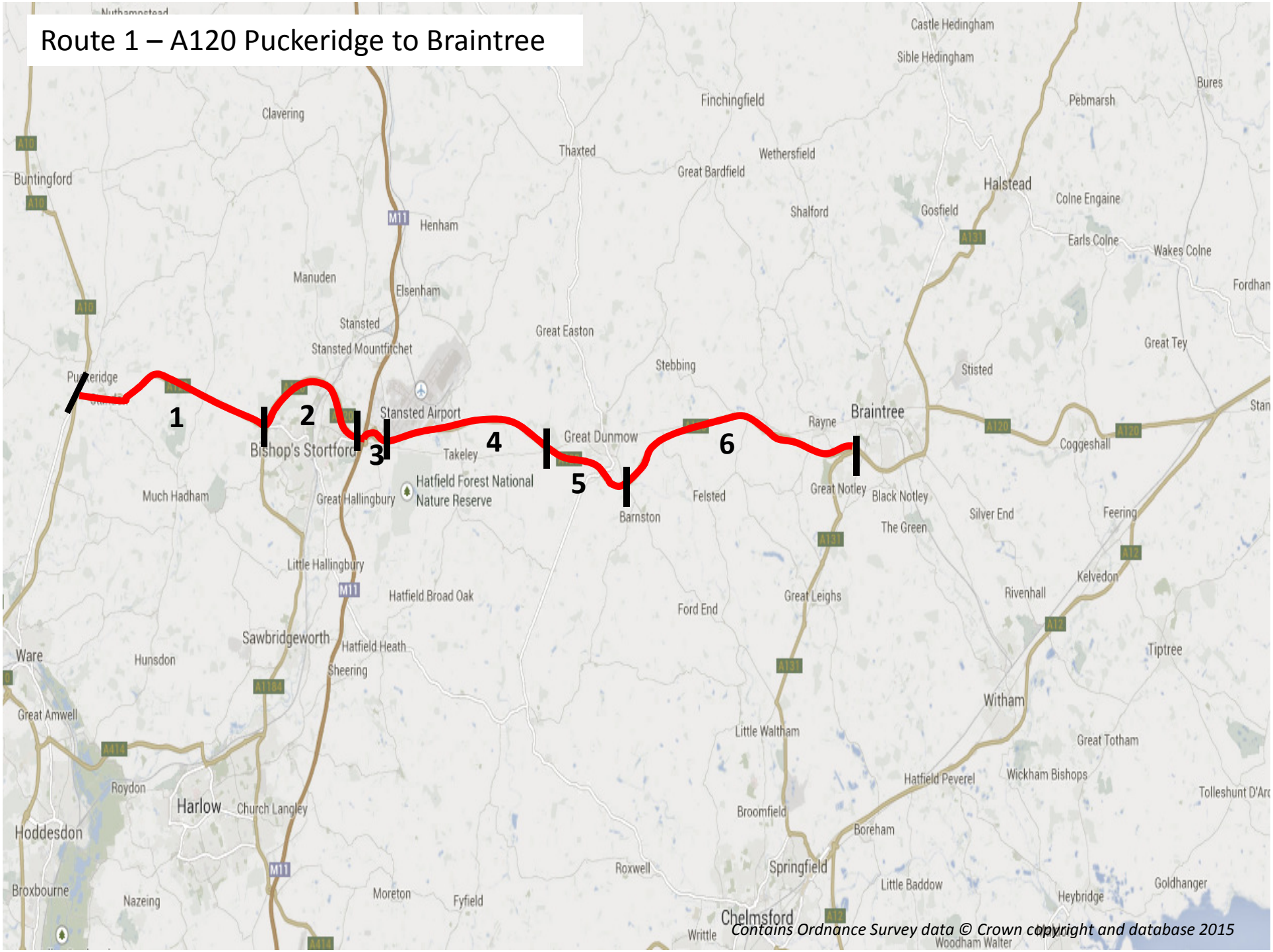
Screenline	TOTAL	TOTAL %age	CARS	CARS %age
Harlow Screenline_EB_TOTAL	Pass	1%	Pass	2%
Harlow Screenline_WB_TOTAL	Pass	1%	Pass	0%
East of M11_EB_TOTAL	Fail	-13%	Fail	-12%
East of M11_WB_TOTAL	Fail	-5%	Pass	-4%
North of A120_NB_TOTAL	Pass	3%	Pass	4%
North of A120_SB_TOTAL	Pass	4%	Pass	4%
	67%		83%	

				EP Observed Flows				EP Modelled Flows				Absolute differences				%age Difference				CAR EP Performance			LGV EP Performance			HGV EP Performance			TOTAL EP Performance		
Screenline	Road Name	Count ID	Direction	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Car	LGV	HGV	Total	Flow Difference	GEH	GEH < 4	Flow Difference	GEH	GEH < 4	Flow Difference	GEH	GEH < 4	Flow Difference	GEH	GEH < 4
Harlow Screenline_EB	EDINBURGH WAY	E1	EB	809	129	17	955	903	180	22	1105	94	51	5	150	12%	40%	29%	16%	Fail	3.21	Pass	Fail	4.10	Pass	Fail	1.13	Pass	Fail	4.67	Pass
Harlow Screenline_EB	FIRST AVENUE MANDELA AVENUE	E2	EB	965	130	4	1099	1097	108	5	1210	132	-22	1	111	14%	-17%	25%	10%	Fail	4.11	Pass	Fail	2.02	Pass	Fail	0.47	Pass	Fail	3.27	Pass
Harlow Screenline_EB	SECOND AVENUE	E3	EB	1047	167	22	1236	1190	185	18	1393	143	18	-4	157	14%	11%	-18%	13%	Fail	4.28	Pass	Fail	1.36	Pass	Fail	0.89	Pass	Fail	4.33	Pass
Harlow Screenline_EB	SOUTHERN WAY	E4	EB	746	119	16	881	681	64	4	749	-65	-55	-12	-132	-9%	-46%	-75%	-15%	Fail	2.43	Pass	Fail	5.75	Fail	Fail	3.79	Pass	Fail	4.62	Pass
Harlow Screenline_EB	MAUNDS HATCH	E5	NEB	418	57	2	477	199	16	0	215	-219	-41	-2	-262	-52%	-72%	-100%	-55%	Fail	12.47	Fail	Fail	6.79	Fail	Fail	2.00	Pass	Fail	14.09	Fail
Harlow Screenline_EB_TOTAL				3985	602	61	4648	4070	553	49	4672	85	-49	-12	24	2%	-8%	-20%	1%	Pass	1.34	Pass	Fail	2.04	Pass	Fail	1.62	Pass	Pass	0.35	Pass
Harlow Screenline_WB	EDINBURGH WAY	E1	WB	773	124	16	913	788	153	23	964	15	29	7	51	2%	23%	44%	6%	Pass	0.54	Pass	Fail	2.46	Pass	Fail	1.59	Pass	Fail	1.66	Pass
Harlow Screenline_WB	FIRST AVENUE MANDELA AVENUE	E2	WB	563	76	2	641	734	77	8	819	171	1	6	178	30%	1%	300%	28%	Fail	6.71	Fail	Pass	0.11	Pass	Fail	2.68	Pass	Fail	6.59	Fail
Harlow Screenline_WB	SECOND AVENUE	E3	WB	703	112	15	830	778	207	20	1005	75	95	5	175	11%	85%	33%	21%	Fail	2.76	Pass	Fail	7.52	Fail	Fail	1.20	Pass	Fail	5.78	Fail
Harlow Screenline_WB	SOUTHERN WAY	E4	WB	769	123	16	908	578	39	2	619	-191	-84	-14	-289	-25%	-68%	-88%	-32%	Fail	7.36	Fail	Fail	9.33	Fail	Fail	4.67	Pass	Fail	10.46	Fail
Harlow Screenline_WB	MAUNDS HATCH	E5	SWB	165	22	1	188	99	6	0	105	-66	-16	-1	-83	-40%	-73%	-100%	-44%	Fail	5.74	Fail	Fail	4.28	Pass	Fail	1.41	Pass	Fail	6.86	Fail
Harlow Screenline_WB_TOTAL				2973	457	50	3480	2977	482	53	3512	4	25	3	32	0%	5%	6%	1%	Pass	0.07	Pass	Fail	1.15	Pass	Fail	0.42	Pass	Pass	0.54	Pass
East of M11_EB	0	B1	SB	264	42	6	312	233	28	3	264	-31	-14	-3	-48	-12%	-33%	-50%	-15%	Fail	1.97	Pass	Fail	2.37	Pass	Fail	1.41	Pass	Fail	2.83	Pass
East of M11_EB	SAWBRIDGEWORTH ROAD	B2	EB	211	28	1	240	101	9	0	110	-110	-19	-1	-130	-52%	-68%	-100%	-54%	Fail	8.81	Fail	Fail	4.42	Pass	Fail	1.41	Pass	Fail	9.83	Fail
East of M11_EB	THE STREET	B3	EB	490	79	6	575	505	76	5	586	15	-3	-1	11	3%	-4%	-17%	2%	Pass	0.67	Pass	Pass	0.34	Pass	Fail	0.43	Pass	Pass	0.46	Pass
East of M11_EB	MATCHING ROAD	B4	EB	57	8	0	65	71	13	3	87	14	5	3	22	25%	63%	N/A	34%	Fail	1.75	Pass	Fail	1.54	Pass	Fail	2.45	Pass	Fail	2.52	Pass
East of M11_EB	HOBBS CROSS ROAD	B5	EB	57	8	0	65	27	5	0	32	-30	-3	0	-33	-53%	-38%	0%	-51%	Fail	4.63	Pass	Fail	1.18	Pass	Pass	0.00	Pass	Fail	4.74	Pass
Harlow Cordon_OB,East of M11_EB	HARLOW COMMON	B6/D3	EB	141	19	1	161	31	6	2	39	-110	-13	1	-122	-78%	-68%	100%	-76%	Fail	11.86	Fail	Fail	3.68	Pass	Fail	0.82	Pass	Fail	12.20	Fail
East of M11_EB	HASTINGWOOD ROAD	B7	NEB	150	20	1	171	326	20	3	349	176	0	2	178	117%	0%	200%	104%	Fail	11.41	Fail	Pass	0.00	Pass	Fail	1.41	Pass	Fail	11.04	Fail
East of M11_EB	CANES LANE	B8	SEB	682	109	14	805	503	89	13	605	-179	-20	-1	-200	-26%	-18%	-7%	-25%	Fail	7.35	Fail	Fail	2.01	Pass	Fail	0.27	Pass	Fail	7.53	Fail
East of M11_EB_TOTAL				2052	313	29	2394	1797	246	29	2072	-255	-67	0	-322	-12%	-21%	0%	-13%	Fail	5.81	Fail	Fail	4.01	Pass	Pass	0.00	Pass	Fail	6.81	Fail
East of M11_WB	0	B1	NB	288	46	6	340	243	38	5	286	-45	-8	-1	-54	-16%	-17%	-17%	-16%	Fail	2.76	Pass	Fail	1.23	Pass	Fail	0.43	Pass	Fail	3.05	Pass
East of M11_WB	SAWBRIDGEWORTH ROAD	B2	WB	185	25	1	211	137	11	1	149	-48	-14	0	-62	-26%	-56%	0%	-29%	Fail	3.78	Pass	Fail	3.30	Pass	Pass	0.00	Pass	Fail	4.62	Pass
East of M11_WB	THE STREET	B3	WB	295	48	4	347	416	80	7	503	121	32	3	156	41%	67%	75%	45%	Fail	6.42	Fail	Fail	4.00	Pass	Fail	1.28	Pass	Fail	7.57	Fail
East of M11_WB	MATCHING ROAD	B4	WB	44	6	0	50	58	8	1	67	14	2	1	17	32%	33%	N/A	34%	Fail	1.96	Pass	Fail	0.76	Pass	Fail	1.41	Pass	Fail	2.22	Pass
East of M11_WB	HOBBS CROSS ROAD	B5	WB	116	16	0	132	69	6	2	77	-47	-10	2	-55	-41%	-63%	N/A	-42%	Fail	4.89	Pass	Fail	3.02	Pass	Fail	2.00	Pass	Fail	5.38	Fail
East of M11_WB,Harlow Cordon_IB	HARLOW COMMON	B6/D3	WB	194	26	1	221	80	9	0	89	-114	-17	-1	-132	-59%	-65%	-100%	-60%	Fail	9.74	Fail	Fail	4.06	Pass	Fail	1.41	Pass	Fail	10.60	Fail
East of M11_WB	HASTINGWOOD ROAD	B7	SWB	76	10	0	86	83	14	0	97	7	4	0	11	9%	40%	0%	13%	Fail	0.79	Pass	Fail	1.15	Pass	Pass	0.00	Pass	Fail	1.15	Pass
East of M11_WB	CANES LANE	B8	NWB	511	82	11	604	550	60	6	616	39	-22	-5	12	8%	-27%	-45%	2%	Fail	1.69	Pass	Fail	2.61	Pass	Fail	1.71	Pass	Pass	0.49	Pass
East of M11_WB_TOTAL				1709	259	23	1991	1636	226	22	1884	-73	-33	-1	-107	-4%	-13%	-4%	-5%	Pass	1.79	Pass	Fail	2.12	Pass	Pass	0.21	Pass	Fail	2.43	Pass
North of A120_NB	0	L1	NWB	12	2	0	14	3	2	0	5	-9	0	0	-9	-75%	0%	0%	-64%	Fail	3.29	Pass	Pass	0.00	Pass	Pass	0.00	Pass	Fail	2.92	Pass
North of A120_NB	0	L2	NB	30	4	0	34	27	2	0	29	-3	-2	0	-5	-10%	-50%	0%	-15%	Fail	0.56	Pass	Fail	1.15	Pass	Pass	0.00	Pass	Fail	0.89	Pass
North of A120_NB	0	L3	NB	69	9	0	78	90	10	0	100	21	1	0	22	30%	11%	0%	28%	Fail	2.36	Pass	Fail	0.32	Pass	Pass	0.00	Pass	Fail	2.33	Pass
North of A120_NB	THE STREET	L4	NB	168	23	1	192	180	20	2	202	12	-3	1	10	7%	-13%	100%	5%	Fail	0.91	Pass	Fail	0.65	Pass	Fail	0.82	Pass	Fail	0.71	Pass
North of A120_NB	0	L5	NB	389	63	5	457	370	57	3	430	-19	-6	-2	-27	-5%	-10%	-40%	-6%	Pass	0.98	Pass	Fail	0.77	Pass	Fail	1.00	Pass	Fail	1.28	Pass
North of A120_NB	NORTH HALL ROAD	L6	NB	51	7	0	58	77	11	1	89	26	4	1	31	51%	57%	N/A	53%	Fail	3.25	Pass	Fail	1.33	Pass	Fail	1.41	Pass	Fail	3.62	Pass
North of A120_NB_TOTAL				719	108	6	833	747	102	6	855	28	-6	0	22	4%	-6%	0%	3%	Pass	1.03	Pass	Fail	0.59	Pass	Pass	0.00	Pass	Pass	0.76	Pass
North of A120_SB	0	L1	SEB	11	1	0	12	5	1	1	7	-6	0	1	-5	-55%	0%	N/A	-42%	Fail	2.12	Pass	Pass	0.00	Pass	Fail	1.41	Pass	Fail	1.62	Pass
North of A120_SB	0	L2	SB	13	2	0	15	5	1	0	6	-8	-1	0	-9	-62%	-50%	0%	-60%	Fail	2.67	Pass	Fail	0.82	Pass	Pass	0.00	Pass	Fail	2.78	Pass
North of A120_SB	0	L3	SB	54	7	0	61	26	5	1	32	-28	-2	1	-29	-52%	-29%	N/A	-48%	Fail	4.43	Pass	Fail	0.82	Pass	Fail	1.41	Pass	Fail	4.25	Pass
North of A120_SB	THE STREET	L4	SB	118	16	0	134	113	12	2	127	-5	-4	2	-7	-4%	-25%	N/A	-5%	Pass	0.47	Pass	Fail	1.07	Pass	Fail	2.00	Pass	Fail	0.61	Pass
North of A120_SB	0	L5	SB	337	54	4	395	347	43	4	394	10	-11	0	-1	3%	-20%	0%	0%	Pass	0.54	Pass	Fail	1.58	Pass	Pass	0.00	Pass	Pass	0.05	Pass
North of A120_SB	NORTH HALL ROAD	L6	SB	55	7	0	62	113	23	2	138	58	16	2	76	105%	229%	N/A	123%	Fail	6.33	Fail	Fail	4.13	Pass	Fail	2.00	Pass	Fail	7.60	Fail
North of A120_SB_TOTAL				588	87	4	679	609	85	10	704	21	-2	6	25	4%	-2%	150%	4%	Pass	0.86	Pass	Pass	0.22	Pass	Fail	2.27	Pass	Pass	0.95	Pass

Appendix E. Journey Time Validation

Route No	Route Description	Approximate Route Length (km)
Route 1	**A120 Puckeridge to Braintree**	
1	A10 Puckeridge to A1184 (Bishop's Stortford)	9.4
2	A1184 to A120 / Dunmow Rd Roundabout	5
3	A120 / Dunmow Rd Roundabout to M11 J8a/ Thremhall Ave Roundabout	1.5
4	M11 J8a / Thremhall Ave Roundabout to A120 / B1256 Interchange	9.3
5	A120 / B1256 Interchange to A120 / B1008 Gt Dunmow Interchange	4
6	A120 / B1008 Gt Dunmow Interchange to A131 Interchange (Braintree)	12
		41.2
Route 2	**M11 J6 to J11**	
1	J6 entry to J7 diverge	7.46
2	J7 diverge to J8 diverge	15.5
3	J8 diverge to J9 diverge	22.4
4	J9 diverge to J10 diverge	5.4
5	J10 diverge to J11 exit	7.4
		58.2
Route 3	**A10 from M25 J25 to M11 J11**	
1	M25 J25 to A414 Amwell	11.8
2	A414 Amwell to A414 Rush Green	2.2
3	A414 Rush Green to A120 Puckeridge	11
4	A120 Puckeridge to A507 Buntingford	8
5	A507 Buntingford to A505 Royston	13
6	A505 Royston to M11 J11 Cambridge	14
		60
Route 4	**B1383 and A1184 from M11 J9a to Harlow (old A11)**	
1	A1184 / A414 Cambridge Rd to A1184 / B1383 Bps Stfd Bypass	6.9
2	A1184 / B1383 Bps Stfd Bypass to A1250 Hockerill signals	2.8
3	A1250 Hockerill signals to A120 / Stansted Road Roundabout	2.1
4	A120 / Stansted Road Roundabout to B1038 Newport	11.75
5	B1038 Newport to J9a Stump Cross	11.4
		11.8
Route 5	**Harlow to Waltham Abbey via Crooked Mile Route**	
1	A414 / Second Ave to A1025 / Velizy Ave	2
2	Third Ave / Second Ave junction to A1169 / Water Lane junction	2.6
3	A1169 / Water Lane junction to Middle Street / Waltham Road junction	4.5
4	Middle Street / Waltham Road junction to Abbeyview Junction, Waltham Abbey	5.7
		14.8
Route 6	**A414 from Hertingfordbury to Widford**	
1	A1114 London Road Widford to A128 Four Wantz roundabout	15
2	A128 Four Wantz to M11 J7 Hastingwood	9
3	M11 J7 Hastingwood to A414 / Second Ave Roundabout	2.7
4	A414 / Second Ave Roundabout to A414 Burnt Mill Roundabout	5.7
5	A414 Burnt Mill Roundabout to A10 Amwell	8.9
6	A10 Amwell to A10 Rush Green	2.2
7	A10 Rush Green to Thieves Ln Roundabout (Hertingfordbury)	4.9
		48.4
Route 7	**A1250 Bishop's Stortford**	
1	A120 / Dunmow Rd Roundabout to Parsonage Lane Roundabout	0.7
2	Parsonage Lane to London Road Hockerill Signals	1.5
3	Hockerill to Bell's Hill Roundabout	1.2
4	Bell's Hill to A120 / A1184 Roundabout	1.5
		4.9
Route 8	**A1184 Bishop's Stortford South-west By-pass**	
1	A120/A1250 to B1004 Great Hadham Road	1.5
2	B1004 Great Hadham Road to B1383 London Road Junction	3
		4.5
Route 9	**B1256 B183 First Ave from Gt Dunmow to Harlow**	
1	A120 / B1256 Gt Dunmow to B183 Four Ashes Takeley	3.9
2	B183 Four Ashes Takeley to A1060 Hatfield Heath	8.5
3	A1060 Hatfield Heath to Mayfield Farm Entrance (for scheme)	5
4	Mayfield Farm Entrance (for scheme) to A414 / First Ave Junction	2.3
5	A414 First Ave to A1019 Velizy Ave Roundabout	2.4
6	A1019 Velizy Ave Roundabout to A1169 Elizabeth Way signals	2.1
		24.2
Route 10	**A1060 from A1016 Parkway (Chelmsford) to B1383 Bishop's Stortford**	
1	A1016 Parkway Junction (Chelmsford) to B184 Leaden Roding roundabout	13.5
2	B184 Leaden Roding to B183 (west) Hatfield Heath	8.5
3	B183 (west) Hatfield Heath to B1383 London Road roundabout	6.9
		28.9
Route 11	**Lt Hallingbury to Pincey Brook (unclassified)**	
1	A1060 Lower Rd via Sawbridgeworth Rd to Sawbridgeworth	3
2	Sawbridgeworth via Sheering Lower Rd to B183 Sheering Rd	2.6
		5.6
Route 12	**Harlow West and South**	
1	A414 / A1169 Southern Way Junction to B1133 Water Lane via Southern Way	3.9
2	B1133 Water Lane to A1169 / Elizabeth Way Roundabout	1.8
3	A1169 / Elizabeth Way Roundabout to A414 Burnt Mill Junction	2.9
		8.6
Route 13	**High Wych to Harlow**	
1	A1019 Velizy Ave / A1025 to A414 / Eastwick Rd	2.1
2	A414 Eastwick to A1184 Bonks Hill	4.9
		7
Route 14	**M25 J25 to J28**	
1	J25 to J26	5.8
2	J26 to J27	6.9
3	J27 to J28	12.6
		25.3
Route 15	**B1393 A121 Hastingwood to Waltham Abbey (old A11)**	
1	M25 J26 / A121 to Theydon Road Bell Common	5.7
2	Theydon Road Bell Common to B1393 / B181 The Plain	2.3
3	B1393 / B181 The Plain to M11 J7 Hastingwood	5.1
		13.1

Route 1 – A120 Puckeridge to Braintree



Route 2 – M11 J6 to J11

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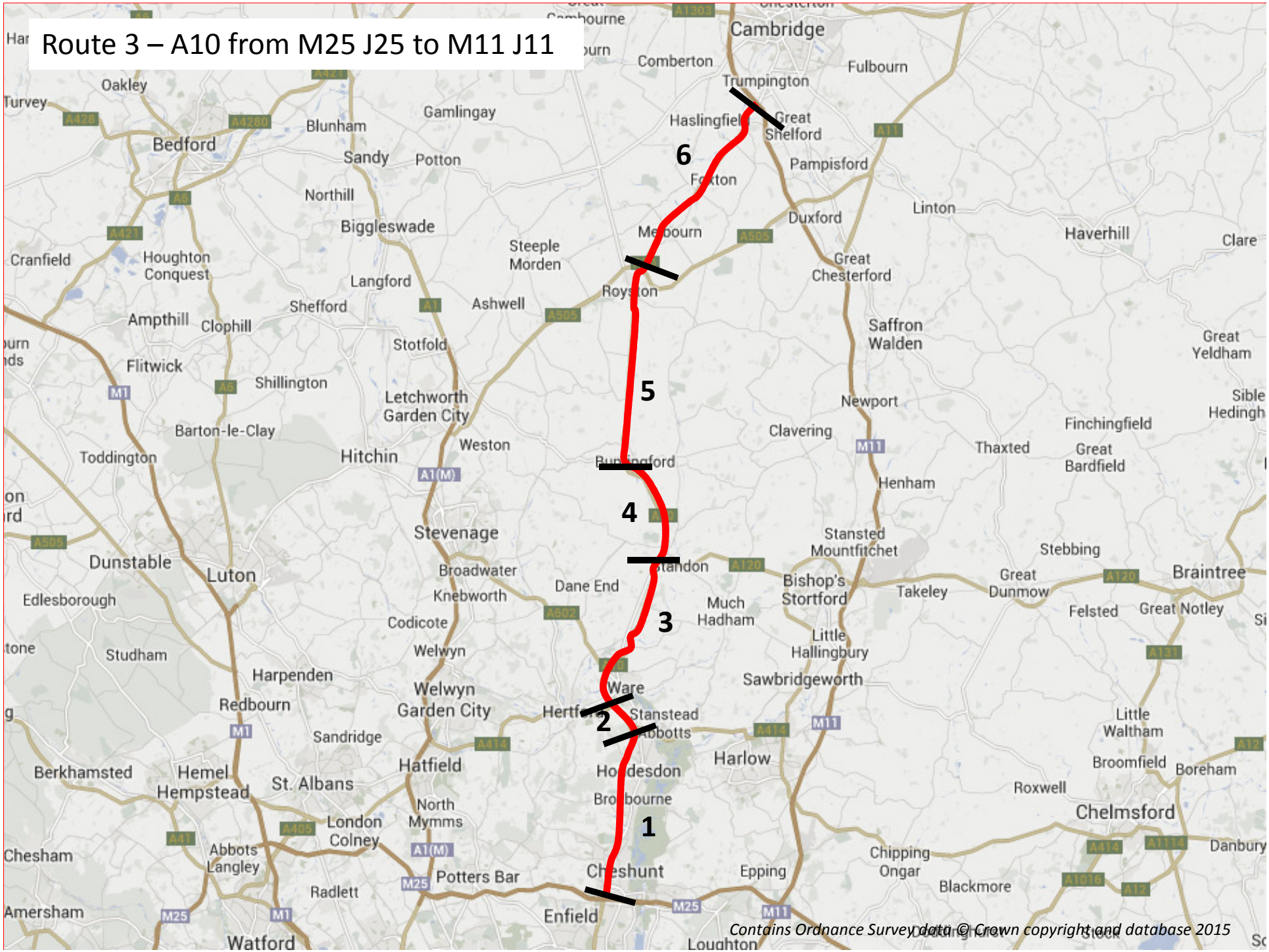
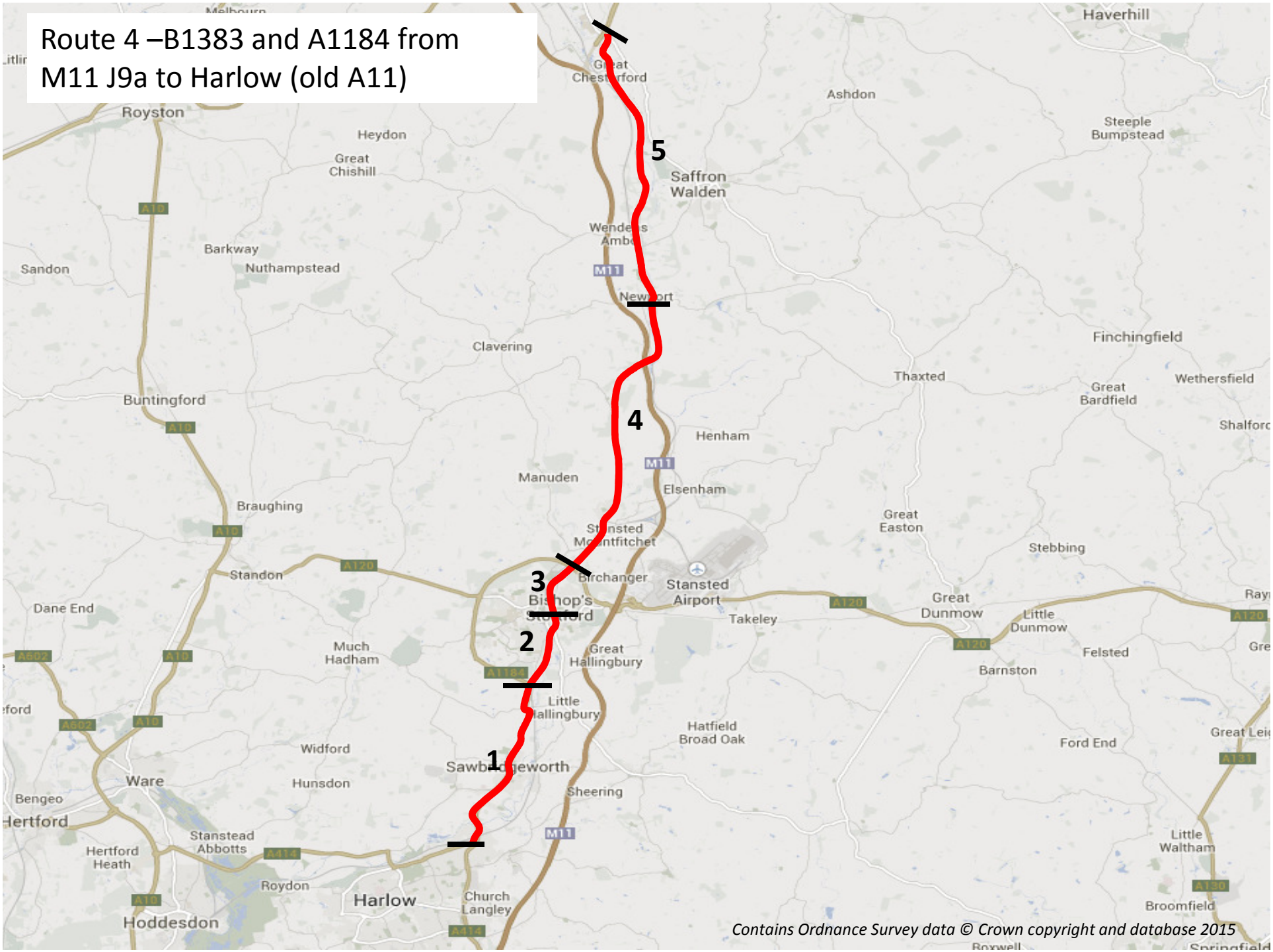
Route 3 – A10 from M25 J25 to M11 J11



Route 4 –B1383 and A1184 from M11 J9a to Harlow (old A11)



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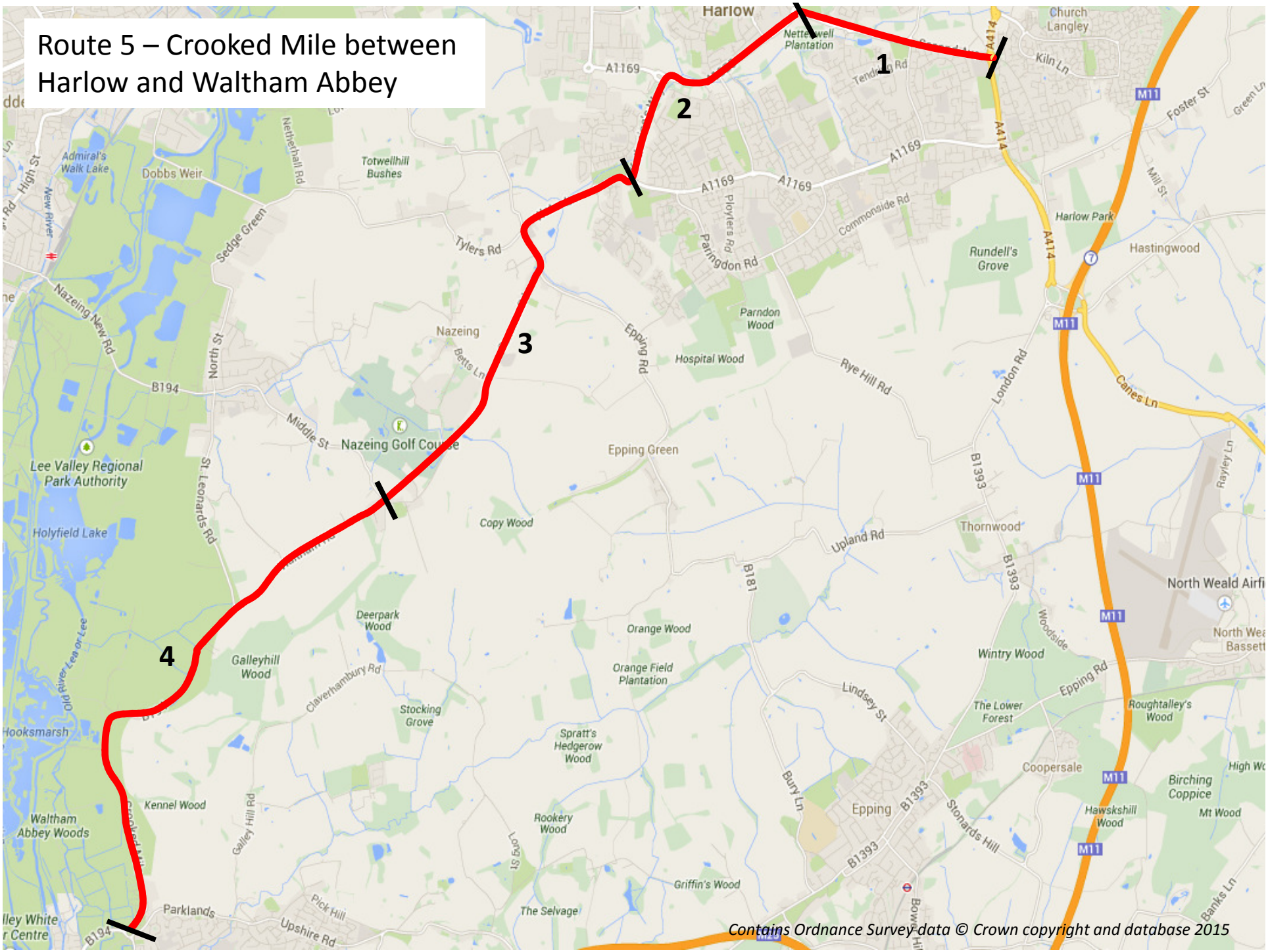
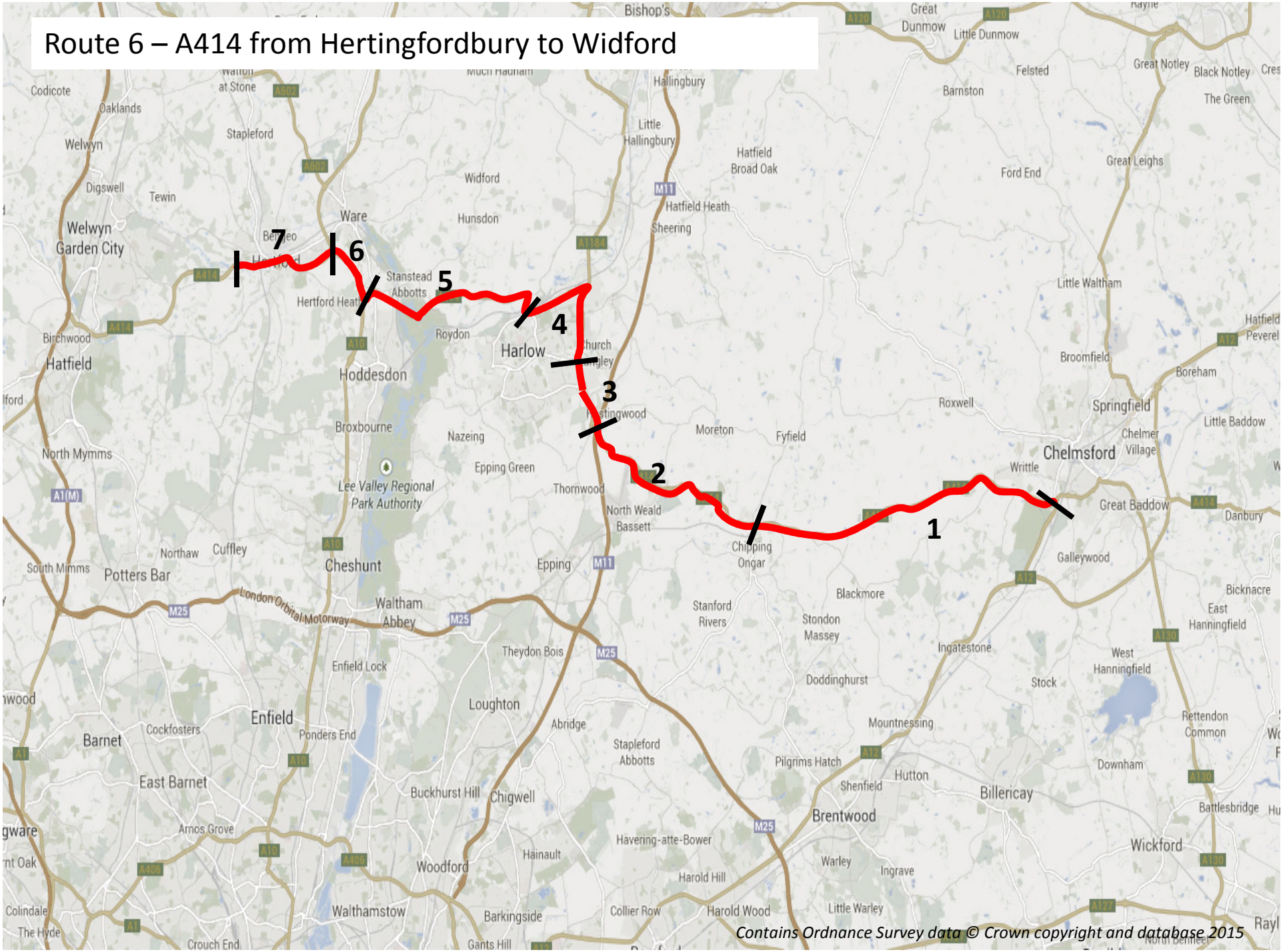
Route 5 – Crooked Mile between Harlow and Waltham Abbey



Route 6 – A414 from Hertingfordbury to Widford



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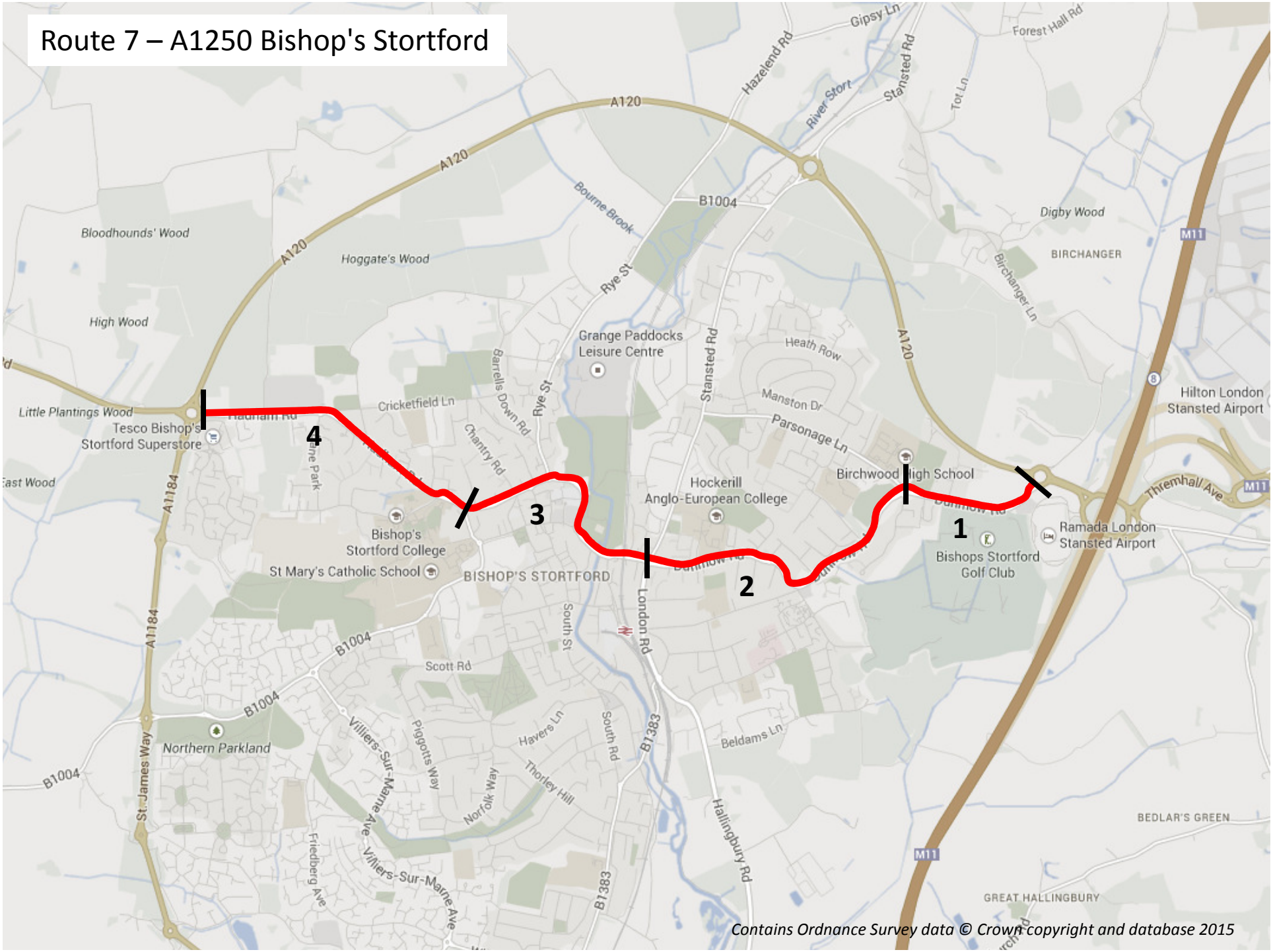
Route 7 – A1250 Bishop's Stortford



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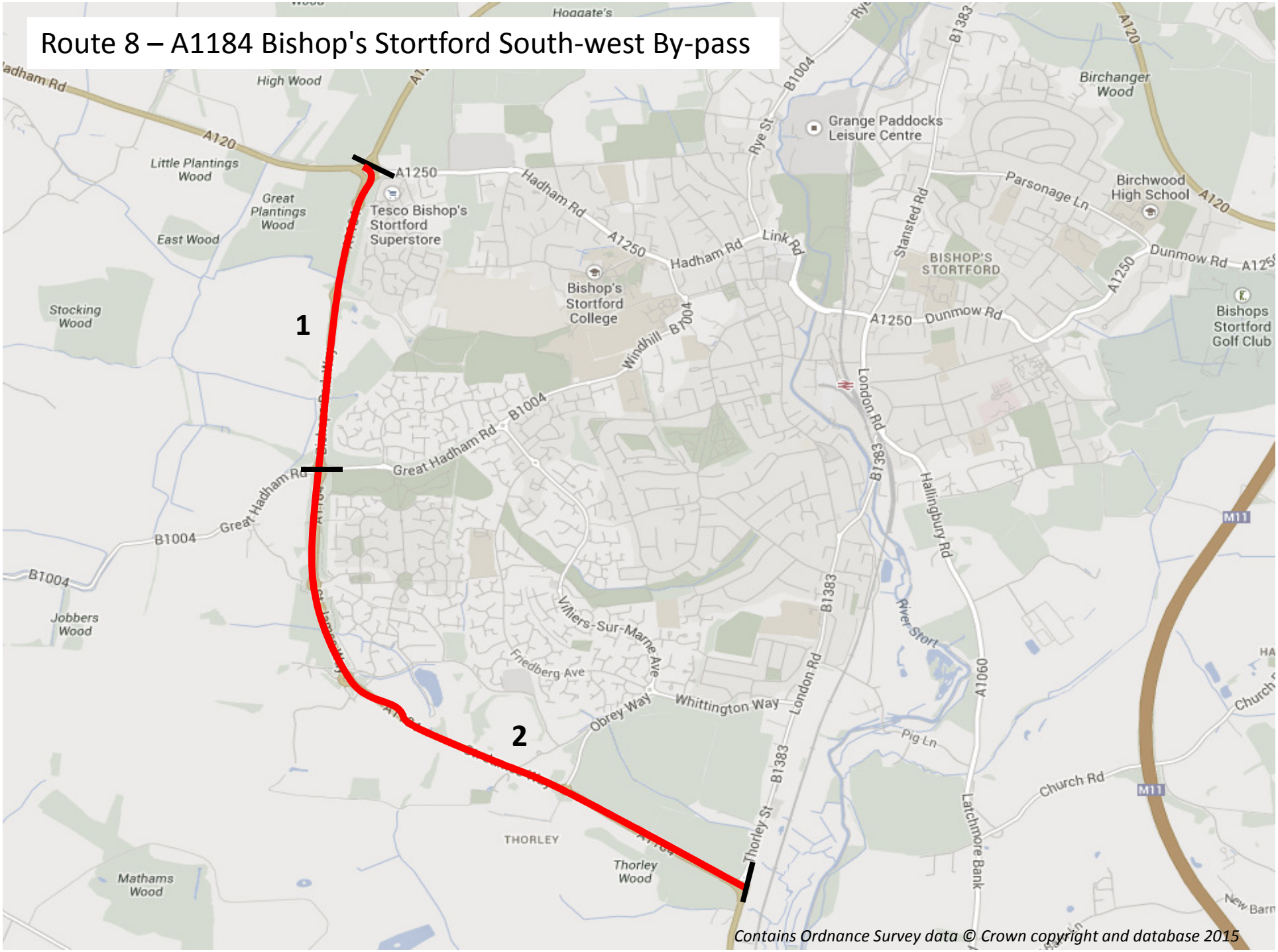
Route 8 – A1184 Bishop's Stortford South-west By-pass



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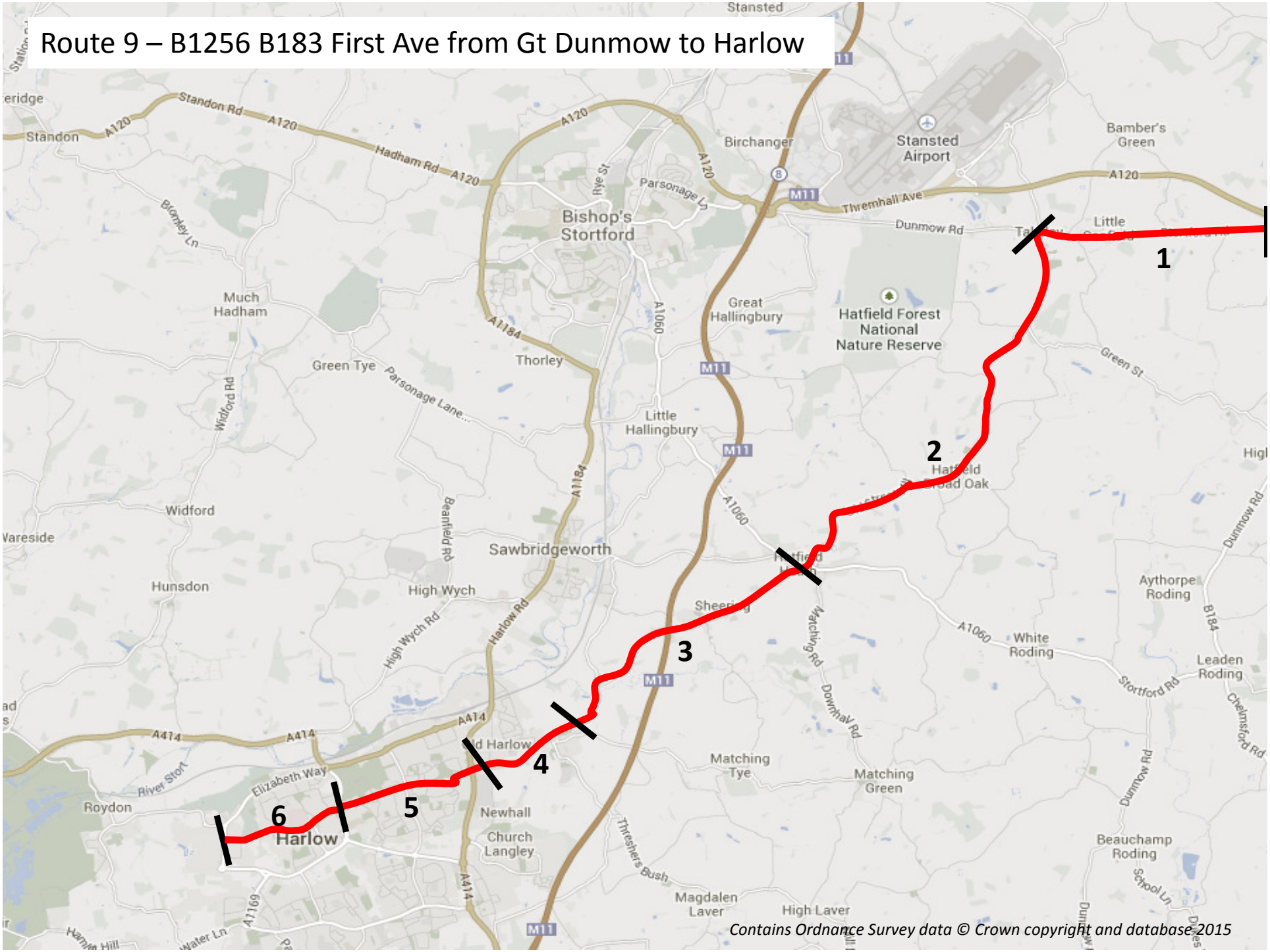
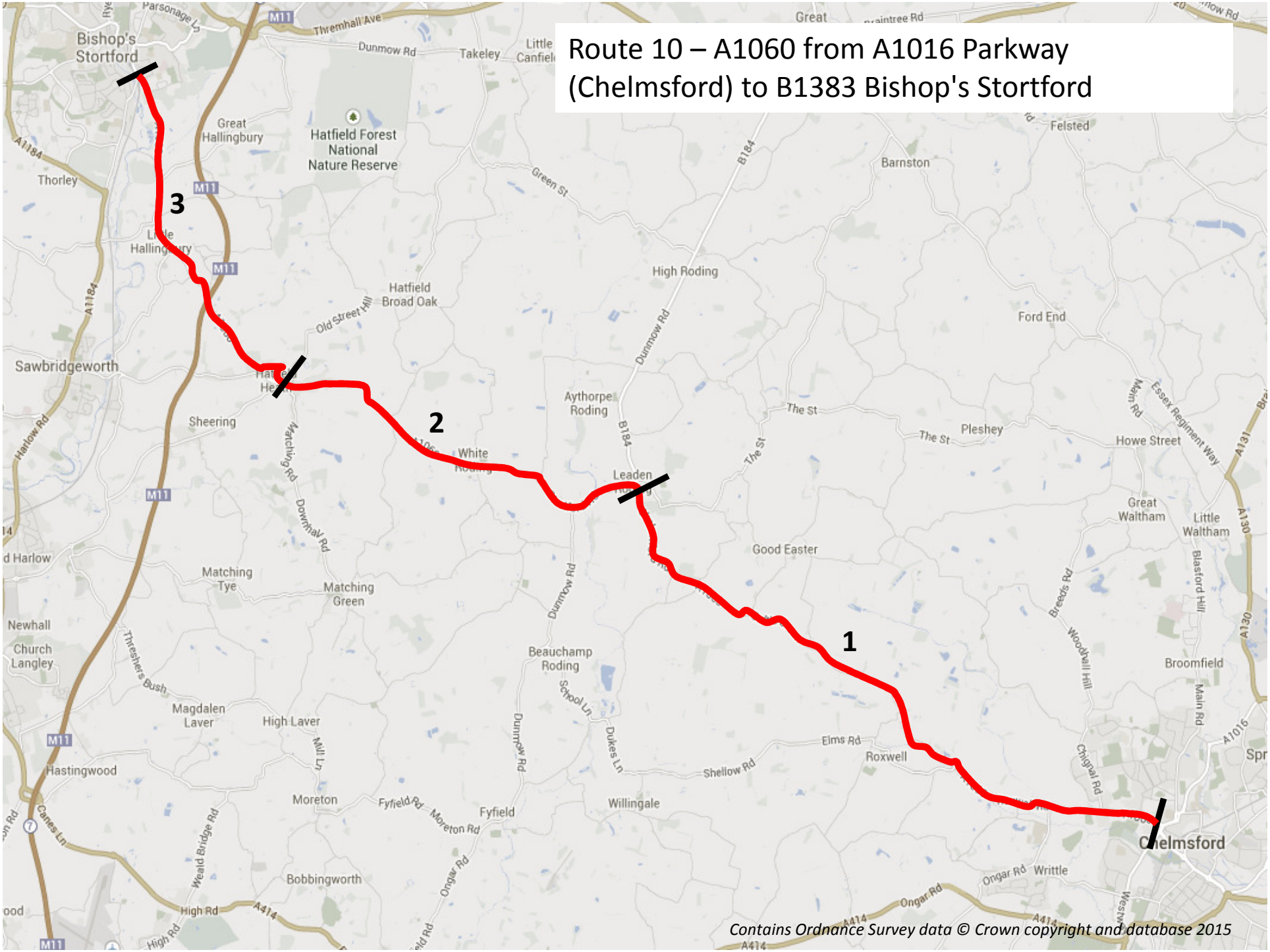
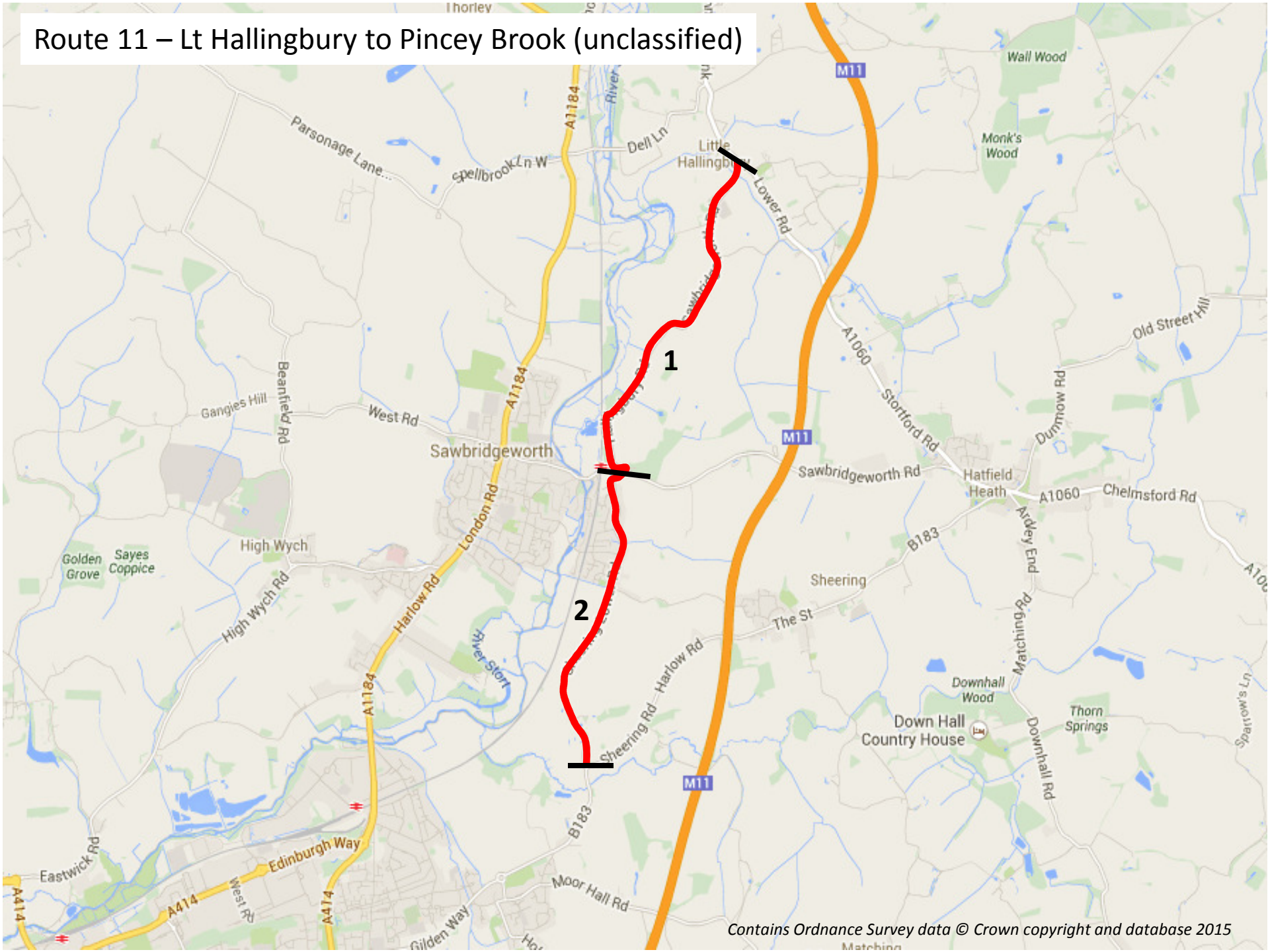
Route 9 – B1256 B183 First Ave from Gt Dunmow to Harlow



Route 10 – A1060 from A1016 Parkway (Chelmsford) to B1383 Bishop's Stortford



Route 11 – Lt Hallingbury to Pincey Brook (unclassified)



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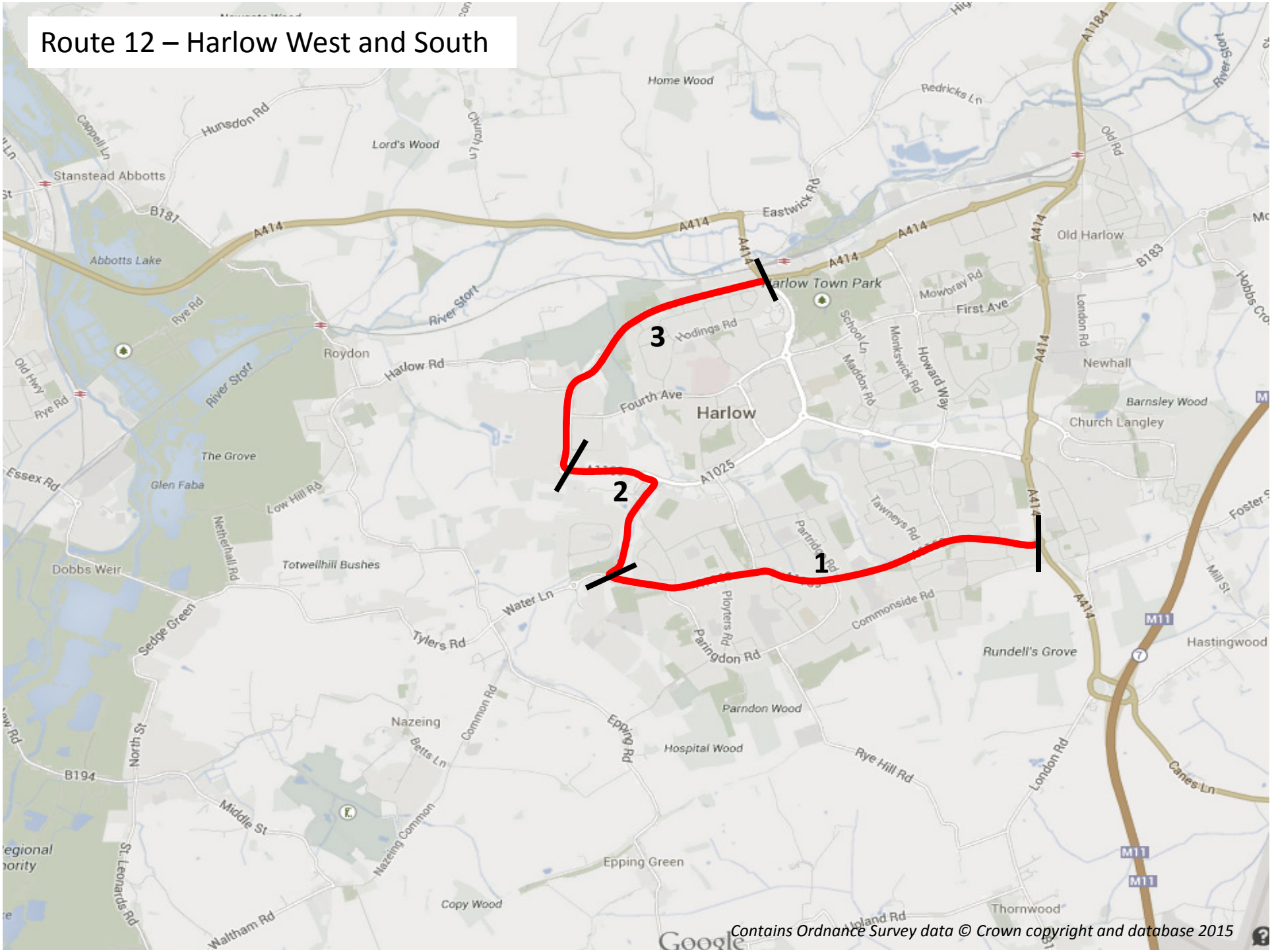
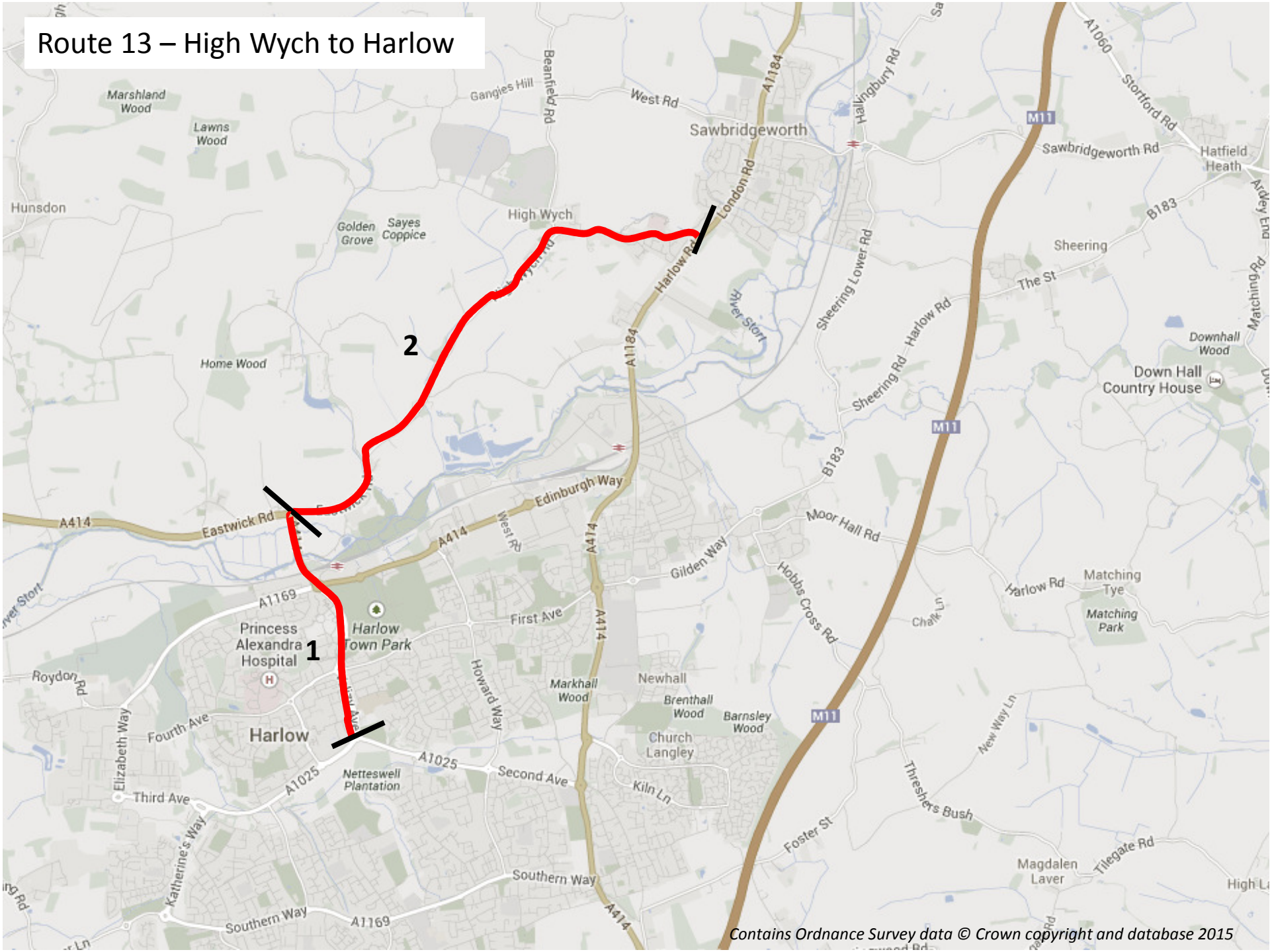
Route 12 – Harlow West and South



Route 13 – High Wych to Harlow



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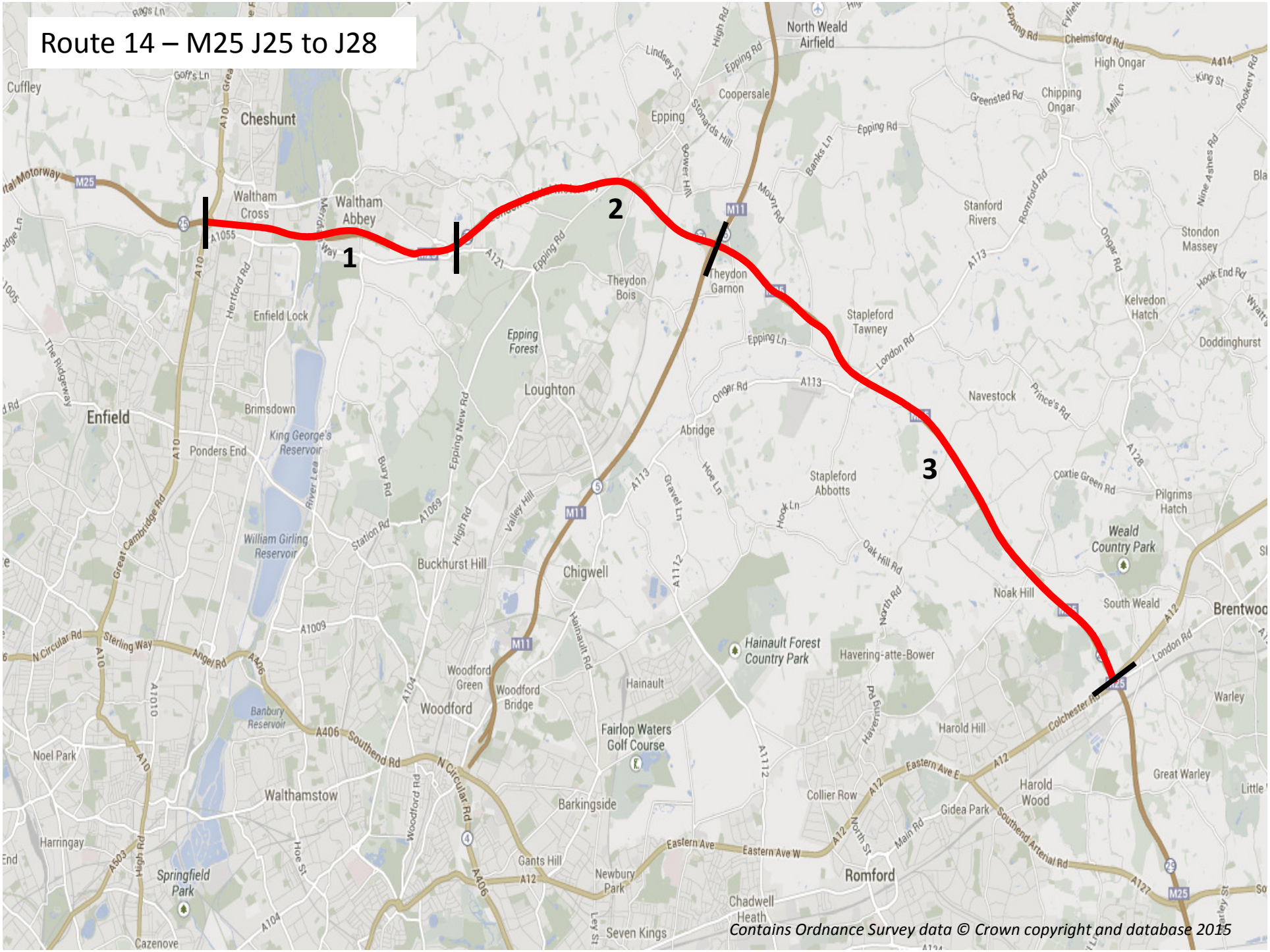
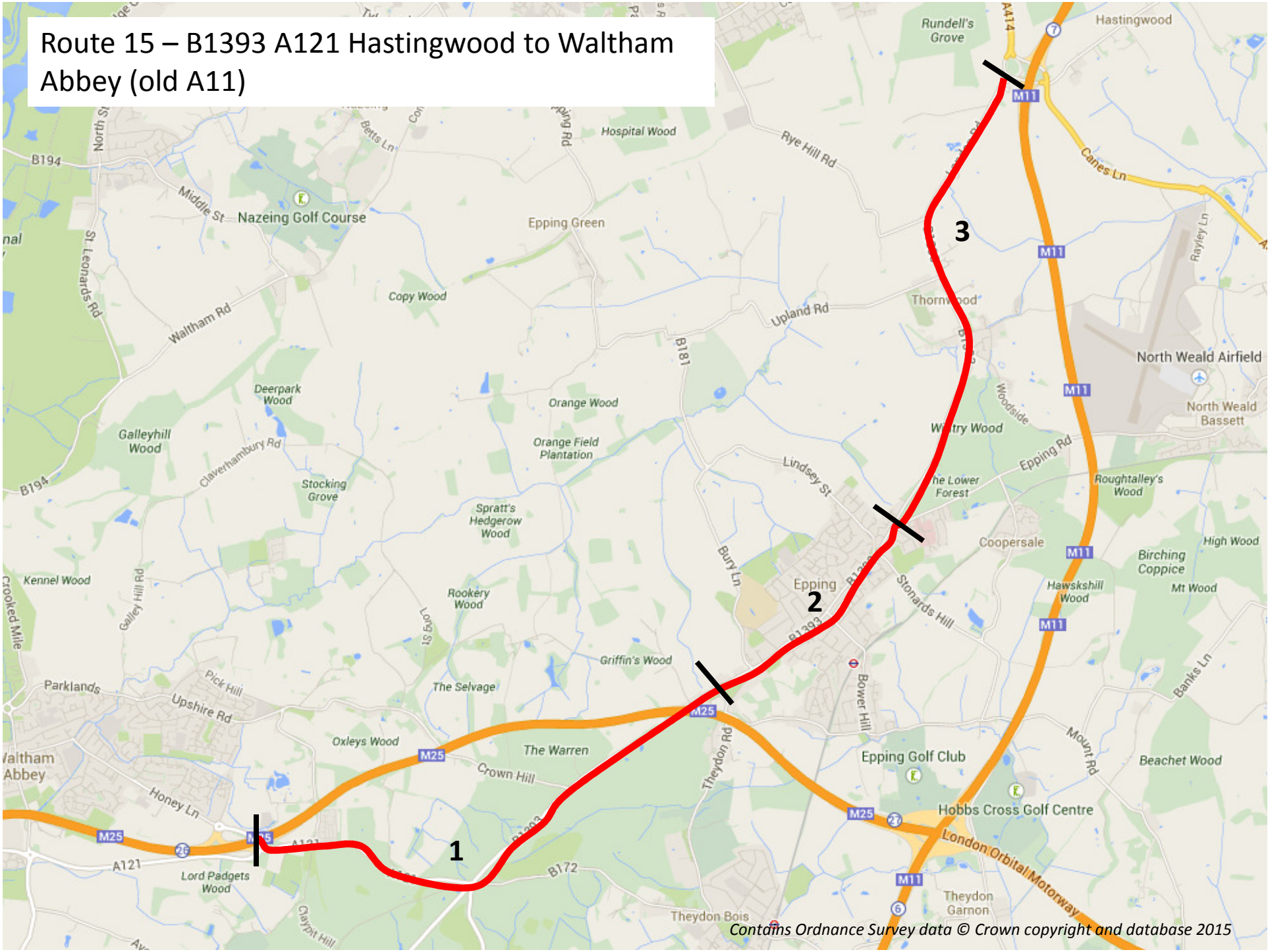
Route 14 – M25 J25 to J28



Route 15 – B1393 A121 Hastingwood to Waltham Abbey (old A11)



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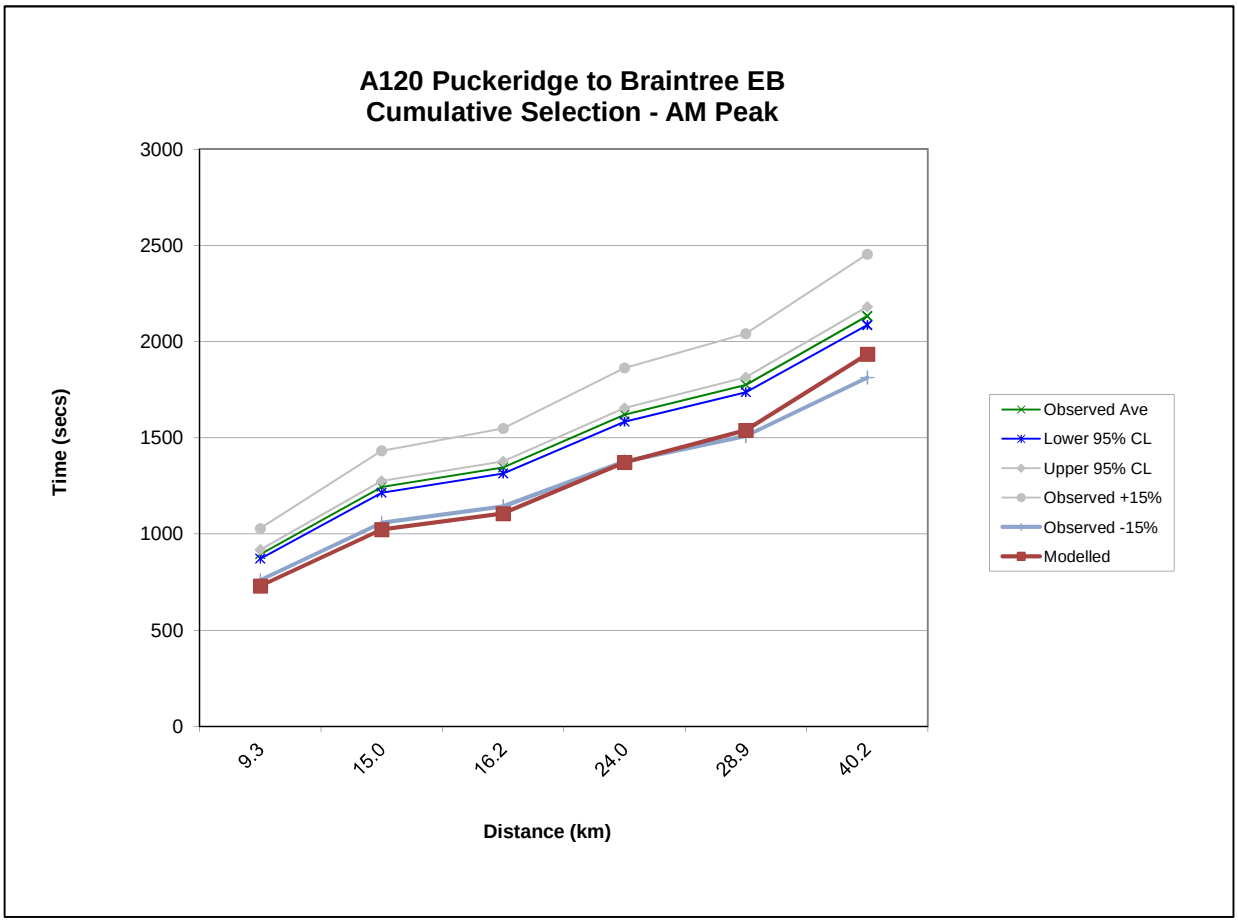
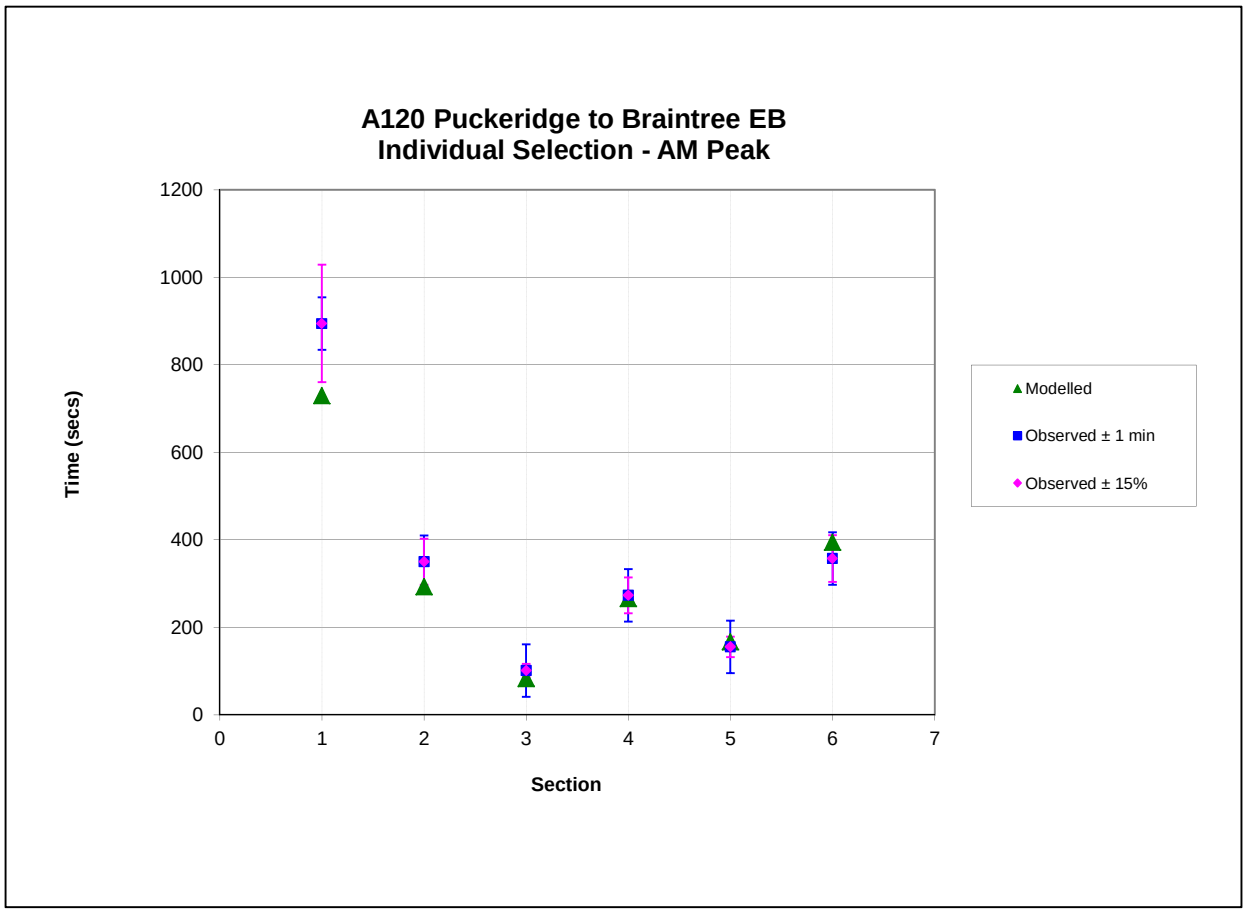
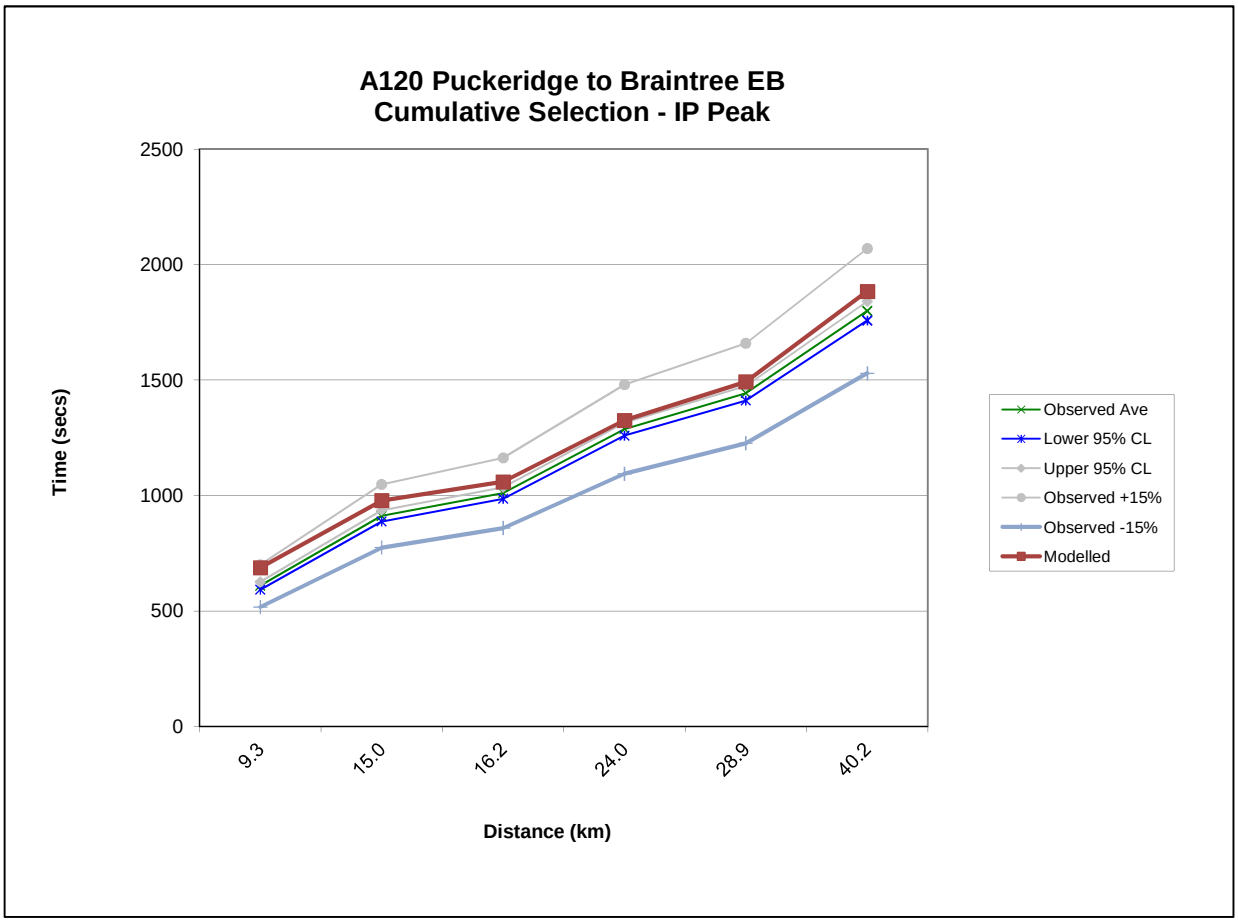
08:00 - 09:00														
Route	Route Section	**Dist (km)**	**Modelled Section**	Mod Cumulative	Obs Mean	Obs Cumulative	Speed (kph)	SD	Confidence	CV	Lowerbound	Upperbound	-15%	15%
Route_1_EB	Route_1_EB_1	9.3	730	730	895	895	37	352.2	23.65	3%	871	918	760	1029
Route_1_EB	Route_1_EB_2	5.7	293	1023	350	1245	59	137.0	7.23	2%	343	357	298	403
Route_1_EB	Route_1_EB_3	1.2	83	1106	101	1346	41	45.0	0.98	1%	100	102	86	116
Route_1_EB	Route_1_EB_4	7.8	266	1372	273	1619	103	104.5	3.55	1%	270	277	232	314
Route_1_EB	Route_1_EB_5	4.9	167	1539	156	1775	113	54.7	4.12	3%	152	160	132	179
Route_1_EB	Route_1_EB_6	11.3	395	1934	357	2132	114	107.7	7.81	2%	350	365	304	411
Route_1_WB	Route_1_WB_6	13.0	435	435	421	421	111	109.1	4.79	1%	416	426	358	484
Route_1_WB	Route_1_WB_5	3.3	145	580	115	536	105	40.3	1.33	1%	113	116	97	132
Route_1_WB	Route_1_WB_4	7.7	285	865	269	805	103	114.9	3.23	1%	266	273	229	310
Route_1_WB	Route_1_WB_3	1.5	121	986	145	950	37	43.6	1.08	1%	144	146	123	167
Route_1_WB	Route_1_WB_2	5.7	311	1297	290	1240	70	81.7	5.31	2%	284	295	246	333
Route_1_WB	Route_1_WB_1	8.4	777	2074	750	1990	40	216.3	18.60	2%	732	769	638	863
Route_2_NB	Route_2_NB_1	6.4	217	217	220	220	104	132.8	4.72	2%	216	225	187	253
Route_2_NB	Route_2_NB_2	15.1	502	719	481	702	113	134.9	5.19	1%	476	487	409	554
Route_2_NB	Route_2_NB_3	22.6	817	1536	773	1474	105	218.7	8.21	1%	764	781	657	889
Route_2_NB	Route_2_NB_4	5.8	197	1733	185	1659	113	120.7	7.11	4%	177	192	157	212
Route_2_NB	Route_2_NB_5	7.7	245	1978	256	1915	108	124.5	7.11	3%	249	264	218	295
Route_2_SB	Route_2_SB_5	7.4	248	248	250	250	106	183.4	9.95	4%	240	260	213	288
Route_2_SB	Route_2_SB_4	5.3	180	428	175	425	110	86.1	6.63	4%	168	181	148	201
Route_2_SB	Route_2_SB_3	24.8	896	1324	834	1258	107	216.2	8.55	1%	825	842	709	959
Route_2_SB	Route_2_SB_2	13.3	438	1762	448	1706	107	169.6	5.56	1%	442	453	381	515
Route_2_SB	Route_2_SB_1	6.5	223	1985	226	1932	103	136.9	3.03	1%	223	229	192	260
Route_3_NB	Route_3_NB_1	11.2	648	648	564	564	71	111.5	7.21	1%	557	572	480	649
Route_3_NB	Route_3_NB_2	2.4	86	734	88	652	100	81.8	3.48	4%	84	91	75	101
Route_3_NB	Route_3_NB_3	11.1	382	1116	369	1021	109	103.8	7.27	2%	362	376	314	425
Route_3_NB	Route_3_NB_4	8.1	340	1456	356	1377	82	106.8	8.35	2%	347	364	302	409
Route_3_NB	Route_3_NB_5	13.1	717	2173	783	2160	60	131.2	17.32	2%	765	800	665	900
Route_3_NB	Route_3_NB_6	12.9	779	2952	798	2958	58	181.2	16.96	2%	781	815	678	918
Route_3_SB	Route_3_SB_6	12.9	778	778	762	762	61	215.2	25.84	3%	736	788	648	876
Route_3_SB	Route_3_SB_5	13.1	730	1508	758	1520	62	157.2	18.63	2%	739	777	644	872
Route_3_SB	Route_3_SB_4	8.2	362	1870	387	1908	76	120.8	9.37	2%	378	397	329	445
Route_3_SB	Route_3_SB_3	11.1	396	2266	379	2286	106	106.4	5.96	2%	373	385	322	436
Route_3_SB	Route_3_SB_2	2.5	88	2354	86	2372	103	72.3	2.85	3%	83	89	73	99
Route_3_SB	Route_3_SB_1	11.2	674	3028	824	3196	49	300.2	15.75	2%	808	839	700	947
Route_4_NB	Route_4_NB_1	6.8	658	658	581	581	42	101.2	12.20	2%	569	594	494	669
Route_4_NB	Route_4_NB_2	2.9	348	1006	471	1053	22	288.1	34.58	7%	437	506	401	542
Route_4_NB	Route_4_NB_3	2.1	190	1196	226	1279	33	95.1	14.02	6%	212	240	192	260
Route_4_NB	Route_4_NB_4	11.9	794	1990	769	2048	56	88.7	8.25	1%	761	777	654	884
Route_4_NB	Route_4_NB_5	11.3	694	2684	682	2730	60	127.9	16.73	2%	665	698	579	784
Route_4_SB	Route_4_SB_5	11.3	664	664	691	691	59	113.5	14.59	2%	676	705	587	794
Route_4_SB	Route_4_SB_4	11.9	844	1508	782	1473	55	89.1	8.67	1%	774	791	665	900
Route_4_SB	Route_4_SB_3	2.1	199	1707	284	1757	26	91.7	14.36	5%	270	299	242	327
Route_4_SB	Route_4_SB_2	2.9	329	2036	288	2045	36	72.9	11.41	4%	277	300	245	332
Route_4_SB	Route_4_SB_1	6.9	731	2767	670	2715	37	150.6	16.92	3%	653	687	569	770
Route_5_NB	Route_5_NB_4	5.8	419	419	352	352	59	112.6	13.15	4%	338	365	299	404
Route_5_NB	Route_5_NB_3	4.5	312	731	304	656	53	88.1	8.57	3%	296	313	259	350
Route_5_NB	Route_5_NB_2	2.8	198	929	237	893	43	53.5	3.87	2%	233	241	201	272
Route_5_NB	Route_5_NB_1	2.0	149	1078	170	1063	43	86.9	8.73	5%	161	179	145	196
Route_5_SB	Route_5_SB_1	2.0	244	244	255	255	28	114.6	10.22	4%	245	266	217	294
Route_5_SB	Route_5_SB_2	2.5	176	420	190	445	48	56.1	5.16	3%	184	195	161	218
Route_5_SB	Route_5_SB_3	4.6	327	747	307	752	54	89.6	7.94	3%	299	315	261	353
Route_5_SB	Route_5_SB_4	5.8	411	1158	380	1132	55	122.6	8.46	2%	371	388	323	437
Route_6_EB	Route_6_EB_7	5.2	504	504	585	585	32	226.9	14.81	3%	570	600	497	673
Route_6_EB	Route_6_EB_6	2.2	104	608	93	678	87	82.0	3.73	4%	89	97	79	107
Route_6_EB	Route_6_EB_5	9.0	462	1070	506	1184	64	138.8	8.22	2%	497	514	430	582
Route_6_EB	Route_6_EB_4	5.9	340	1410	457	1641	46	176.6	13.02	3%	444	470	388	525
Route_6_EB	Route_6_EB_3	2.6	189	1599	305	1946	31	332.4	7.32	2%	298	312	259	351
Route_6_EB	Route_6_EB_2	8.8	505	2104	498	2444	64	116.8	7.53	2%	490	505	423	573
Route_6_EB	Route_6_EB_1	15.0	765	2869	753	3197	72	135.6	13.62	2%	739	766	640	866
Route_6_WB	Route_6_WB_1	15.0	828	828	754	754	72	111.0	8.15	1%	746	762	641	867
Route_6_WB	Route_6_WB_2	8.8	580	1408	572	1326	55	234.3	16.53	3%	556	589	486	658
Route_6_WB	Route_6_WB_3	2.8	236	1644	356	1682	28	98.5	2.39	1%	353	358	302	409
Route_6_WB	Route_6_WB_4	5.7	403	2047	547	2229	38	140.8	12.15	2%	535	560	465	630
Route_6_WB	Route_6_WB_5	8.9	436	2483	417	2646	77	85.7	5.13	1%	412	422	355	480
Route_6_WB	Route_6_WB_6	2.4	114	2597	159	2806	55	116.1	5.85	4%	153	165	135	183
Route_6_WB	Route_6_WB_7	5.0	583	3180	449	3255	40	136.4	10.22	2%	439	460	382	517
Route_7_EB	Route_7_EB_4	1.5	122	122	131	131	40	44.6	4.41	3%	127	136	111	151
Route_7_EB	Route_7_EB_3	1.2	186	308	227	358	19	78.0	7.19	3%	220	234	193	261
Route_7_EB	Route_7_EB_2	1.5	164	472	188	546	29	95.9	11.75	6%	176	200	160	216
Route_7_EB	Route_7_EB_1	0.7	51	523	60	606	42	29.9	3.23	5%	57	63	51	69
Route_7_WB	Route_7_WB_1	0.7	56	56	55	55	47	30.1	4.28	8%	50	59	46	63
Route_7_WB	Route_7_WB_2	1.5	211	267	237	291	23	112.1	10.64	4%	226	247	201	272
Route_7_WB	Route_7_WB_3	1.2	160	427	158	450	28	39.0	4.52	3%	154	163	134	182
Route_7_WB	Route_7_WB_4	1.5	102	529	123	573	43	34.3	5.67	5%	117	129	105	142
Route_8_NB	Route_8_NB_2	3.1	167	167	182	182	62	59.2	5.96	3%	176	188	155	210
Route_8_NB	Route_8_NB_1	1.5	86	253	103	286	50	73.4	5.69	6%	98	109	88	119
Route_8_SB	Route_8_SB_1	1.5	85	85	90	90	58	61.0	5.67	6%	84	95	76	103
Route_8_SB	Route_8_SB_2	3.1	160	245	181	270	62	74.8	9.28	5%	171	190	154	208
Route_9_EB	Route_9_EB_6	2.1	156	156	173	173	44	65.3	7.42	4%	166	181	147	199
Route_9_EB	Route_9_EB_5	2.5	174	330	215	389	41	60.9	6.45	3%	209	222	183	247
Route_9_EB	Route_9_EB_4	2.3	127	457	150	539	55	77.9	8.65	6%	141	159	128	173
Route_9_EB	Route_9_EB_3	5.0	287	744	355	893	51	103.4	12.91	4%	342	368	302	408
Route_9_EB	Route_9_EB_2	8.5	508	1252	536	1430	57	191.9	38.27	7%	498	574	456	617
Route_9_EB	Route_9_EB_1	3.9	306	1558	250	1680	57	66.9	11.18	4%	239	261	213	288
Route_9_WB	Route_9_WB_1	3.9	335	335	261	261	54	71.4	8.50	3%	253	270	222	300
Route_9_WB	Route_9_WB_2	8.5	583	918	564	825	54	171.6	23.29	4%	541	587	479	649
Route_9_WB	Route_9_WB_3	5.0	331	1249	330	1155	55	84.6	9.71	3%	320	339	280	379
Route_9_WB	Route_9_WB_4	2.3	154	1403	191	1345	43	159.1	13.66	7%	177	204	162	219
Route_9_WB	Route_9_WB_5	2.4	246	1649	274	1619	32	95.5	7.99	3%	266	282	233	315
Route_9_WB	Route_9_WB_6	2.1	136	1785	181	1801	42	50.8	4.66	3%	177	186	154	209
Route_10_EB	Route_10_EB_3	7.6	508	508	555	555	49	116.4	12.29	2%	543	567	472	638
Route_10_EB	Route_10_EB_2	8.0	414	922	460	1015	63	118.9	16.22	4%	443	476	391	529
Route_10_EB	Route_10_EB_1	13.6	815	1737	886	1901	55	154.3	19.30	2%	867	906	753	1019
Route_10_WB	Route_10_WB_1	13.6	807	807	800	800	61	106.3	11.29	1%	789	812	680	920
Route_10_WB	Route_10_WB_2	8.0	432	1239	448	1248	64	99.1	10.63	2%	437	459	381	515
Route_10_WB	Route_10_WB_3	7.6	498	1737	688	1936	40	230.2	20.75	3%	667	709	585	791
Route_11_NB	Route_11_NB_2	2.7	247	247	232	232	41	111.9	24.74	11%	207	257	197	267
Route_11_NB	Route_11_NB_1	2.9	244	491	217	448	48	73.9	23.04	11%	194	240	184	249
Route_11_SB	Route_11_SB_1	2.9	250	250	207	207	50	63.5	11.47	6%	196	219	176	239
Route_11_SB	Route_11_SB_2	2.8	241	491	211	419	47	57.6	12.65	6%	198	224	179	243
Route_12_Anti	Route_12_Anti_3	2.9	353	353	205	205	50	55.1	5.13	3%	200	210	174	235
Route_12_Anti	Route_12_Anti_2	1.8	81	434	111	316	58	36.4	3.29	3%	108	114	94	128
Route_12_Anti	Route_12_Anti_1	3.9	403	837	409	725	34	114.5	11.35	3%	398	421	348	471
Route_12_Clock	Route_12_Clock_1	3.9	444	444	375	375	37	132.2	12.30	3%	363	387	319	431
Route_12_Clock	Route_12_Clock_2	1.8	235	679	124	498	53	41.7	2.23	2%	121	126	105	142
Route_12_Clock	Route_12_Clock_3	3.0	210	889	237	736	46	76.8	7.83	3%	229	245	202	273
Route_13_NB	Route_13_NB_2	4.9	292	292	318	318	55	84.8	10.01	3%	308	328	270	366
Route_13_NB	Route_13_NB_1	2.2	242	534	267	585	30	74.1	5.50	2%	262	273	227	307
Route_13_SB	Route_13_SB_1	2.2	221	221	220	220	35	57.6	4.51	2%	215	224	187	253
Route_13_SB	Route_13_SB_2	4.9	331	552	356	575	50	111.7	14.64	4%	341	370	302	409
Route_14_Anti	Route_14_Anti_3	12.9	457	457	626	626	74	296.3	9.87	2%	616	636	532	720
Route_14_Anti	Route_14_Anti_2	6.3	220	677	365	991	62	178.0	6.54	2%	358	371	310	420
Route_14_Anti	Route_14_Anti_1	5.1	179	856	364	1355	50	259.3	8.46	2%	355	372	309	418
Route_14_Clock	Route_14_Clock_1	4.7	169	169	187	187	91	108.6	4.09	2%	183	191	159	215
Route_14_Clock	Route_14_Clock_2	6.8	237	406	239	426	103	97.3	2.96	1%	236	242	203	275
Route_14_Clock	Route_14_Clock_3	12.7	452	858	416	842	110	162.1	6.50	2%	409	422	353	478
Route_15_EB	Route_15_EB_1	5.4	525	525	518	518	37	231.4	18.16	4%	500	536	440	596
Route_15_EB	Route_15_EB_2	1.9	234	759	235	753	29	107.8	9.79	4%	225	245	200	270
Route_15_EB	Route_15_EB_3	4.7	338	1097	312	1066	54	97.5	8.85	3%	304	321	266	359
Route_15_WB	Route_15_WB_3	4.7	443	443	456	456	37	239.5	20.92	5%	435	477	388	524
Route_15_WB	Route_15_WB_2	1.9	217	660	378	834	18	153.2	13.49	4%	364	391	321	435
Route_15_WB	Route_15_WB_1	5.4	479	1139	446	1280	44	132.3	8.99	2%	437	455	379	513

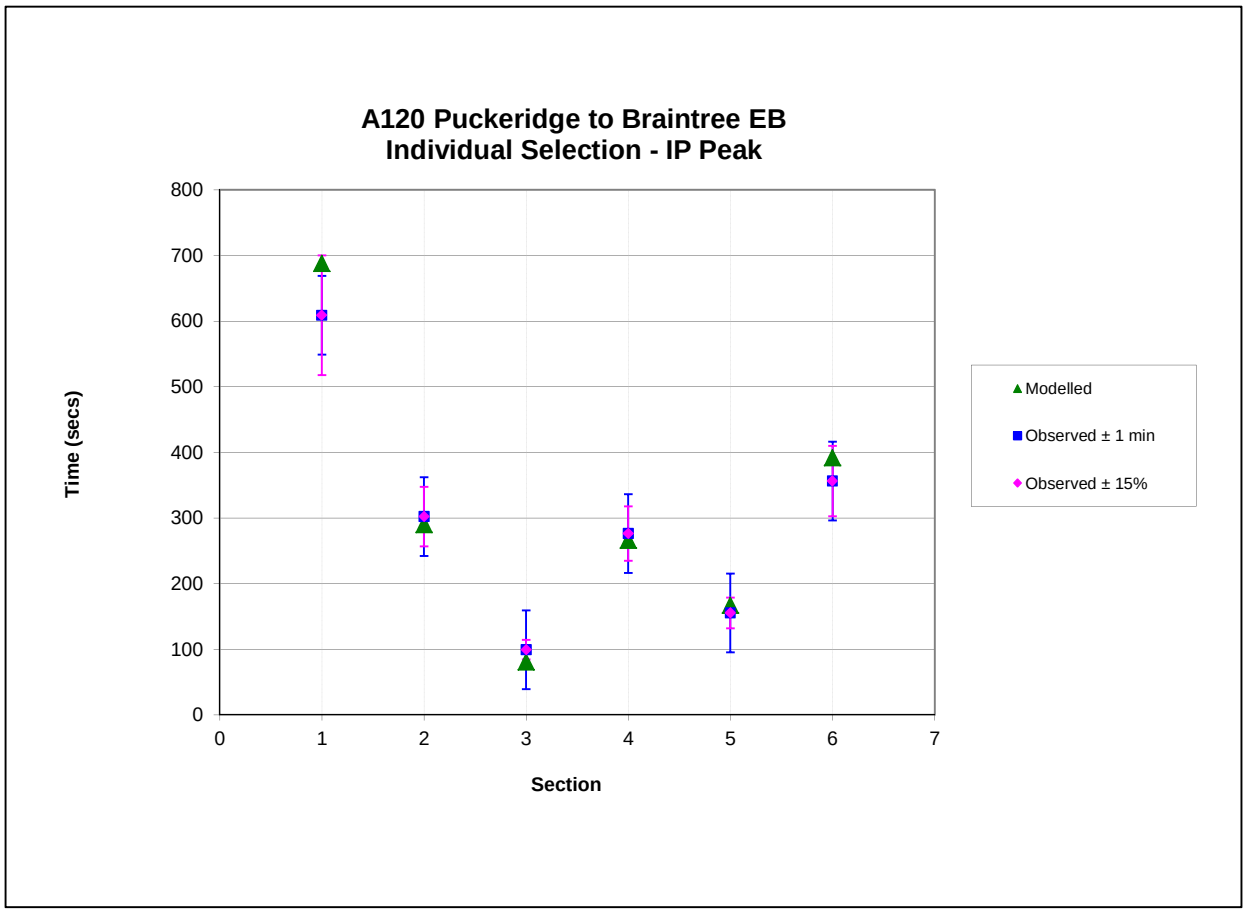
11:00 - 12:00														
Route	Route Section	Dist (km)	Modelled Section	Mod Cumulative	Obs Mean	Obs Cumulative	Speed (kph)	SD	Confidence	CV	Lowerbound	Upperbound	-0.15	0.15
Route_1_EB	Route_1_EB_1	9.3	688	688	609	609	55	173.2	16.67	3%	592	626	518	700
Route_1_EB	Route_1_EB_2	5.7	290	978	302	911	68	85.5	7.46	2%	295	310	257	348
Route_1_EB	Route_1_EB_3	1.2	81	1059	99	1011	42	28.2	0.74	1%	99	100	85	114
Route_1_EB	Route_1_EB_4	7.8	266	1325	276	1287	102	83.5	3.14	1%	273	280	235	318
Route_1_EB	Route_1_EB_5	4.9	167	1492	155	1443	114	52.8	3.40	2%	152	159	132	179
Route_1_EB	Route_1_EB_6	11.3	392	1884	356	1799	114	121.2	9.70	3%	347	366	303	410
Route_1_WB	Route_1_WB_6	13.0	423	423	422	422	110	90.1	6.14	1%	416	428	359	486
Route_1_WB	Route_1_WB_5	3.3	141	564	115	538	104	75.0	4.73	4%	111	120	98	133
Route_1_WB	Route_1_WB_4	7.7	270	834	271	809	102	95.9	3.18	1%	268	274	230	312
Route_1_WB	Route_1_WB_3	1.5	110	944	137	946	39	40.9	1.00	1%	136	138	116	158
Route_1_WB	Route_1_WB_2	5.7	295	1239	277	1223	74	80.4	6.46	2%	271	284	236	319
Route_1_WB	Route_1_WB_1	8.4	698	1937	559	1782	54	124.5	12.30	2%	546	571	475	643
Route_2_NB	Route_2_NB_1	6.4	215	215	219	219	105	94.2	2.95	1%	216	222	186	252
Route_2_NB	Route_2_NB_2	15.1	504	719	495	715	110	128.8	5.43	1%	490	501	421	570
Route_2_NB	Route_2_NB_3	22.6	817	1536	790	1505	103	193.0	8.29	1%	782	798	672	909
Route_2_NB	Route_2_NB_4	5.8	197	1733	188	1693	111	104.0	5.36	3%	183	193	160	216
Route_2_NB	Route_2_NB_5	7.7	245	1978	256	1949	108	165.4	10.24	4%	246	267	218	295
Route_2_SB	Route_2_SB_5	7.4	248	248	247	247	108	142.5	8.26	3%	239	255	210	284
Route_2_SB	Route_2_SB_4	5.3	180	428	177	424	108	103.3	6.09	3%	171	183	150	204
Route_2_SB	Route_2_SB_3	24.8	892	1320	846	1270	106	225.2	9.66	1%	836	855	719	973
Route_2_SB	Route_2_SB_2	13.3	429	1749	436	1706	110	131.8	4.95	1%	431	441	371	502
Route_2_SB	Route_2_SB_1	6.5	217	1966	226	1932	103	138.7	5.33	2%	221	231	192	260
Route_3_NB	Route_3_NB_1	11.2	576	576	562	562	72	142.6	8.92	2%	553	571	478	647
Route_3_NB	Route_3_NB_2	2.4	83	659	86	648	102	41.8	1.98	2%	84	88	73	99
Route_3_NB	Route_3_NB_3	11.1	373	1032	383	1031	105	109.2	8.19	2%	375	391	325	440
Route_3_NB	Route_3_NB_4	8.1	315	1347	362	1393	80	100.0	8.50	2%	354	371	308	417
Route_3_NB	Route_3_NB_5	13.1	704	2051	753	2146	63	169.6	21.57	3%	731	774	640	866
Route_3_NB	Route_3_NB_6	12.9	766	2817	767	2913	61	172.5	16.07	2%	751	783	652	882
Route_3_SB	Route_3_SB_6	12.9	773	773	756	756	62	211.4	21.10	3%	735	777	643	870
Route_3_SB	Route_3_SB_5	13.1	714	1487	738	1494	64	149.0	20.32	3%	717	758	627	848
Route_3_SB	Route_3_SB_4	8.2	321	1808	398	1892	74	182.7	18.33	5%	380	417	338	458
Route_3_SB	Route_3_SB_3	11.1	375	2183	394	2287	102	126.7	9.80	2%	385	404	335	453
Route_3_SB	Route_3_SB_2	2.5	84	2267	90	2377	98	92.2	3.76	4%	86	94	76	103
Route_3_SB	Route_3_SB_1	11.2	549	2816	595	2972	67	165.8	10.02	2%	585	605	506	685
Route_4_NB	Route_4_NB_1	6.8	603	603	546	546	45	89.6	8.10	1%	538	555	465	628
Route_4_NB	Route_4_NB_2	2.9	339	942	380	926	28	141.7	13.37	4%	366	393	323	436
Route_4_NB	Route_4_NB_3	2.1	189	1131	198	1124	37	67.8	8.62	4%	190	207	169	228
Route_4_NB	Route_4_NB_4	11.9	768	1899	836	1960	51	193.1	26.92	3%	809	863	710	961
Route_4_NB	Route_4_NB_5	11.3	651	2550	671	2631	61	144.3	22.18	3%	648	693	570	771
Route_4_SB	Route_4_SB_5	11.3	651	651	712	712	57	152.5	23.22	3%	688	735	605	818
Route_4_SB	Route_4_SB_4	11.9	766	1417	783	1494	55	120.6	12.38	2%	770	795	665	900
Route_4_SB	Route_4_SB_3	2.1	200	1617	274	1769	27	112.9	13.56	5%	261	288	233	315
Route_4_SB	Route_4_SB_2	2.9	324	1941	273	2042	38	75.2	8.17	3%	265	281	232	314
Route_4_SB	Route_4_SB_1	6.9	616	2557	565	2607	44	122.2	11.89	2%	553	577	481	650
Route_5_NB	Route_5_NB_4	5.8	389	389	357	357	58	87.6	11.86	3%	346	369	304	411
Route_5_NB	Route_5_NB_3	4.5	283	672	302	659	53	104.3	14.36	5%	288	316	257	347
Route_5_NB	Route_5_NB_2	2.8	186	858	236	895	43	64.1	5.75	2%	230	242	201	272
Route_5_NB	Route_5_NB_1	2.0	151	1009	162	1057	45	41.3	3.90	2%	158	166	137	186
Route_5_SB	Route_5_SB_1	2.0	164	164	176	176	41	67.5	7.16	4%	169	183	150	203
Route_5_SB	Route_5_SB_2	2.5	178	342	189	366	48	59.2	5.96	3%	183	195	161	218
Route_5_SB	Route_5_SB_3	4.6	295	637	300	666	55	74.1	9.87	3%	290	310	255	345
Route_5_SB	Route_5_SB_4	5.8	379	1016	372	1038	56	99.8	11.89	3%	360	384	316	427
Route_6_EB	Route_6_EB_7	5.2	394	394	400	400	47	100.1	7.07	2%	393	407	340	460
Route_6_EB	Route_6_EB_6	2.2	97	491	96	496	84	91.2	3.67	4%	93	100	82	111
Route_6_EB	Route_6_EB_5	9.0	415	906	416	912	78	112.3	7.17	2%	409	423	353	478
Route_6_EB	Route_6_EB_4	5.9	321	1227	492	1404	43	141.9	11.04	2%	481	503	419	566
Route_6_EB	Route_6_EB_3	2.6	184	1411	209	1613	45	63.2	1.71	1%	207	211	178	240
Route_6_EB	Route_6_EB_2	8.8	489	1900	525	2138	61	140.4	13.65	3%	511	538	446	603
Route_6_EB	Route_6_EB_1	15.0	731	2631	741	2879	73	135.3	14.23	2%	727	755	630	852
Route_6_WB	Route_6_WB_1	15.0	735	735	747	747	72	143.3	16.31	2%	730	763	635	858
Route_6_WB	Route_6_WB_2	8.8	507	1242	540	1287	59	156.1	12.61	2%	528	553	459	622
Route_6_WB	Route_6_WB_3	2.8	200	1442	212	1499	47	42.2	1.03	0%	211	213	180	244
Route_6_WB	Route_6_WB_4	5.7	323	1765	484	1983	43	159.9	12.43	3%	472	496	411	557
Route_6_WB	Route_6_WB_5	8.9	407	2172	409	2392	78	102.7	7.00	2%	402	416	348	471
Route_6_WB	Route_6_WB_6	2.4	108	2280	125	2518	70	49.6	2.66	2%	122	128	106	144
Route_6_WB	Route_6_WB_7	5.0	397	2677	323	2840	55	95.1	6.02	2%	317	329	274	371
Route_7_EB	Route_7_EB_4	1.5	122	122	121	121	44	41.5	6.77	6%	114	128	103	139
Route_7_EB	Route_7_EB_3	1.2	162	284	224	345	20	64.4	7.77	3%	217	232	191	258
Route_7_EB	Route_7_EB_2	1.5	163	447	145	490	38	52.1	4.87	3%	140	150	123	166
Route_7_EB	Route_7_EB_1	0.7	51	498	56	546	46	37.0	3.24	6%	53	59	47	64
Route_7_WB	Route_7_WB_1	0.7	54	54	53	53	48	30.1	2.20	4%	51	56	45	61
Route_7_WB	Route_7_WB_2	1.5	177	231	193	247	28	70.9	7.81	4%	185	201	164	222
Route_7_WB	Route_7_WB_3	1.2	159	390	175	422	25	50.6	5.24	3%	170	180	149	201
Route_7_WB	Route_7_WB_4	1.5	102	492	121	543	44	28.7	3.77	3%	118	125	103	140
Route_8_NB	Route_8_NB_2	3.1	163	163	180	180	63	56.9	7.82	4%	172	188	153	207
Route_8_NB	Route_8_NB_1	1.5	82	245	94	274	56	43.0	6.61	7%	87	100	80	108
Route_8_SB	Route_8_SB_1	1.5	84	84	87	87	60	47.4	6.13	7%	81	93	74	100
Route_8_SB	Route_8_SB_2	3.1	159	243	174	261	65	53.6	7.59	4%	166	181	148	200
Route_9_EB	Route_9_EB_6	2.1	146	146	174	174	44	33.6	3.71	2%	170	177	148	200
Route_9_EB	Route_9_EB_5	2.5	155	301	202	376	44	41.1	4.19	2%	198	206	172	232
Route_9_EB	Route_9_EB_4	2.3	121	422	140	516	59	48.5	5.95	4%	134	146	119	161
Route_9_EB	Route_9_EB_3	5.0	270	692	336	851	54	80.8	9.56	3%	326	345	285	386
Route_9_EB	Route_9_EB_2	8.5	492	1184	554	1405	55	152.4	25.38	5%	528	579	471	637
Route_9_EB	Route_9_EB_1	3.9	301	1485	256	1662	55	71.3	9.91	4%	246	266	218	295
Route_9_WB	Route_9_WB_1	3.9	317	317	271	271	52	150.9	22.51	8%	248	293	230	311
Route_9_WB	Route_9_WB_2	8.5	484	801	553	824	55	176.5	30.99	6%	522	584	470	636
Route_9_WB	Route_9_WB_3	5.0	274	1075	330	1154	55	110.3	13.74	4%	316	343	280	379
Route_9_WB	Route_9_WB_4	2.3	126	1201	156	1310	53	67.8	7.32	5%	149	163	133	180
Route_9_WB	Route_9_WB_5	2.4	162	1363	195	1505	45	44.1	5.35	3%	190	201	166	225
Route_9_WB	Route_9_WB_6	2.1	135	1498	166	1671	46	34.6	3.71	2%	162	169	141	190
Route_10_EB	Route_10_EB_3	7.6	476	476	542	542	51	97.6	11.48	2%	530	553	460	623
Route_10_EB	Route_10_EB_2	8.0	391	867	445	986	65	106.2	16.13	4%	428	461	378	511
Route_10_EB	Route_10_EB_1	13.6	708	1575	811	1797	60	108.5	14.94	2%	796	826	689	933
Route_10_WB	Route_10_WB_1	13.6	714	714	796	796	61	106.7	14.55	2%	782	811	677	916
Route_10_WB	Route_10_WB_2	8.0	393	1107	455	1251	63	118.3	17.40	4%	438	472	387	523
Route_10_WB	Route_10_WB_3	7.6	473	1580	610	1862	45	173.0	20.32	3%	590	631	519	702
Route_11_NB	Route_11_NB_2	2.7	237	237	209	209	46	104.2	26.92	13%	182	236	178	241
Route_11_NB	Route_11_NB_1	2.9	229	466	232	442	45	85.7	30.91	13%	202	263	198	267
Route_11_SB	Route_11_SB_1	2.9	238	238	212	212	49	81.8	22.12	10%	190	235	181	244
Route_11_SB	Route_11_SB_2	2.8	235	473	211	424	47	81.2	16.03	8%	195	228	180	243
Route_12_Anti	Route_12_Anti_3	2.9	217	217	195	195	53	40.7	4.37	2%	190	199	165	224
Route_12_Anti	Route_12_Anti_2	1.8	82	299	113	308	57	41.8	4.85	4%	108	118	96	130
Route_12_Anti	Route_12_Anti_1	3.9	342	641	352	659	40	96.9	12.90	4%	339	365	299	405
Route_12_Clock	Route_12_Clock_1	3.9	351	351	339	339	41	90.4	10.48	3%	329	350	288	390
Route_12_Clock	Route_12_Clock_2	1.8	86	437	115	454	57	46.0	4.27	4%	111	120	98	133
Route_12_Clock	Route_12_Clock_3	3.0	189	626	220	674	49	62.2	6.91	3%	213	227	187	253
Route_13_NB	Route_13_NB_2	4.9	283	283	308	308	57	80.2	12.40	4%	295	320	262	354
Route_13_NB	Route_13_NB_1	2.2	204	487	212	520	38	59.5	4.78	2%	207	217	180	244
Route_13_SB	Route_13_SB_1	2.2	198	198	207	207	37	80.6	5.70	3%	201	213	176	238
Route_13_SB	Route_13_SB_2	4.9	287	485	317	524	56	61.3	7.95	3%	309	325	269	364
Route_14_Anti	Route_14_Anti_3	12.9	448	448	435	435	106	182.9	6.77	2%	428	442	370	500
Route_14_Anti	Route_14_Anti_2	6.3	214	662	238	673	95	101.7	3.42	1%	234	241	202	273
Route_14_Anti	Route_14_Anti_1	5.1	173	835	265	938	69	166.9	7.09	3%	258	272	226	305
Route_14_Clock	Route_14_Clock_1	4.7	163	163	183	183	93	99.9	3.29	2%	180	186	156	211
Route_14_Clock	Route_14_Clock_2	6.8	232	395	240	423	102	92.3	3.00	1%	237	243	204	276
Route_14_Clock	Route_14_Clock_3	12.7	439	834	416	839	110	196.7	6.98	2%	409	423	353	478
Route_15_EB	Route_15_EB_1	5.4	494	494	424	424	46	109.8	8.71	2%	415	432	360	487
Route_15_EB	Route_15_EB_2	1.9	210	704	320	744	21	132.3	10.84	3%	309	331	272	368
Route_15_EB	Route_15_EB_3	4.7	336	1040	320	1063	53	112.7	8.41	3%	311	328	272	368
Route_15_WB	Route_15_WB_3	4.7	382	382	315	315	54	91.1	8.39	3%	307	324	268	363
Route_15_WB	Route_15_WB_2	1.9	205	587	300	615	22	116.1	11.32	4%	288	311	255	345
Route_15_WB	Route_15_WB_1	5.4	447	1034	404	1019	49	99.1	7.97	2%	396	412	343	464

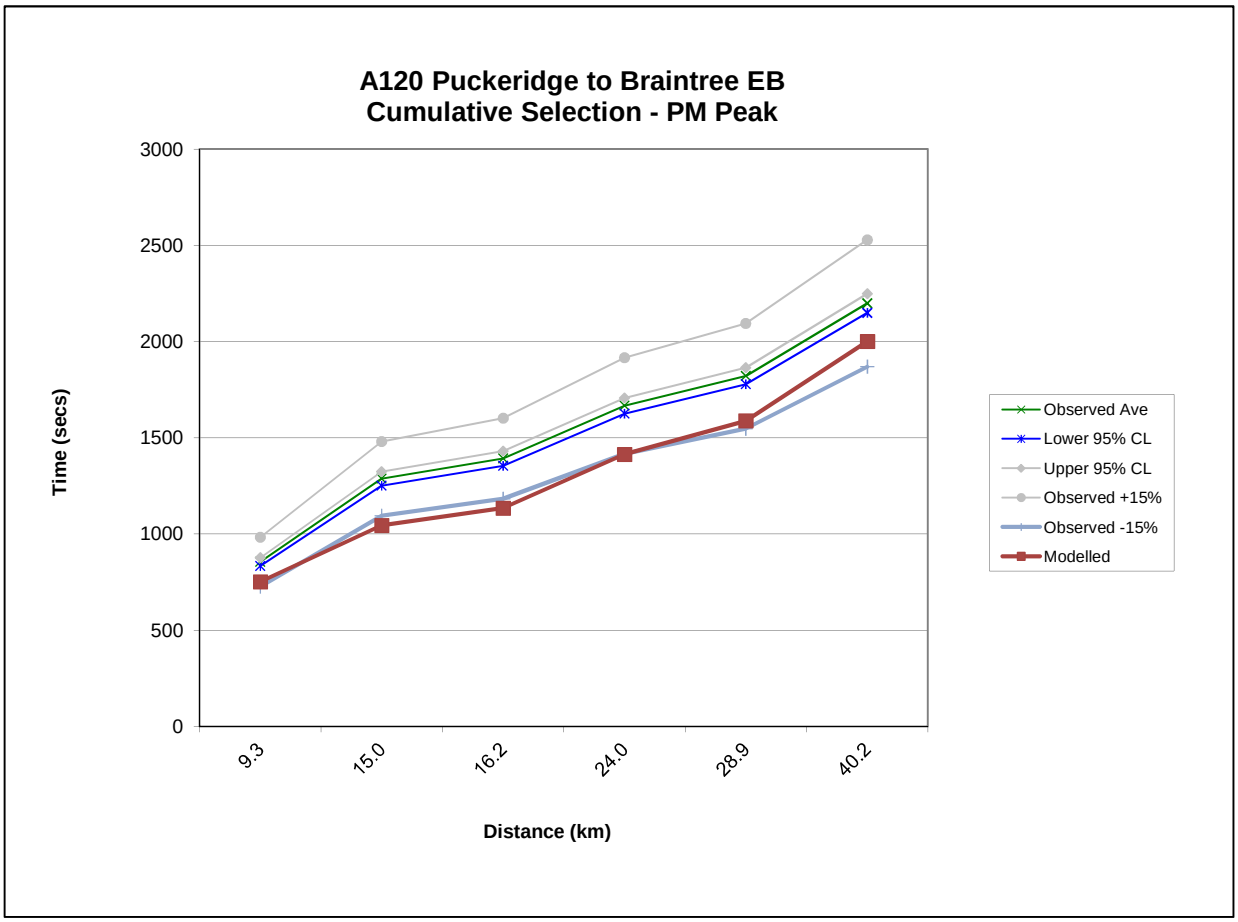
17:00 - 18:00														
Route	Route Section	Dist (km)	Modelled Section	Mod Cumulative	Obs Mean	Obs Cumulative	Speed (kph)	SD	Confidence	CV	Lowerbound	Upperbound	-0.15	0.15
Route_1_EB	Route_1_EB_1	9.3	752	752	855	855	39	259.8	21.67	3%	834	877	727	984
Route_1_EB	Route_1_EB_2	5.7	293	1045	432	1288	48	197.9	14.93	3%	417	447	368	497
Route_1_EB	Route_1_EB_3	1.2	90	1135	105	1392	40	51.0	1.31	1%	103	106	89	120
Route_1_EB	Route_1_EB_4	7.8	279	1414	274	1666	103	114.3	3.03	1%	271	277	233	315
Route_1_EB	Route_1_EB_5	4.9	174	1588	154	1820	114	56.8	2.29	1%	152	157	131	178
Route_1_EB	Route_1_EB_6	11.3	412	2000	378	2199	107	122.3	6.15	2%	372	384	322	435
Route_1_WB	Route_1_WB_6	13.0	427	427	415	415	113	114.0	8.22	2%	407	423	353	477
Route_1_WB	Route_1_WB_5	3.3	141	568	111	526	108	43.5	2.98	3%	108	114	94	128
Route_1_WB	Route_1_WB_4	7.7	272	840	266	791	104	91.1	3.06	1%	263	269	226	305
Route_1_WB	Route_1_WB_3	1.5	117	957	151	942	35	65.7	1.59	1%	149	153	128	174
Route_1_WB	Route_1_WB_2	5.7	316	1273	290	1232	70	111.4	6.14	2%	284	296	247	334
Route_1_WB	Route_1_WB_1	8.4	771	2044	796	2029	38	328.5	32.17	4%	764	828	677	916
Route_2_NB	Route_2_NB_1	6.4	232	232	264	264	87	265.3	4.89	2%	259	269	224	303
Route_2_NB	Route_2_NB_2	15.1	520	752	497	760	110	164.1	5.27	1%	491	502	422	571
Route_2_NB	Route_2_NB_3	22.6	819	1571	790	1551	103	227.6	9.27	1%	781	800	672	909
Route_2_NB	Route_2_NB_4	5.8	197	1768	185	1736	112	109.6	6.20	3%	179	191	157	213
Route_2_NB	Route_2_NB_5	7.7	245	2013	260	1996	106	101.5	6.37	2%	254	266	221	299
Route_2_SB	Route_2_SB_5	7.4	248	248	254	254	105	150.1	9.46	4%	245	264	216	292
Route_2_SB	Route_2_SB_4	5.3	181	429	188	443	102	123.9	5.98	3%	182	194	160	217
Route_2_SB	Route_2_SB_3	24.8	912	1341	893	1336	100	263.1	10.02	1%	883	903	759	1027
Route_2_SB	Route_2_SB_2	13.3	434	1775	433	1769	111	144.1	5.57	1%	427	438	368	498
Route_2_SB	Route_2_SB_1	6.5	220	1995	218	1987	107	93.5	2.95	1%	215	221	185	250
Route_3_NB	Route_3_NB_1	11.2	733	733	738	738	55	232.3	12.28	2%	726	750	627	848
Route_3_NB	Route_3_NB_2	2.4	87	820	83	821	106	78.9	2.53	3%	81	86	71	96
Route_3_NB	Route_3_NB_3	11.1	394	1214	368	1189	109	105.1	6.12	2%	362	374	313	423
Route_3_NB	Route_3_NB_4	8.1	378	1592	355	1544	82	91.9	6.05	2%	349	361	302	408
Route_3_NB	Route_3_NB_5	13.1	723	2315	743	2287	63	136.2	11.62	2%	732	755	632	855
Route_3_NB	Route_3_NB_6	12.9	768	3083	758	3046	61	169.6	16.93	2%	741	775	644	872
Route_3_SB	Route_3_SB_6	12.9	791	791	929	929	50	267.0	28.86	3%	900	958	789	1068
Route_3_SB	Route_3_SB_5	13.1	724	1515	755	1684	63	130.3	18.49	2%	737	774	642	868
Route_3_SB	Route_3_SB_4	8.2	340	1855	375	2059	78	112.2	10.15	3%	365	386	319	432
Route_3_SB	Route_3_SB_3	11.1	379	2234	378	2437	106	109.8	7.94	2%	370	386	321	434
Route_3_SB	Route_3_SB_2	2.5	86	2320	85	2522	104	72.2	3.61	4%	82	89	72	98
Route_3_SB	Route_3_SB_1	11.2	627	2947	702	3224	57	252.2	13.45	2%	689	715	597	807
Route_4_NB	Route_4_NB_1	6.8	686	686	773	773	32	145.2	16.04	2%	757	789	657	889
Route_4_NB	Route_4_NB_2	2.9	378	1064	502	1275	21	237.4	33.45	7%	469	536	427	578
Route_4_NB	Route_4_NB_3	2.1	190	1254	197	1472	38	54.1	8.32	4%	188	205	167	226
Route_4_NB	Route_4_NB_4	11.9	841	2095	815	2287	53	123.2	12.28	2%	803	827	693	937
Route_4_NB	Route_4_NB_5	11.3	656	2751	649	2936	63	149.5	16.65	3%	632	665	551	746
Route_4_SB	Route_4_SB_5	11.3	693	693	690	690	59	115.6	13.13	2%	676	703	586	793
Route_4_SB	Route_4_SB_4	11.9	809	1502	766	1456	56	104.3	9.41	1%	757	775	651	881
Route_4_SB	Route_4_SB_3	2.1	204	1706	264	1720	28	96.0	11.48	4%	253	276	225	304
Route_4_SB	Route_4_SB_2	2.9	328	2034	310	2030	34	96.7	10.11	3%	300	320	264	357
Route_4_SB	Route_4_SB_1	6.9	668	2702	586	2617	42	105.6	11.20	2%	575	598	499	674
Route_5_NB	Route_5_NB_4	5.8	460	460	376	376	56	155.2	12.06	3%	363	388	319	432
Route_5_NB	Route_5_NB_3	4.5	312	772	325	700	49	96.8	7.84	2%	317	332	276	373
Route_5_NB	Route_5_NB_2	2.8	178	950	257	957	39	83.3	7.48	3%	250	265	219	296
Route_5_NB	Route_5_NB_1	2.0	198	1148	321	1278	23	101.3	8.50	3%	312	329	273	369
Route_5_SB	Route_5_SB_1	2.0	175	175	169	169	42	48.2	4.76	3%	164	174	143	194
Route_5_SB	Route_5_SB_2	2.5	189	364	214	383	43	91.1	7.74	4%	207	222	182	247
Route_5_SB	Route_5_SB_3	4.6	324	688	310	693	53	68.6	6.43	2%	304	317	264	357
Route_5_SB	Route_5_SB_4	5.8	398	1086	375	1068	56	94.1	11.27	3%	363	386	318	431
Route_6_EB	Route_6_EB_7	5.2	559	559	887	887	21	328.9	22.75	3%	864	909	754	1020
Route_6_EB	Route_6_EB_6	2.2	103	662	97	984	83	70.8	3.31	3%	94	101	83	112
Route_6_EB	Route_6_EB_5	9.0	488	1150	456	1440	71	85.2	5.05	1%	451	461	388	524
Route_6_EB	Route_6_EB_4	5.9	369	1519	593	2033	36	180.4	13.36	2%	580	607	504	682
Route_6_EB	Route_6_EB_3	2.6	193	1712	222	2255	42	76.9	2.10	1%	220	224	188	255
Route_6_EB	Route_6_EB_2	8.8	520	2232	544	2799	59	147.7	12.26	2%	532	556	462	626
Route_6_EB	Route_6_EB_1	15.0	837	3069	745	3544	72	132.7	12.68	2%	732	758	633	857
Route_6_WB	Route_6_WB_1	15.0	769	769	729	729	74	112.3	12.57	2%	716	741	619	838
Route_6_WB	Route_6_WB_2	8.8	537	1306	560	1289	57	335.6	27.53	5%	533	588	476	644
Route_6_WB	Route_6_WB_3	2.8	294	1600	367	1656	27	143.8	3.35	1%	364	370	312	422
Route_6_WB	Route_6_WB_4	5.7	347	1947	619	2275	33	158.3	12.15	2%	607	631	526	712
Route_6_WB	Route_6_WB_5	8.9	450	2397	438	2713	73	119.7	6.85	2%	431	445	373	504
Route_6_WB	Route_6_WB_6	2.4	115	2512	130	2843	68	98.1	3.79	3%	126	134	110	149
Route_6_WB	Route_6_WB_7	5.0	494	3006	382	3226	47	137.9	8.47	2%	374	391	325	440
Route_7_EB	Route_7_EB_4	1.5	122	122	117	117	45	31.7	4.19	4%	113	121	100	135
Route_7_EB	Route_7_EB_3	1.2	165	287	258	375	17	124.8	13.93	5%	244	272	219	297
Route_7_EB	Route_7_EB_2	1.5	165	452	141	516	39	39.8	4.23	3%	137	145	120	162
Route_7_EB	Route_7_EB_1	0.7	51	503	65	582	39	31.9	2.68	4%	63	68	56	75
Route_7_WB	Route_7_WB_1	0.7	55	55	58	58	45	47.8	4.65	8%	53	62	49	66
Route_7_WB	Route_7_WB_2	1.5	182	237	193	250	29	60.4	6.70	3%	186	199	164	222
Route_7_WB	Route_7_WB_3	1.2	160	397	173	423	26	44.2	5.74	3%	167	178	147	199
Route_7_WB	Route_7_WB_4	1.5	102	499	129	552	41	33.5	4.20	3%	125	133	110	149
Route_8_NB	Route_8_NB_2	3.1	166	166	180	180	63	63.0	7.60	4%	172	187	153	206
Route_8_NB	Route_8_NB_1	1.5	85	251	94	274	55	31.6	3.22	3%	91	98	80	109
Route_8_SB	Route_8_SB_1	1.5	86	86	93	93	56	53.8	3.38	4%	89	96	79	107
Route_8_SB	Route_8_SB_2	3.1	160	246	177	269	64	47.4	5.08	3%	171	182	150	203
Route_9_EB	Route_9_EB_6	2.1	158	158	229	229	33	97.3	10.84	5%	218	240	195	264
Route_9_EB	Route_9_EB_5	2.5	229	387	312	541	28	79.9	6.96	2%	305	319	265	358
Route_9_EB	Route_9_EB_4	2.3	133	520	160	701	51	80.2	7.40	5%	153	167	136	184
Route_9_EB	Route_9_EB_3	5.0	311	831	395	1096	46	111.3	10.41	3%	385	406	336	454
Route_9_EB	Route_9_EB_2	8.5	525	1356	547	1643	56	157.0	26.23	5%	520	573	465	629
Route_9_EB	Route_9_EB_1	3.9	315	1671	252	1894	56	68.8	8.23	3%	243	260	214	289
Route_9_WB	Route_9_WB_1	3.9	319	319	268	268	53	74.6	12.85	5%	256	281	228	309
Route_9_WB	Route_9_WB_2	8.5	564	883	538	806	57	146.7	27.10	5%	511	565	457	619
Route_9_WB	Route_9_WB_3	5.0	302	1185	323	1129	56	75.6	8.35	3%	314	331	274	371
Route_9_WB	Route_9_WB_4	2.3	135	1320	165	1294	50	53.8	5.70	3%	159	170	140	189
Route_9_WB	Route_9_WB_5	2.4	170	1490	203	1496	43	57.7	5.47	3%	197	208	172	233
Route_9_WB	Route_9_WB_6	2.1	137	1627	183	1679	42	45.2	4.70	3%	178	187	155	210
Route_10_EB	Route_10_EB_3	7.6	496	496	547	547	50	107.4	12.12	2%	534	559	465	629
Route_10_EB	Route_10_EB_2	8.0	413	909	439	985	66	92.4	11.11	3%	428	450	373	505
Route_10_EB	Route_10_EB_1	13.6	797	1706	851	1836	57	115.5	14.75	2%	836	866	723	979
Route_10_WB	Route_10_WB_1	13.6	790	790	793	793	62	117.0	13.62	2%	780	807	674	912
Route_10_WB	Route_10_WB_2	8.0	418	1208	445	1238	65	110.7	12.93	3%	432	458	378	512
Route_10_WB	Route_10_WB_3	7.6	496	1704	701	1940	39	215.8	29.01	4%	672	730	596	806
Route_11_NB	Route_11_NB_2	2.7	254	254	221	221	43	120.2	15.62	7%	206	237	188	255
Route_11_NB	Route_11_NB_1	2.9	251	505	219	440	47	87.0	30.34	14%	188	249	186	251
Route_11_SB	Route_11_SB_1	2.9	246	246	227	227	46	92.5	28.46	13%	199	256	193	262
Route_11_SB	Route_11_SB_2	2.8	237	483	243	471	41	83.0	14.87	6%	228	258	207	280
Route_12_Anti	Route_12_Anti_3	2.9	213	213	207	207	50	42.3	5.24	3%	202	212	176	238
Route_12_Anti	Route_12_Anti_2	1.8	85	298	125	332	52	69.3	5.47	4%	120	131	107	144
Route_12_Anti	Route_12_Anti_1	3.9	454	752	454	787	31	123.4	13.16	3%	441	468	386	523
Route_12_Clock	Route_12_Clock_1	3.9	404	404	373	373	37	93.8	9.07	2%	364	382	317	429
Route_12_Clock	Route_12_Clock_2	1.8	89	493	115	488	57	33.5	2.50	2%	113	118	98	133
Route_12_Clock	Route_12_Clock_3	3.0	179	672	452	940	24	221.7	26.51	6%	425	478	384	520
Route_13_NB	Route_13_NB_2	4.9	315	315	395	395	45	136.6	17.22	4%	378	412	336	454
Route_13_NB	Route_13_NB_1	2.2	235	550	532	927	15	124.4	8.75	2%	523	540	452	612
Route_13_SB	Route_13_SB_1	2.2	222	222	357	357	22	111.6	7.35	2%	349	364	303	410
Route_13_SB	Route_13_SB_2	4.9	303	525	324	681	54	62.4	8.26	3%	316	333	276	373
Route_14_Anti	Route_14_Anti_3	12.9	467	467	442	442	105	191.3	7.39	2%	435	450	376	509
Route_14_Anti	Route_14_Anti_2	6.3	220	687	237	679	96	127.0	4.18	2%	233	241	201	272
Route_14_Anti	Route_14_Anti_1	5.1	177	864	229	908	80	120.8	4.24	2%	225	233	194	263
Route_14_Clock	Route_14_Clock_1	4.7	200	200	201	201	85	116.7	3.42	2%	197	204	171	231
Route_14_Clock	Route_14_Clock_2	6.8	252	452	257	458	96	91.9	2.99	1%	254	260	218	295
Route_14_Clock	Route_14_Clock_3	12.7	573	1025	456	914	100	237.8	7.65	2%	449	464	388	525
Route_15_EB	Route_15_EB_1	5.4	571	571	601	601	32	185.7	14.03	2%	587	615	511	692
Route_15_EB	Route_15_EB_2	1.9	237	808	342	943	20	127.2	9.32	3%	333	351	291	393
Route_15_EB	Route_15_EB_3	4.7	367	1175	332	1276	51	146.0	11.46	3%	321	344	283	382
Route_15_WB	Route_15_WB_3	4.7	391	391	363	363	47	127.9	11.08	3%	352	374	309	418
Route_15_WB	Route_15_WB_2	1.9	206	597	298	661	22	106.8	8.16	3%	290	306	253	343
Route_15_WB	Route_15_WB_1	5.4	468	1065	439	1101	45	86.1	7.37	2%	432	447	374	505

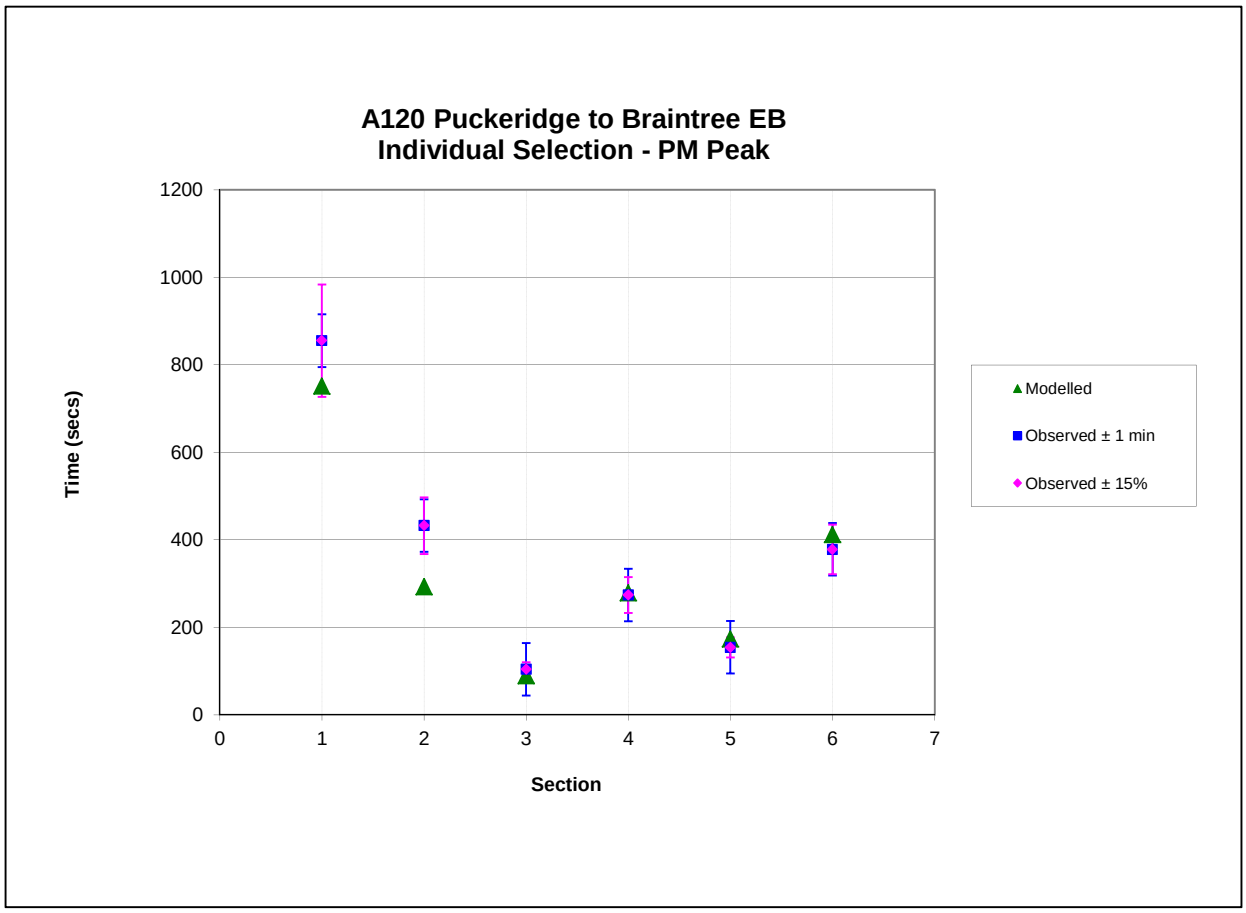

A120 Puckeridge to Braintree EB
Cumulative Selection - AM Peak
Time (secs)
3000
2500
2000
1500
1000
500
0
9.3
15.0
16.2
24.0
28.9
40.2
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

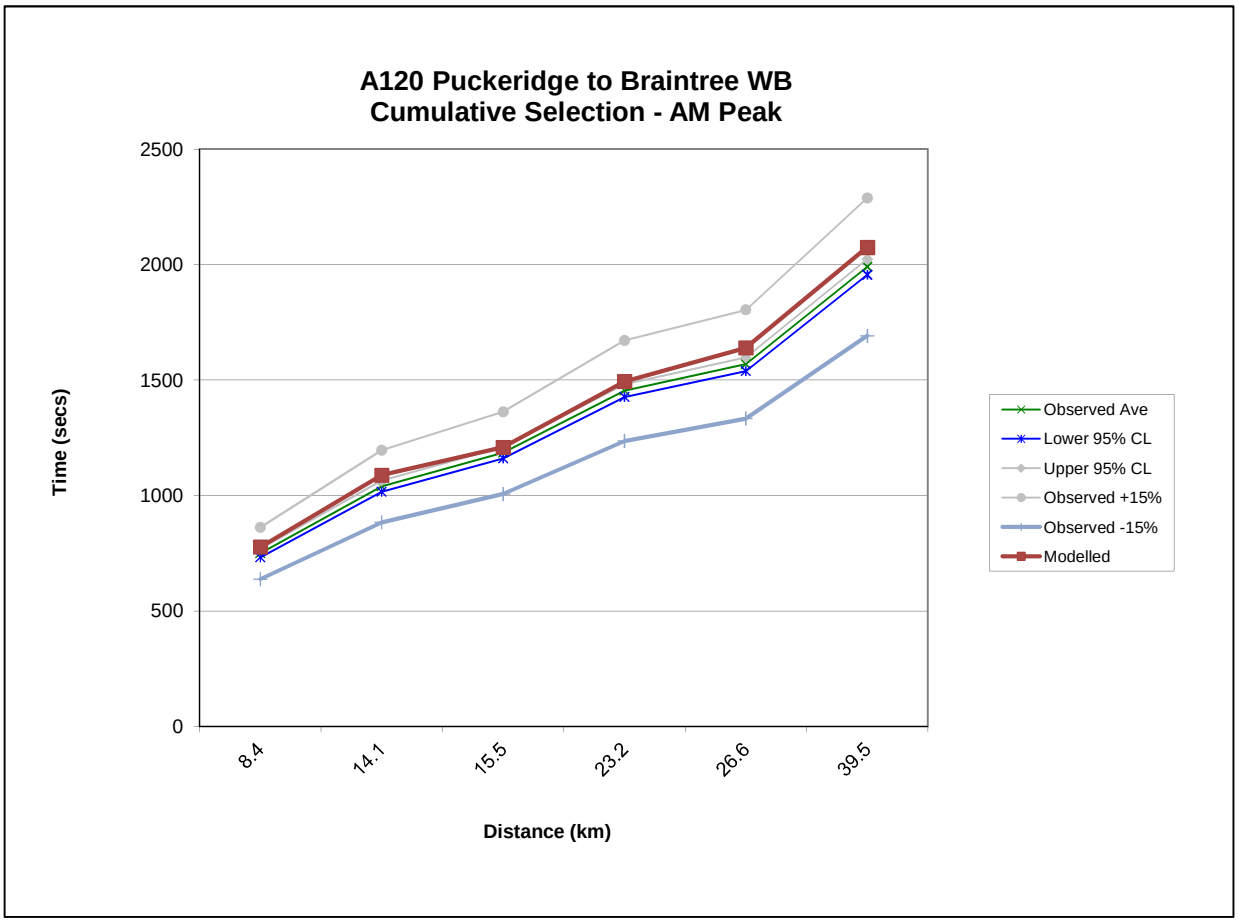

A120 Puckeridge to Braintree EB
Individual Selection - AM Peak
Time (secs)
1200
1000
800
600
400
200
0
0
1
2
3
4
5
6
7
Section
Modelled
Observed ± 1 min
Observed ± 15%

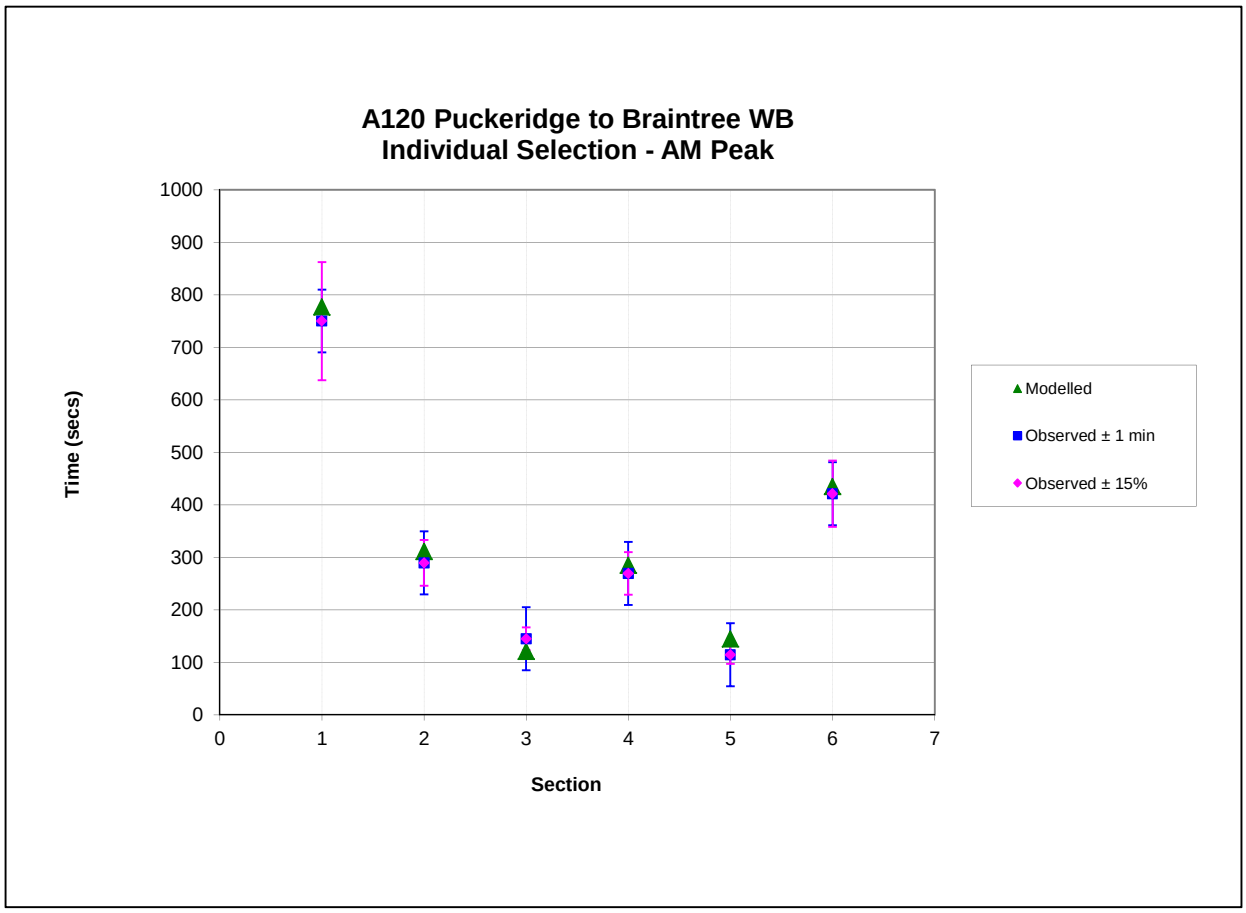

A120 Puckeridge to Braintree EB
Cumulative Selection - IP Peak
Time (secs)
2500
2000
1500
1000
500
0
9.3
15.0
16.2
24.0
28.9
40.2
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

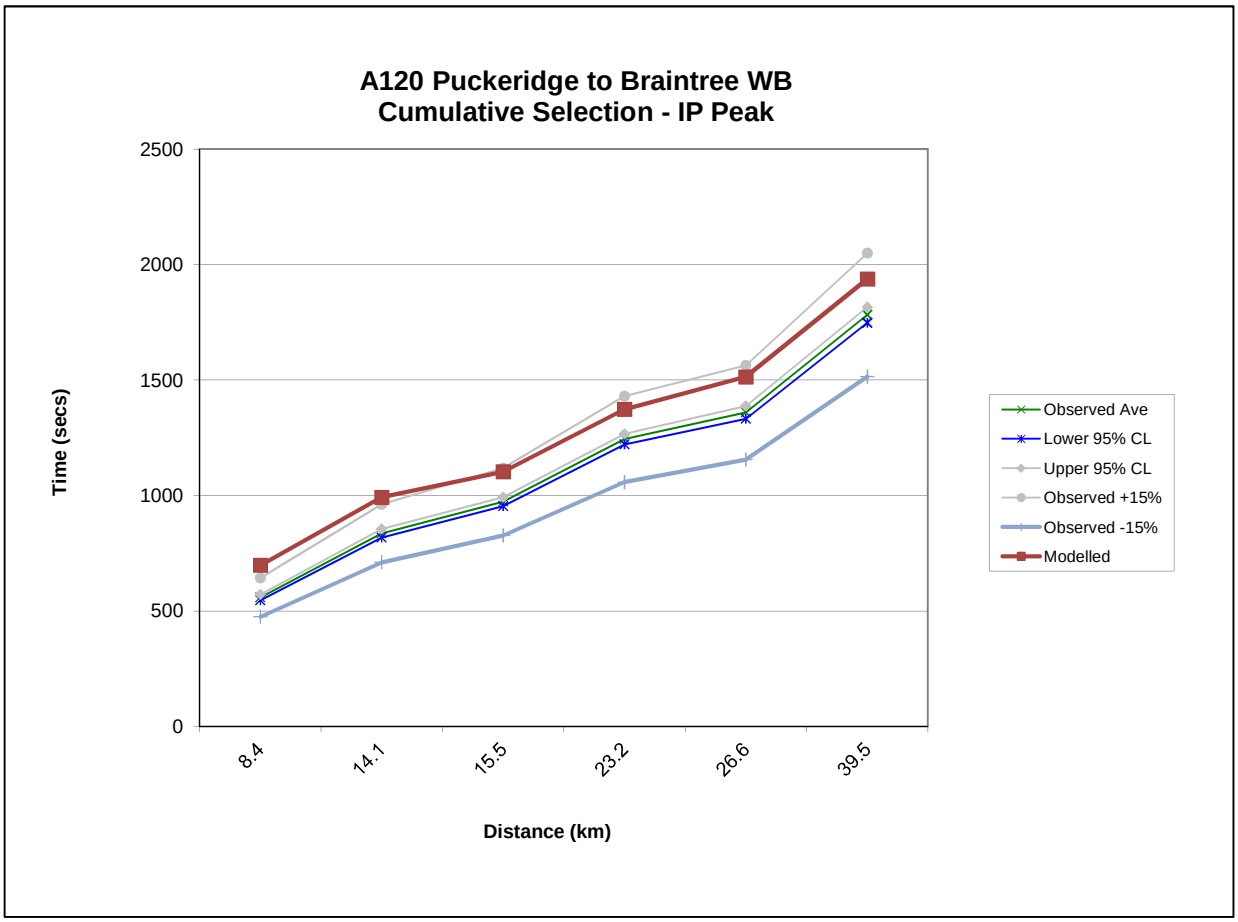

A120 Puckeridge to Braintree EB
Individual Selection - IP Peak
Time (secs)
800
700
600
500
400
300
200
100
0
0
1
2
3
4
5
6
7
Section
Modelled
Observed ± 1 min
Observed ± 15%

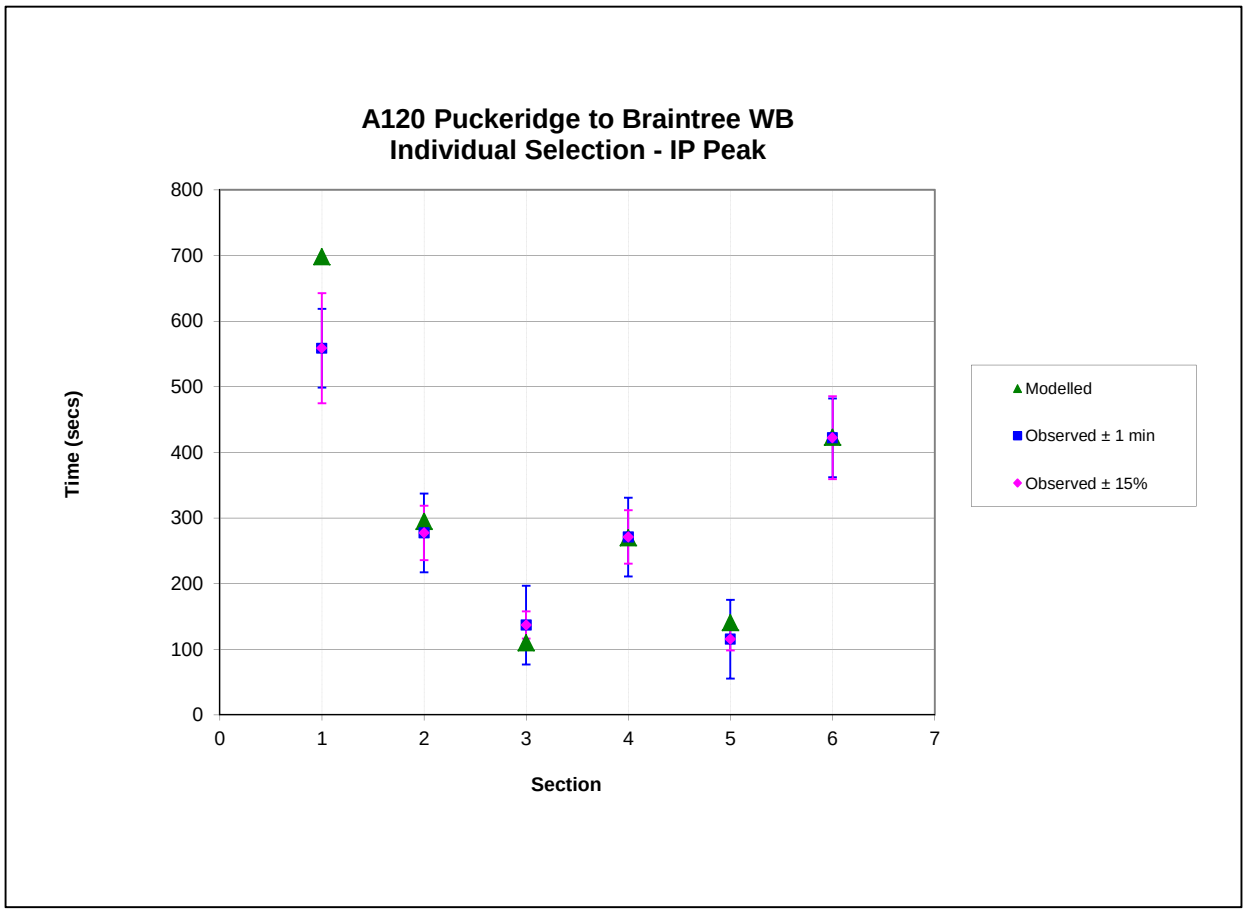

A120 Puckeridge to Braintree EB
Cumulative Selection - PM Peak
Time (secs)
3000
2500
2000
1500
1000
500
0
9.3
15.0
16.2
24.0
28.9
40.2
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

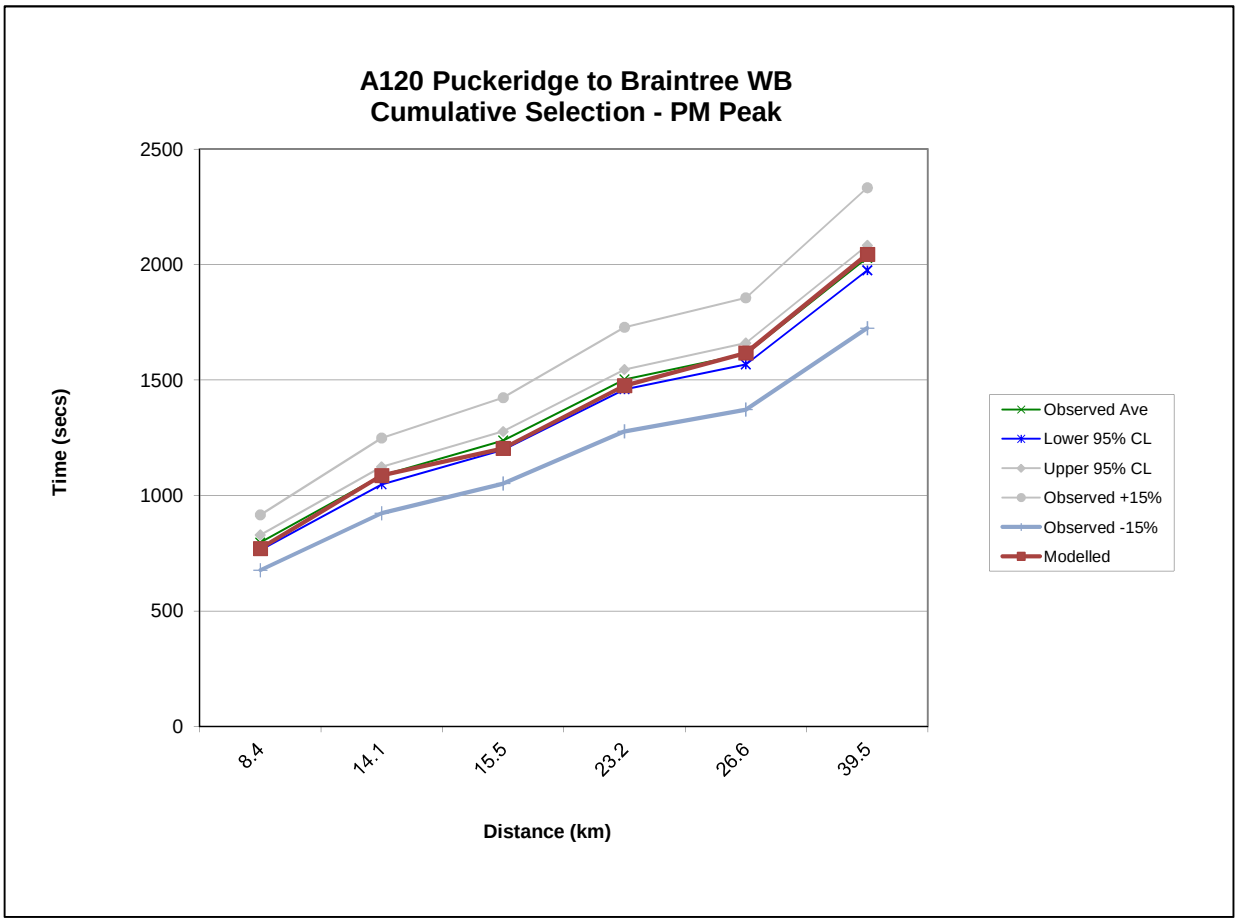

A120 Puckeridge to Braintree EB
Individual Selection - PM Peak
Time (secs)
1200
1000
800
600
400
200
0
0
1
2
3
4
5
6
7
Section
Modelled
Observed ± 1 min
Observed ± 15%

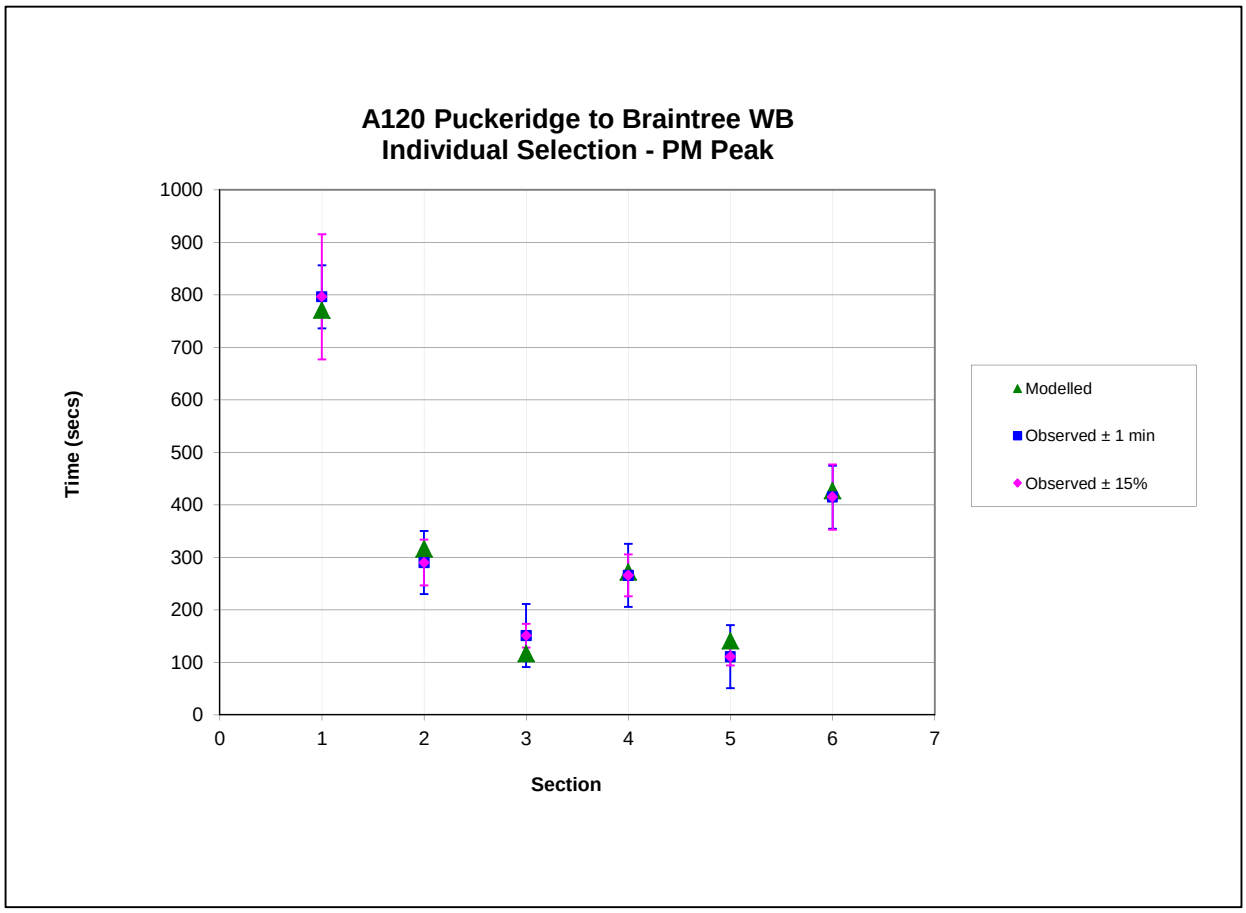

A120 Puckeridge to Braintree WB
Cumulative Selection - AM Peak
Time (secs)
2500
2000
1500
1000
500
0
8.4
14.1
15.5
23.2
26.6
39.5
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled


A120 Puckeridge to Braintree WB
Individual Selection - AM Peak
Time (secs)
1000
900
800
700
600
500
400
300
200
100
0
0
1
2
3
4
5
6
7
Section
Modelled
Observed ± 1 min
Observed ± 15%


A120 Puckeridge to Braintree WB
Cumulative Selection - IP Peak
Time (secs)
2500
2000
1500
1000
500
0
8.4
14.1
15.5
23.2
26.6
39.5
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled


A120 Puckeridge to Braintree WB
Individual Selection - IP Peak
Time (secs)
800
700
600
500
400
300
200
100
0
0
1
2
3
4
5
6
7
Section
Modelled
Observed ± 1 min
Observed ± 15%


A120 Puckeridge to Braintree WB
Cumulative Selection - PM Peak
Time (secs)
2500
2000
1500
1000
500
0
8.4
14.1
15.5
23.2
26.6
39.5
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled


A120 Puckeridge to Braintree WB
Individual Selection - PM Peak
Time (secs)
1000
900
800
700
600
500
400
300
200
100
0
0
1
2
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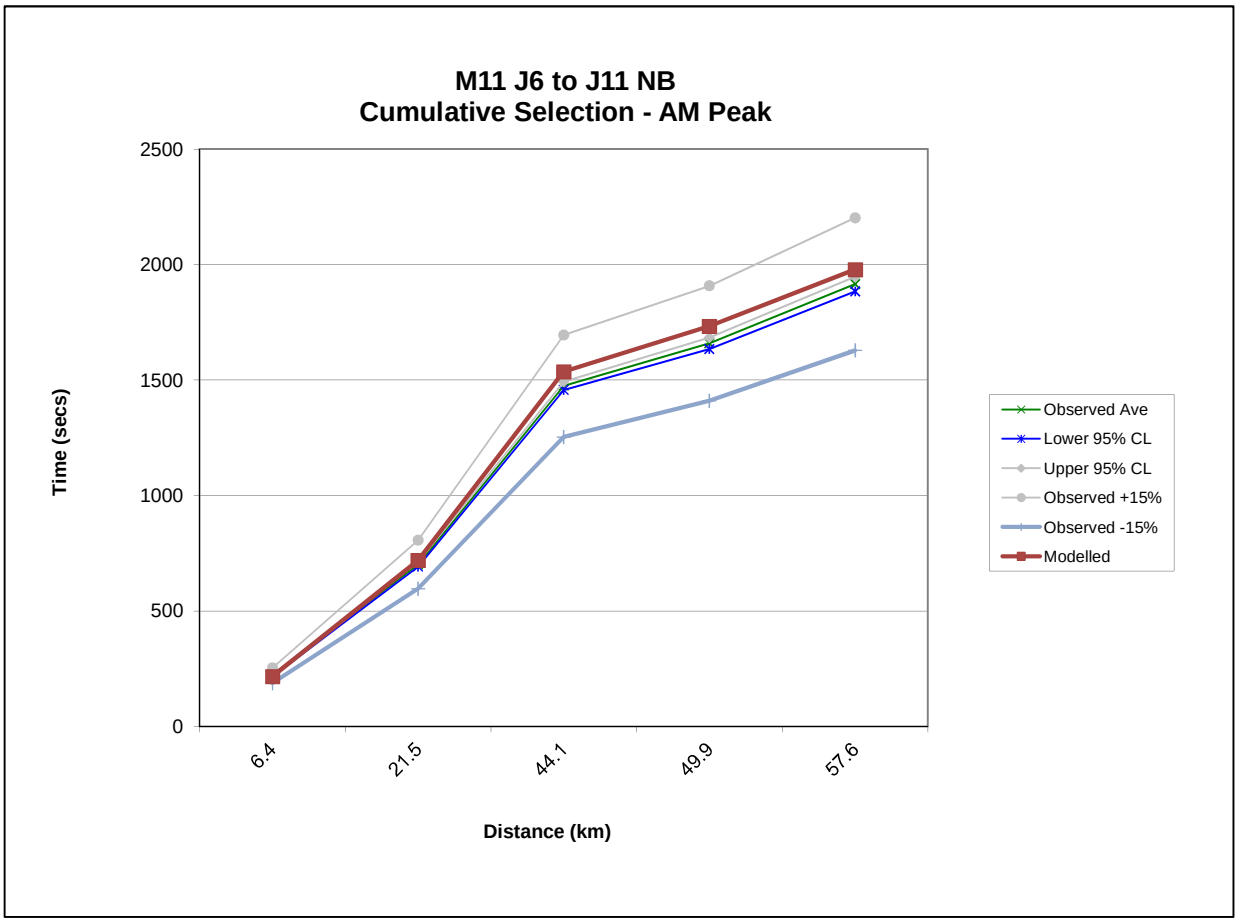
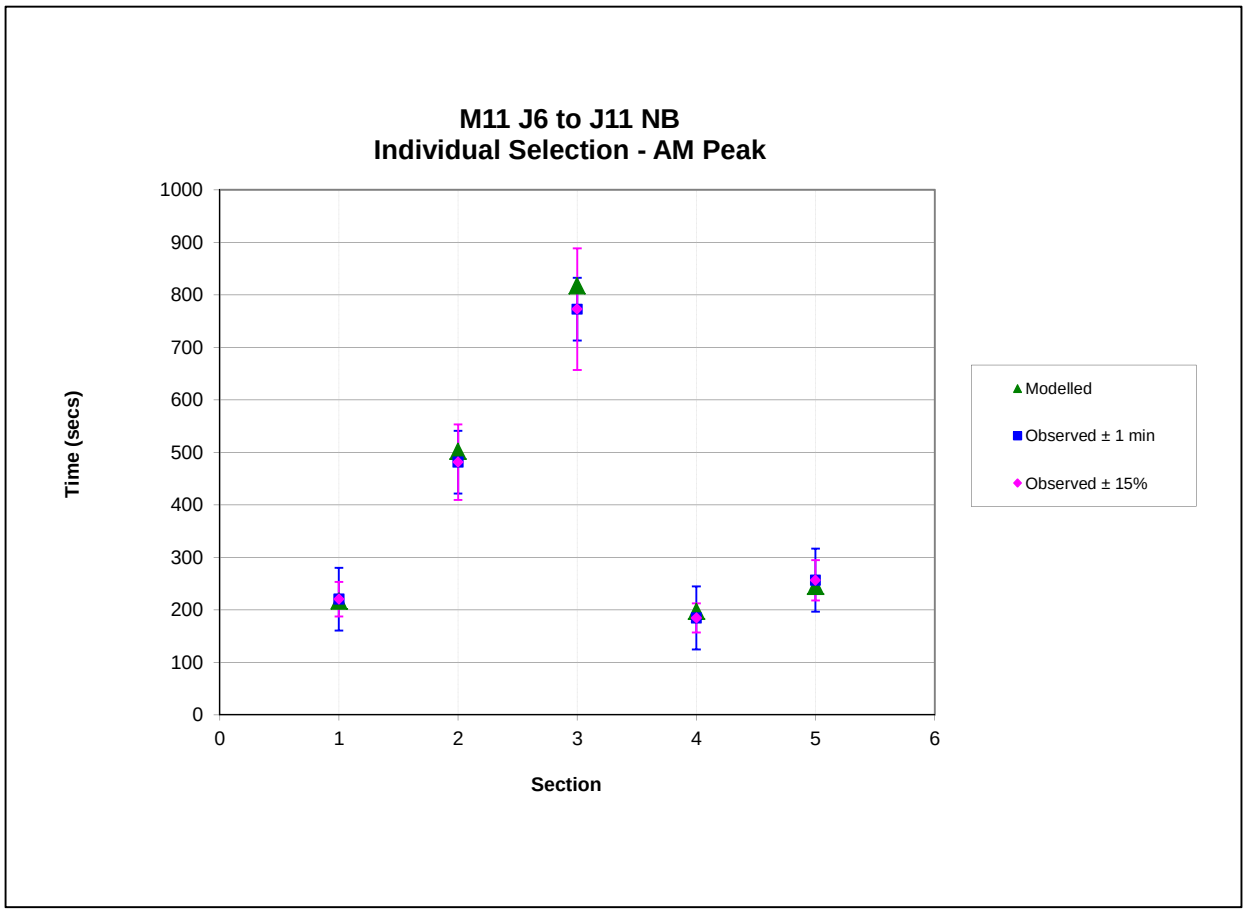
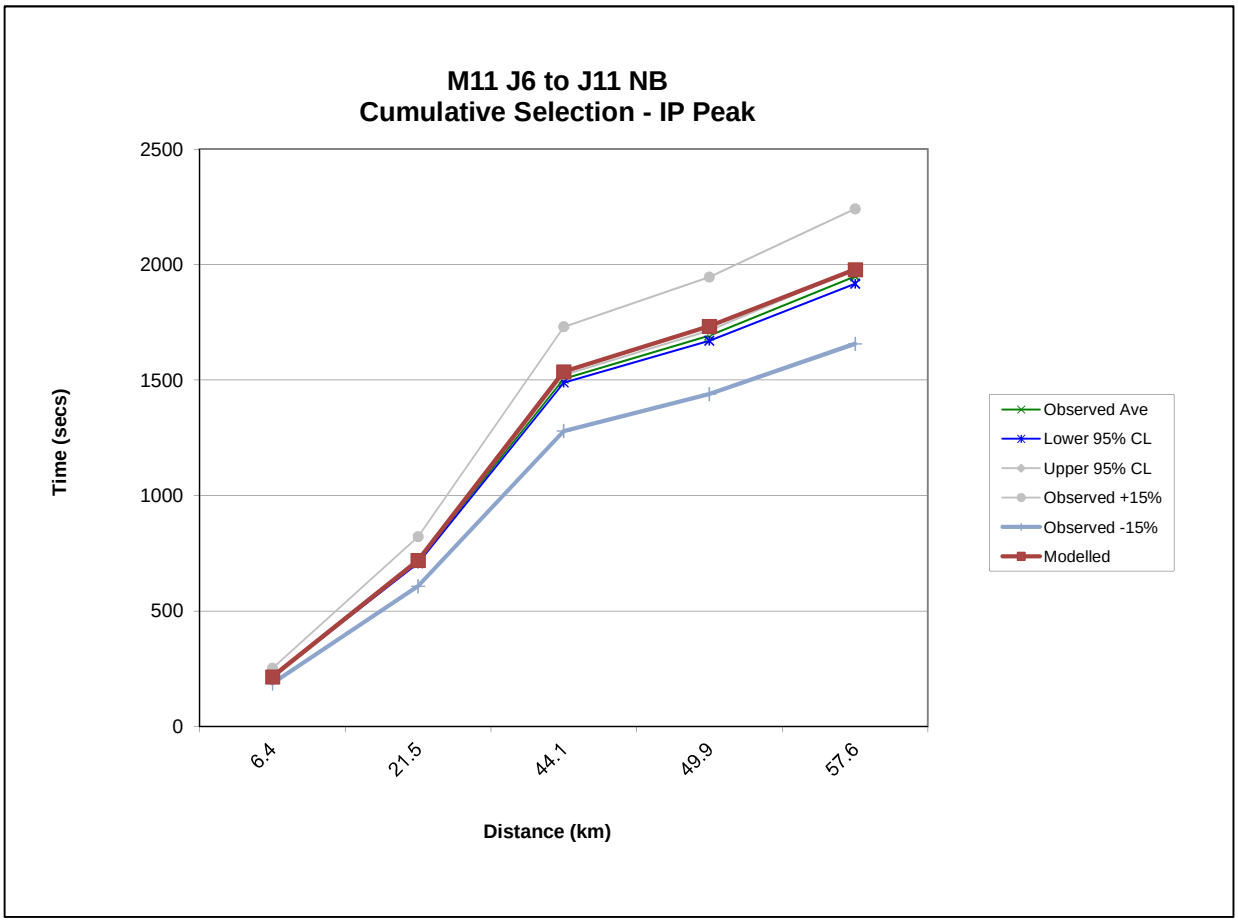
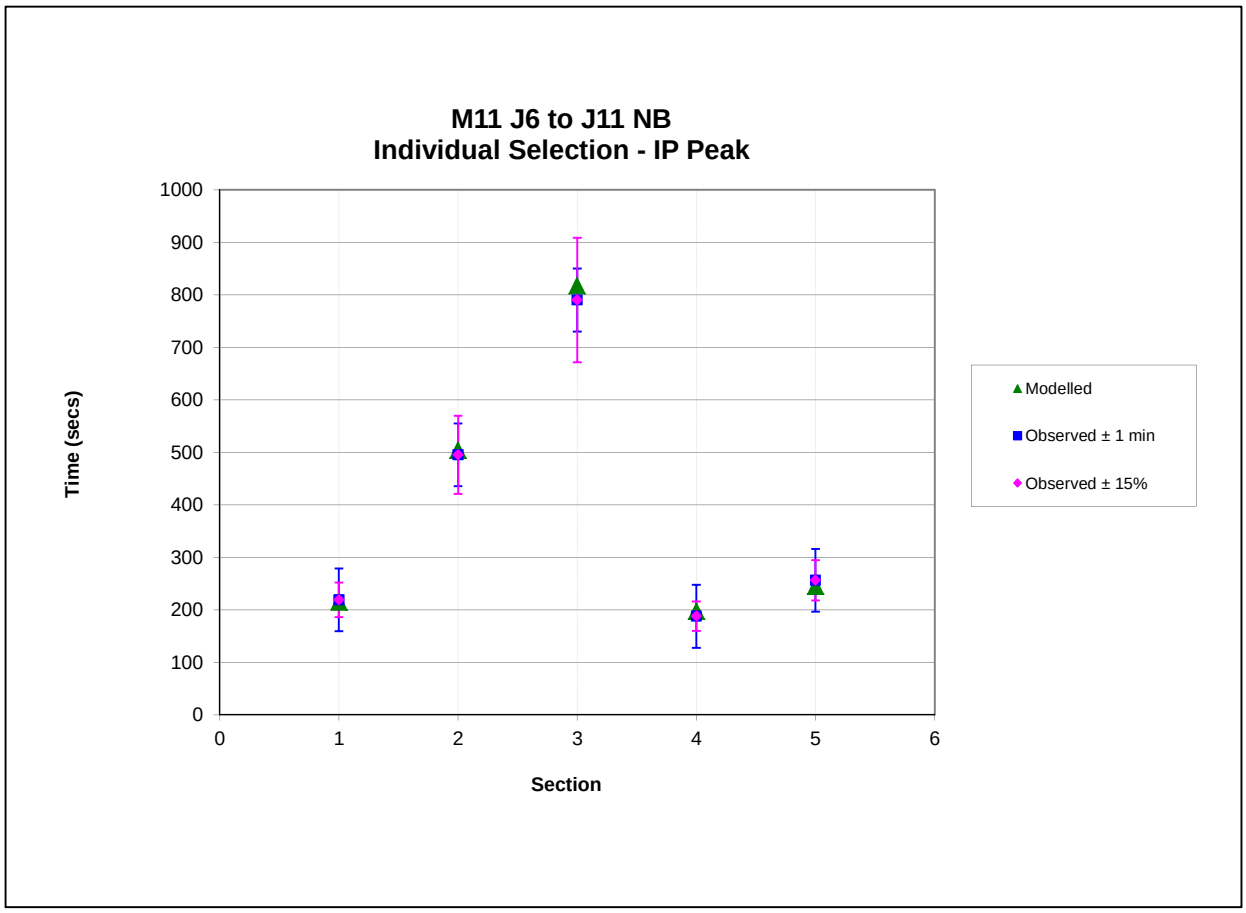
4
5
6
7
Section
Modelled
Observed ± 1 min
Observed ± 15%


M11 J6 to J11 NB
Cumulative Selection - AM Peak
Time (secs)
2500
2000
1500
1000
500
0
6.4
21.5
44.1
49.9
57.6
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled


M11 J6 to J11 NB
Individual Selection - AM Peak
Time (secs)
1000
900
800
700
600
500
400
300
200
100
0
0
1
2
3
4
5
6
Section
Modelled
Observed ± 1 min
Observed ± 15%


M11 J6 to J11 NB
Cumulative Selection - IP Peak
Time (secs)
2500
2000
1500
1000
500
0
6.4
21.5
44.1
49.9
57.6
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled


M11 J6 to J11 NB
Individual Selection - IP Peak
Time (secs)
1000
900
800
700
600
500
400
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200
100
0
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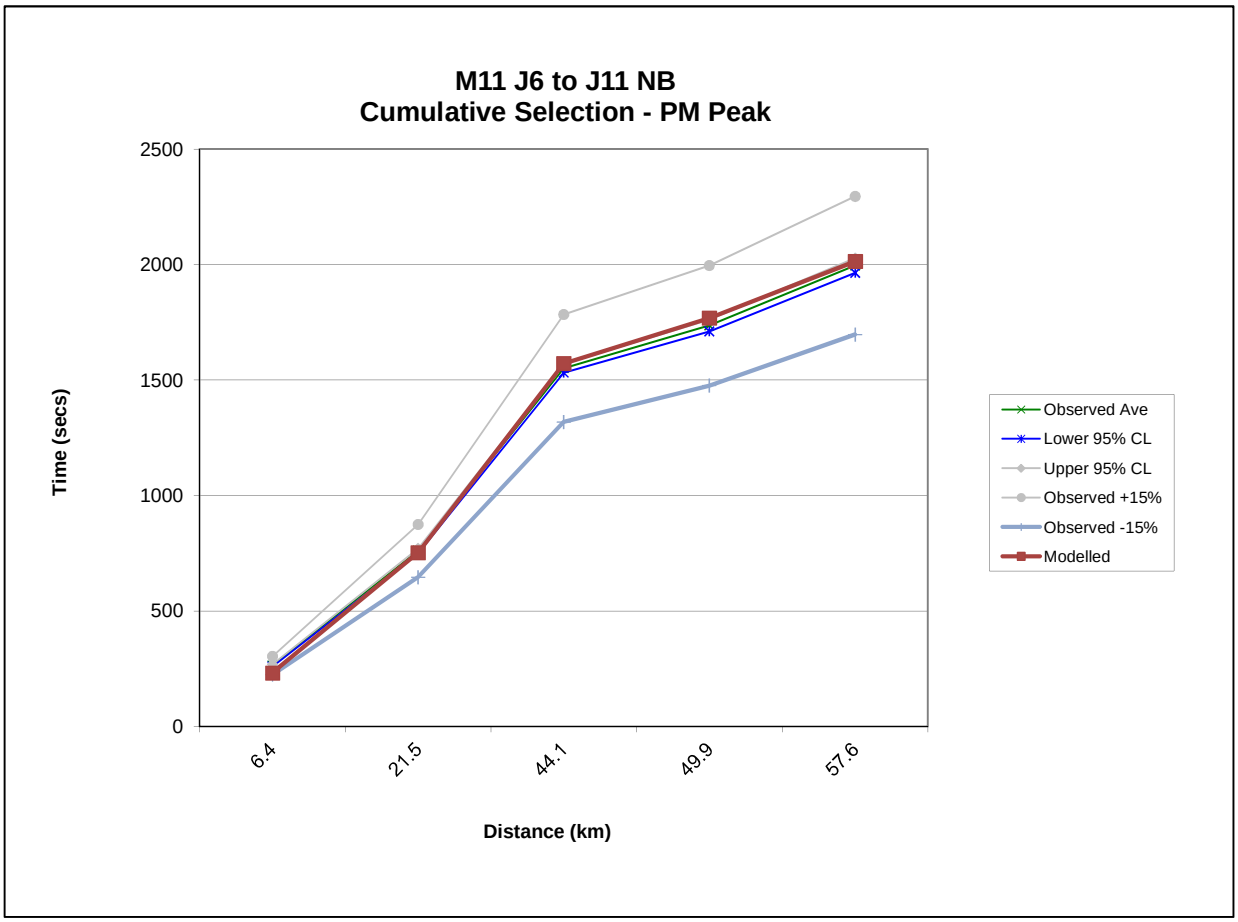
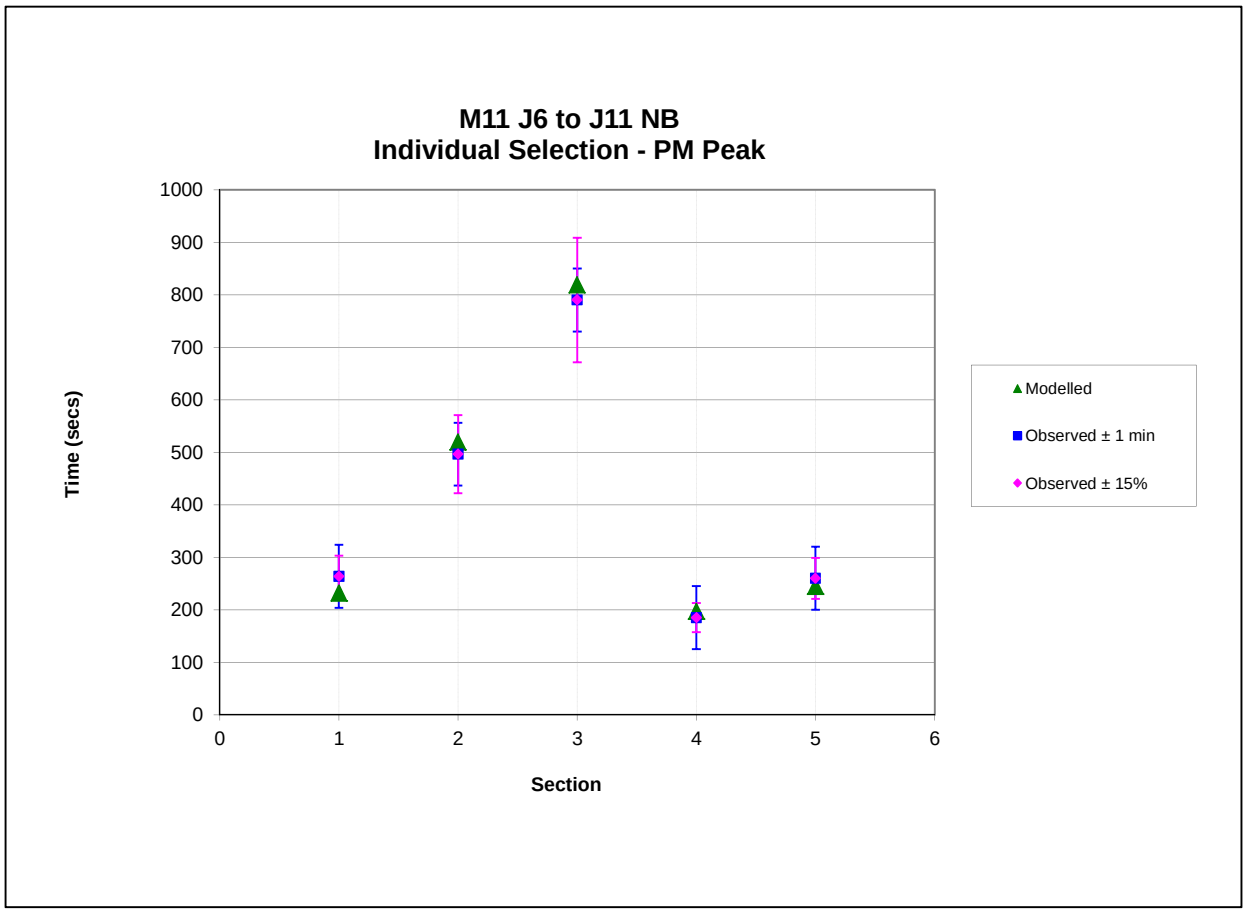
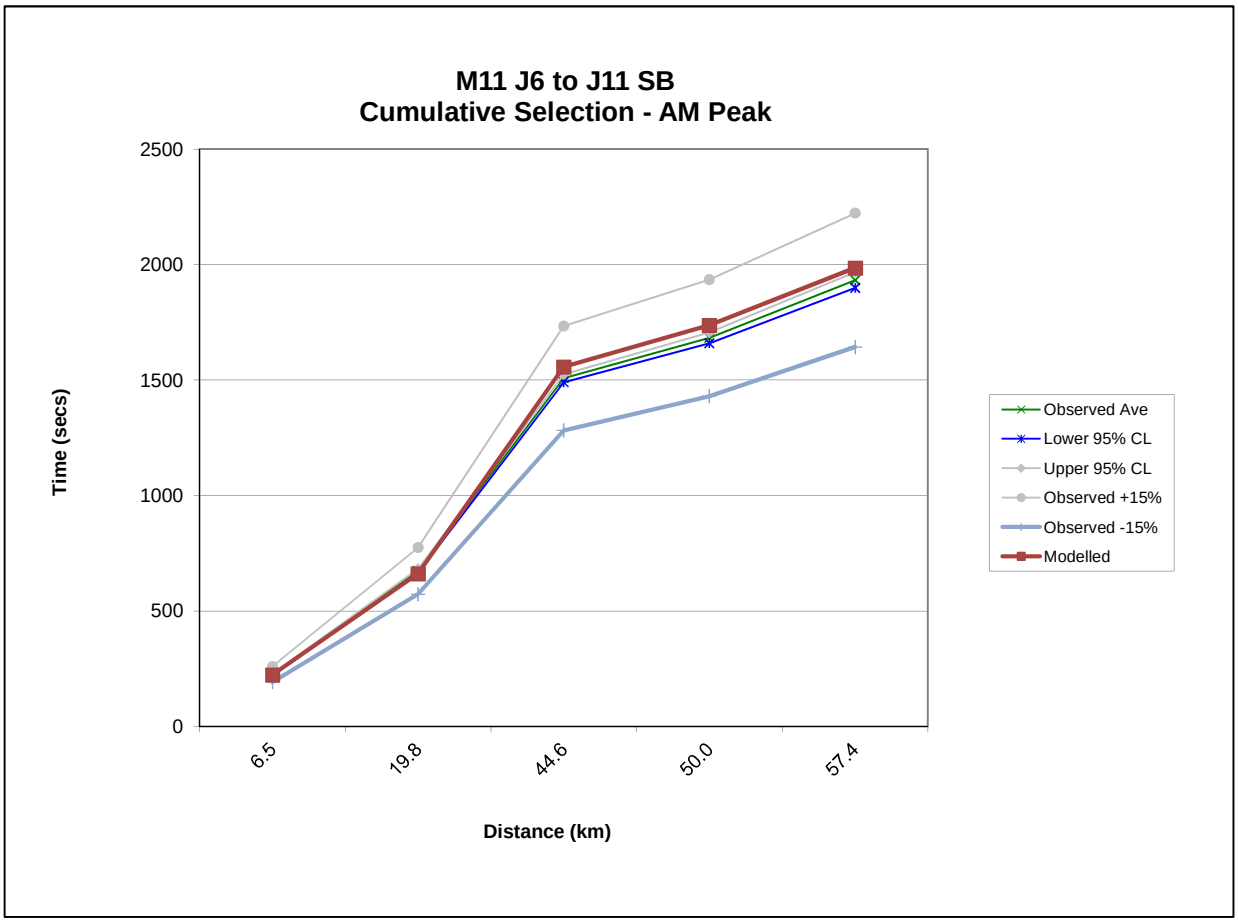
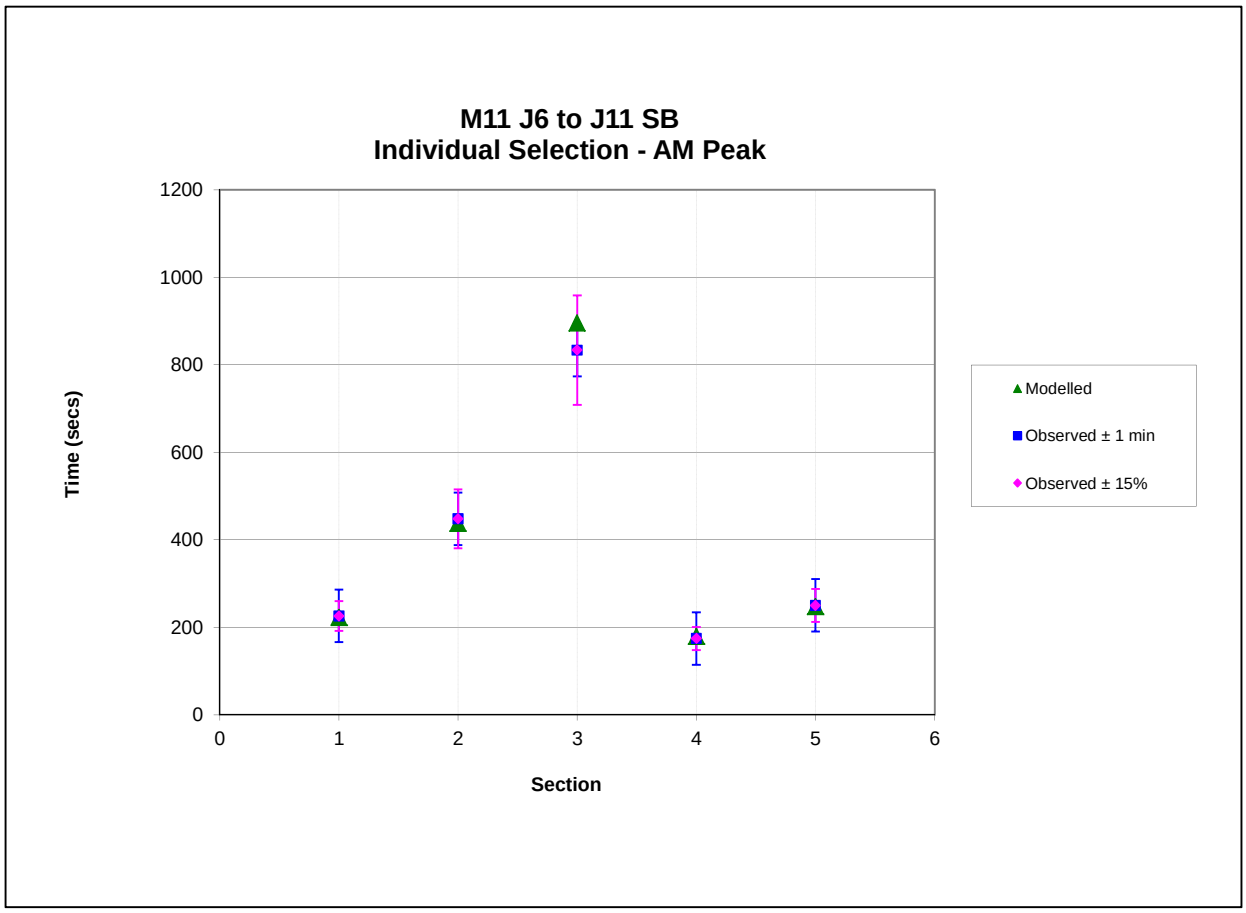
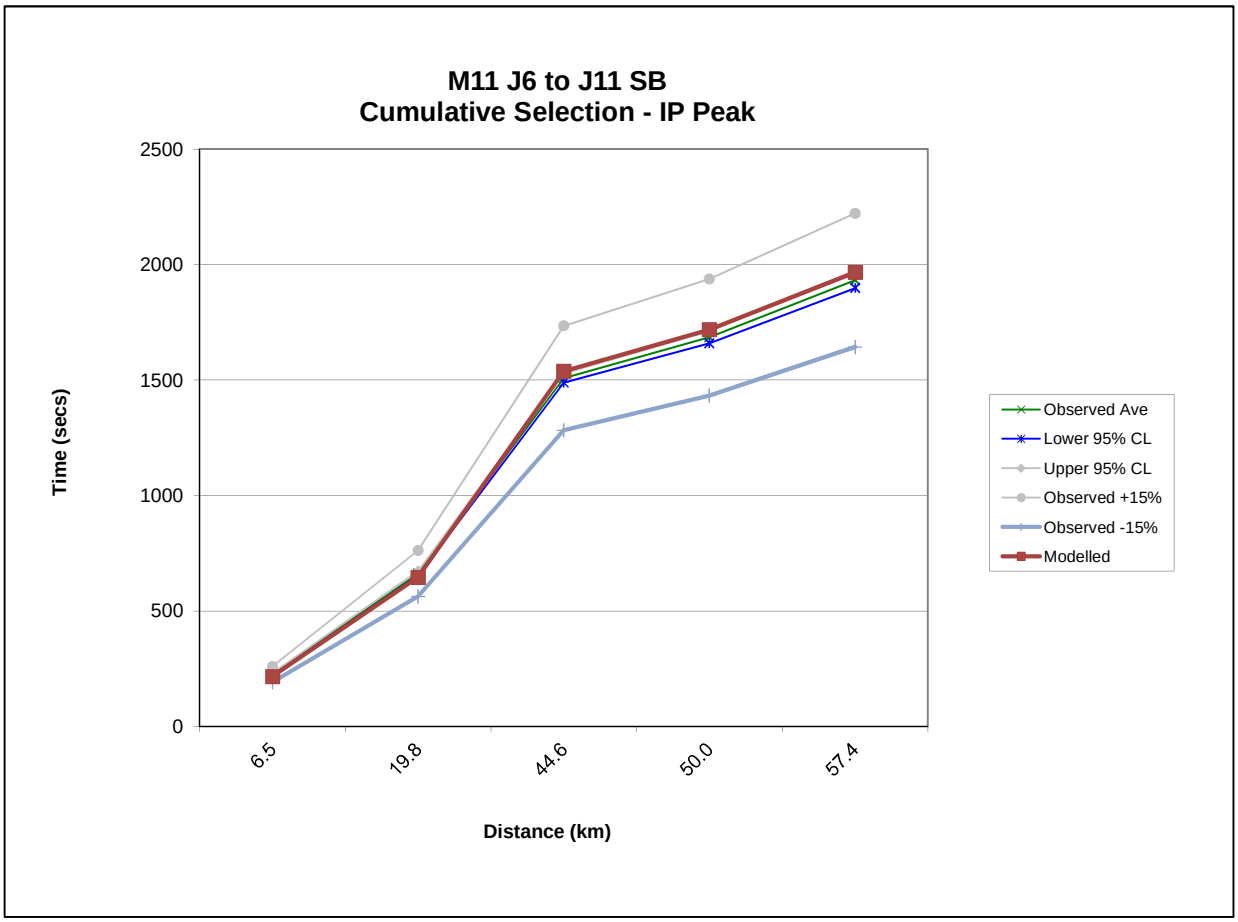
1
2
3
4
5
6
Section
Modelled
Observed ± 1 min
Observed ± 15%

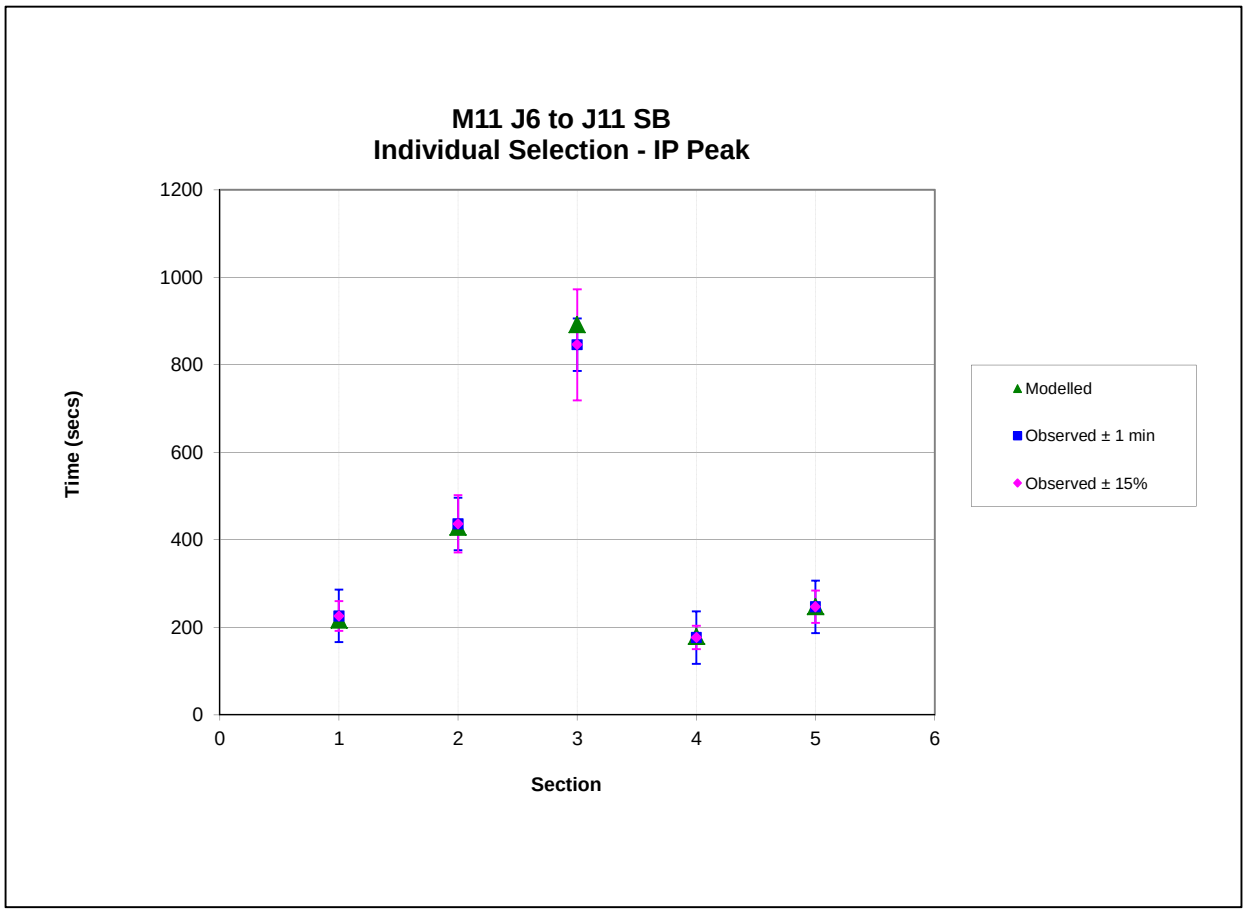

M11 J6 to J11 NB
Cumulative Selection - PM Peak
Time (secs)
2500
2000
1500
1000
500
0
6.4
21.5
44.1
49.9
57.6
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

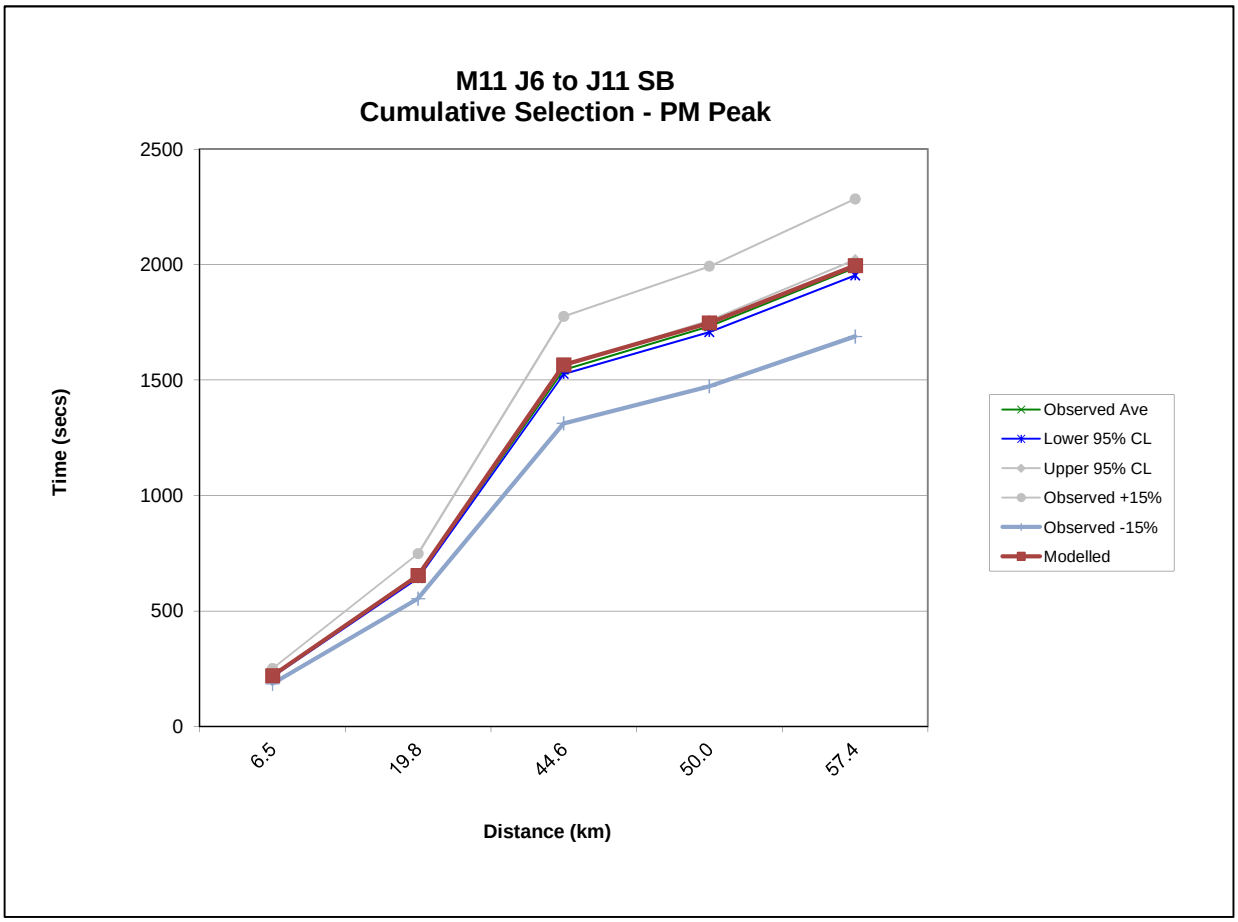

M11 J6 to J11 NB
Individual Selection - PM Peak
Time (secs)
1000
900
800
700
600
500
400
300
200
100
0
0
1
2
3
4
5
6
Section
Modelled
Observed ± 1 min
Observed ± 15%

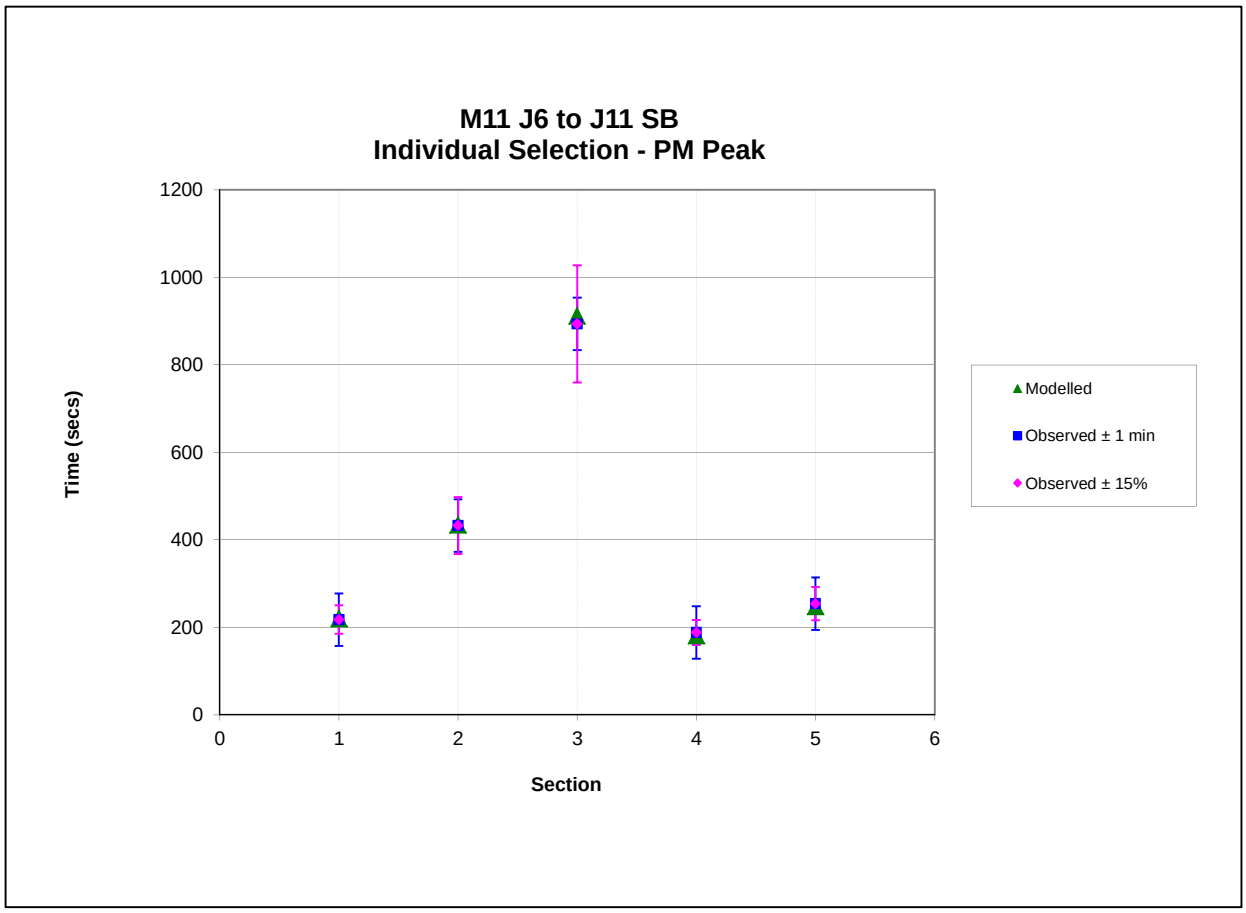

M11 J6 to J11 SB
Cumulative Selection - AM Peak
Time (secs)
2500
2000
1500
1000
500
0
6.5
19.8
44.6
50.0
57.4
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

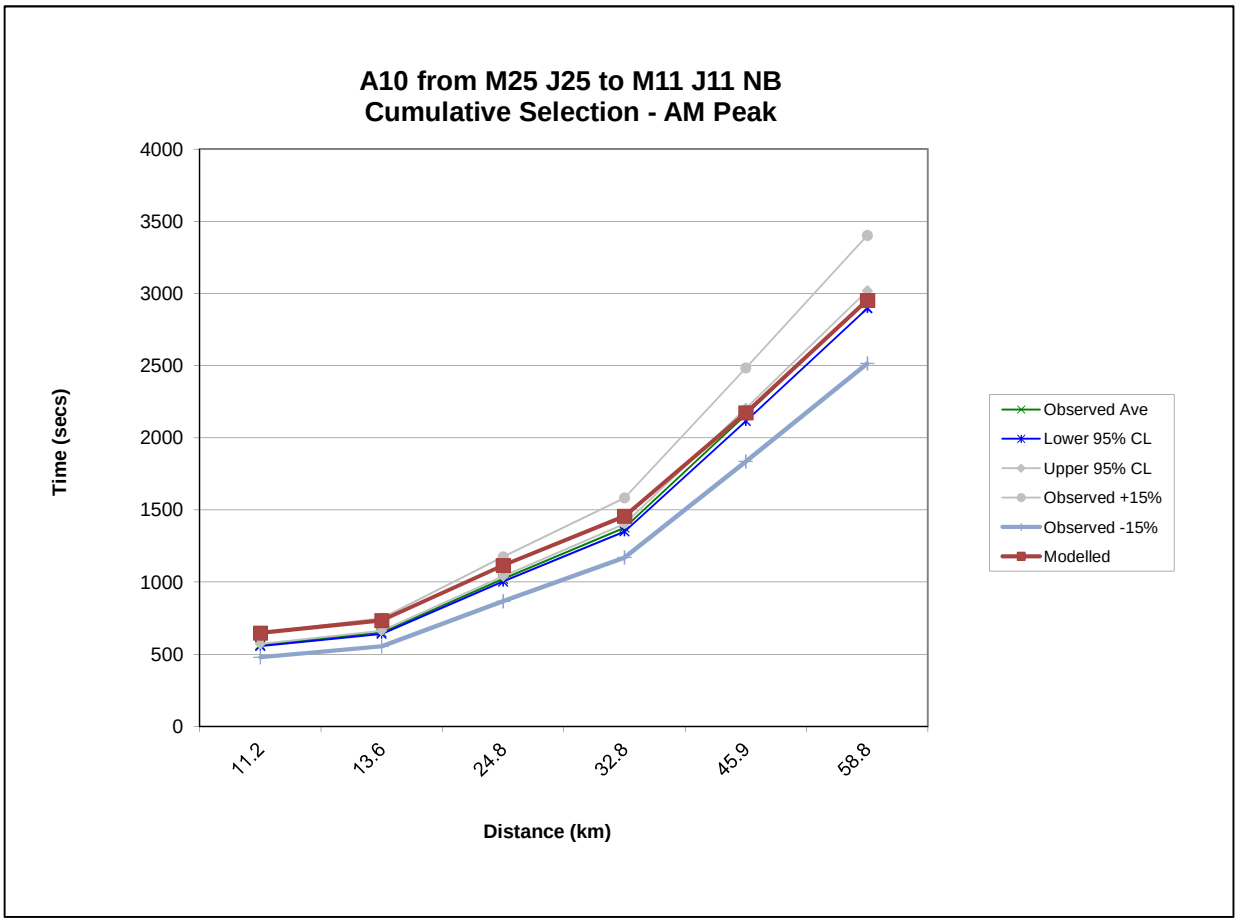

M11 J6 to J11 SB
Individual Selection - AM Peak
Time (secs)
1200
1000
800
600
400
200
0
0
1
2
3
4
5
6
Section
Modelled
Observed ± 1 min
Observed ± 15%

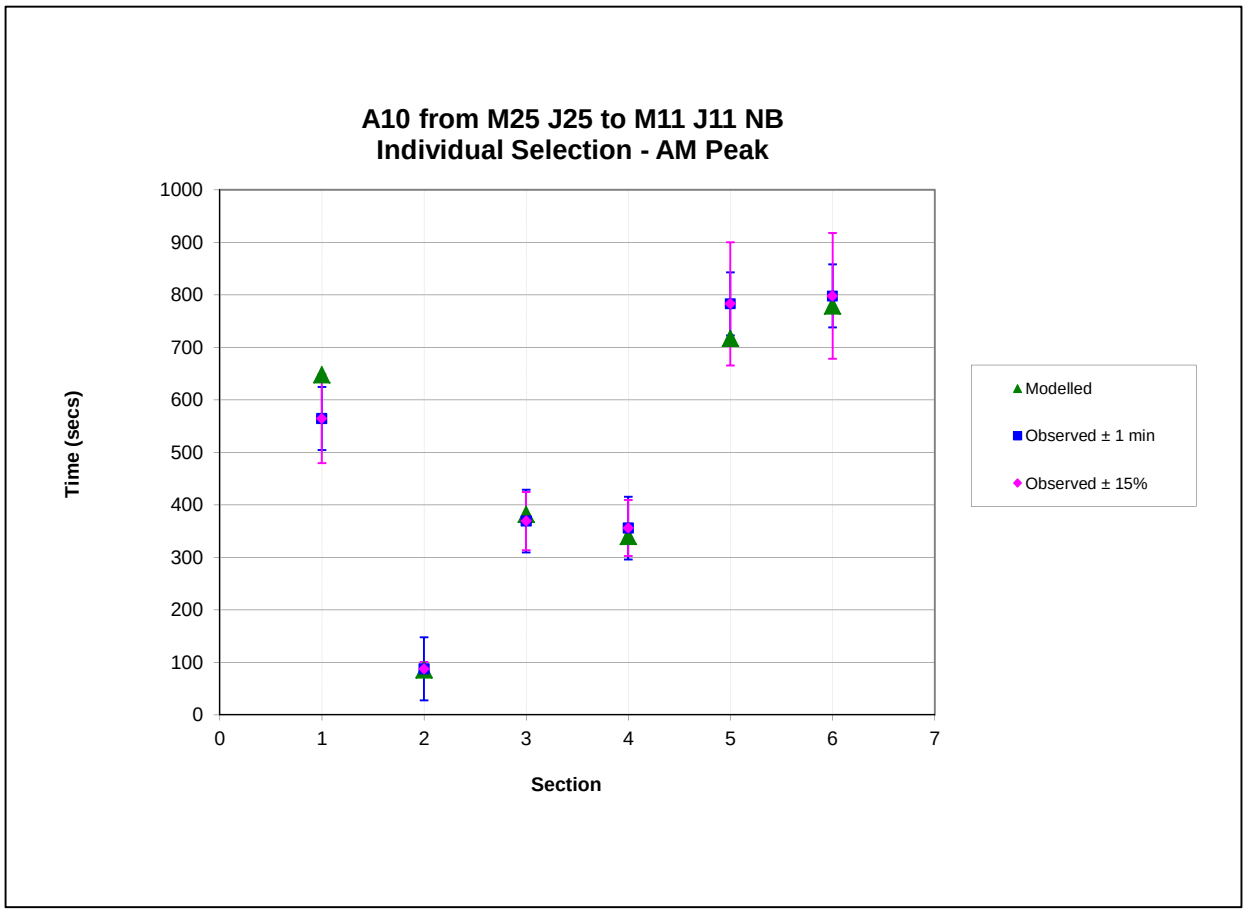

M11 J6 to J11 SB
Cumulative Selection - IP Peak
Time (secs)
2500
2000
1500
1000
500
0
6.5
19.8
44.6
50.0
57.4
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

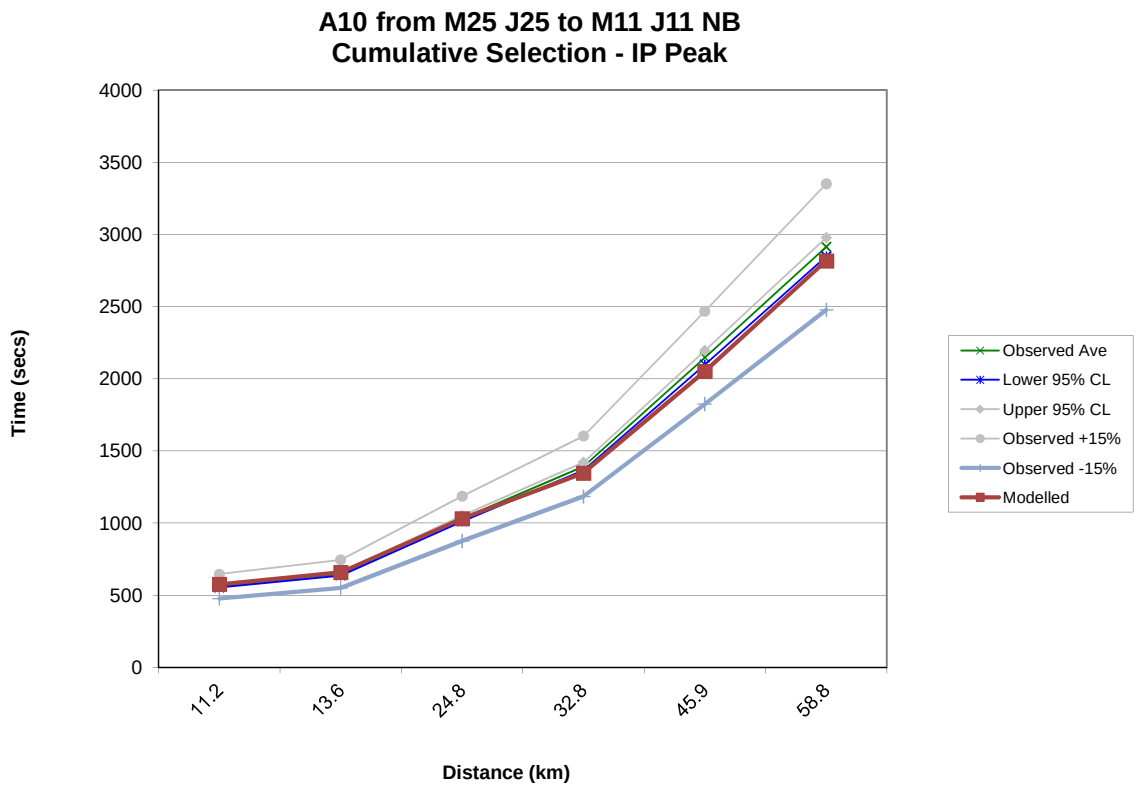

M11 J6 to J11 SB
Individual Selection - IP Peak
Time (secs)
1200
1000
800
600
400
200
0
0
1
2
3
4
5
6
Section
Modelled
Observed ± 1 min
Observed ± 15%

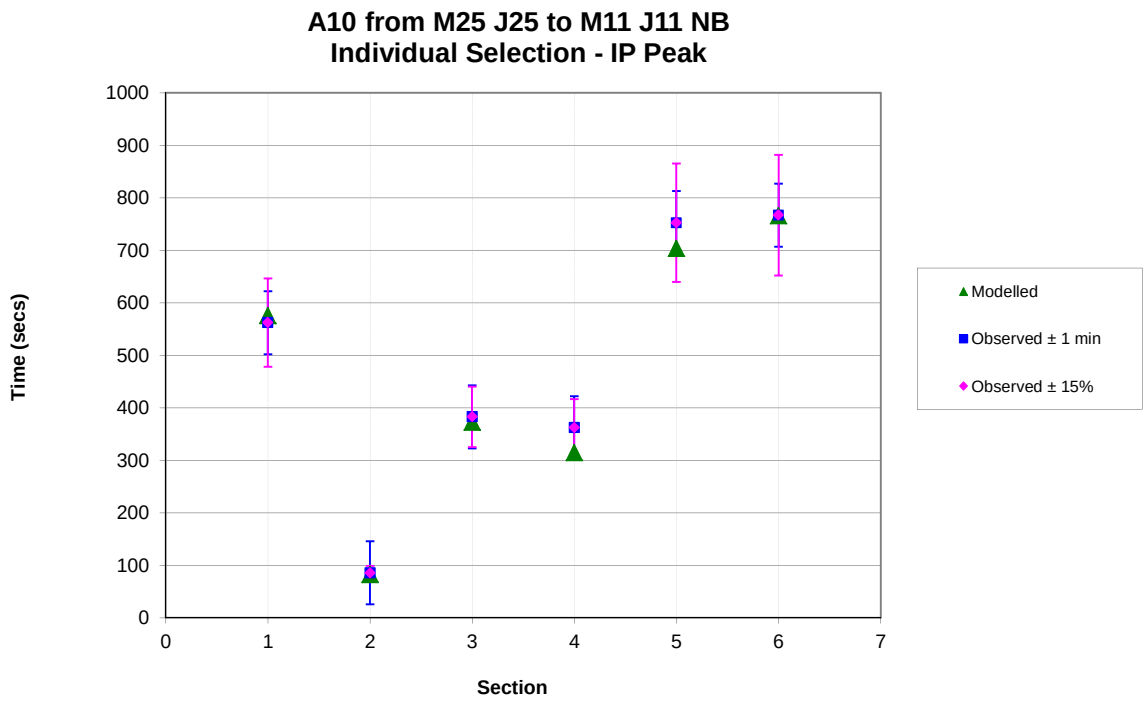

M11 J6 to J11 SB
Cumulative Selection - PM Peak
Time (secs)
2500
2000
1500
1000
500
0
6.5
19.8
44.6
50.0
57.4
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

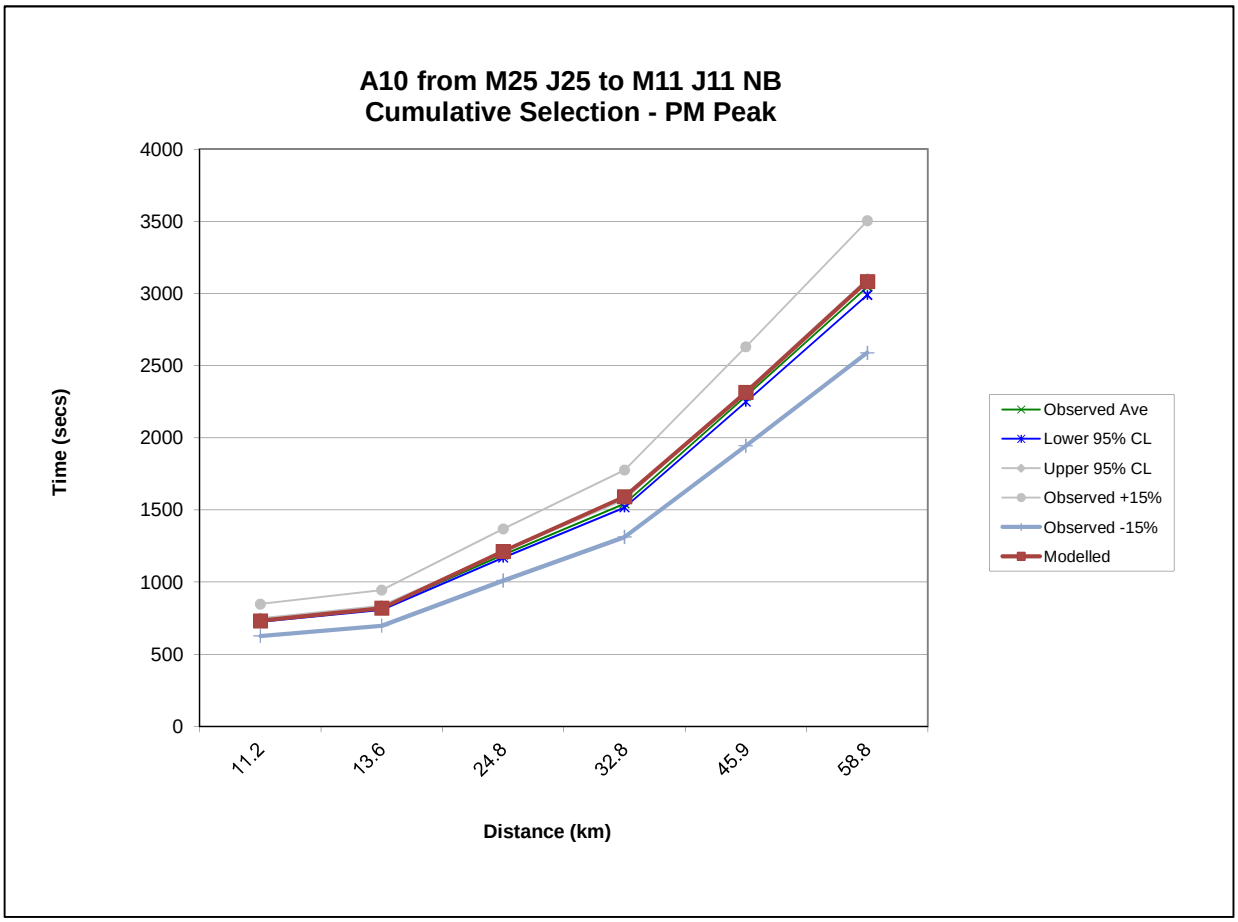

M11 J6 to J11 SB
Individual Selection - PM Peak
Time (secs)
1200
1000
800
600
400
200
0
0
1
2
3
4
5
6
Section
Modelled
Observed ± 1 min
Observed ± 15%

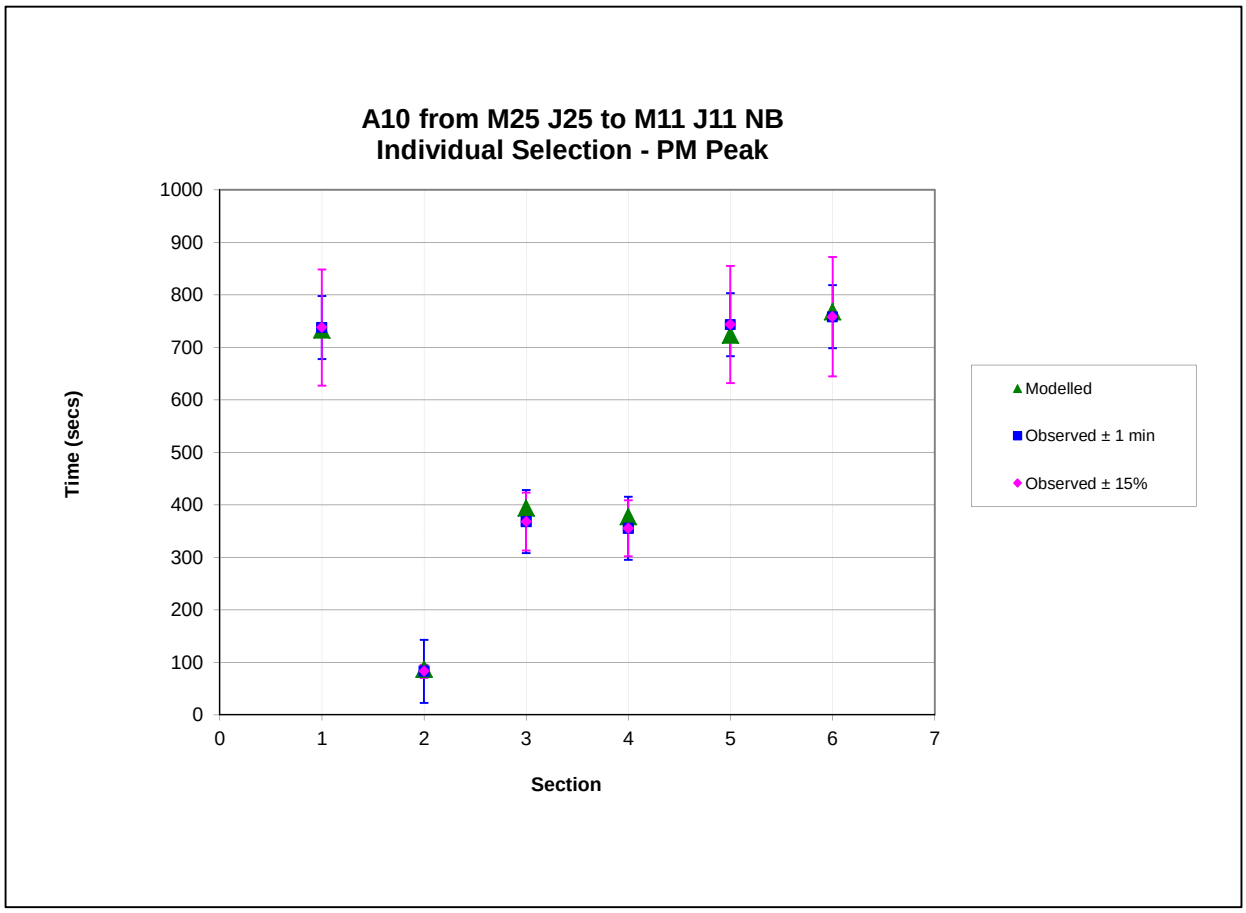

A10 from M25 J25 to M11 J11 NB
Cumulative Selection - AM Peak
Time (secs)
4000
3500
3000
2500
2000
1500
1000
500
0
11.2
13.6
24.8
32.8
45.9
58.8
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

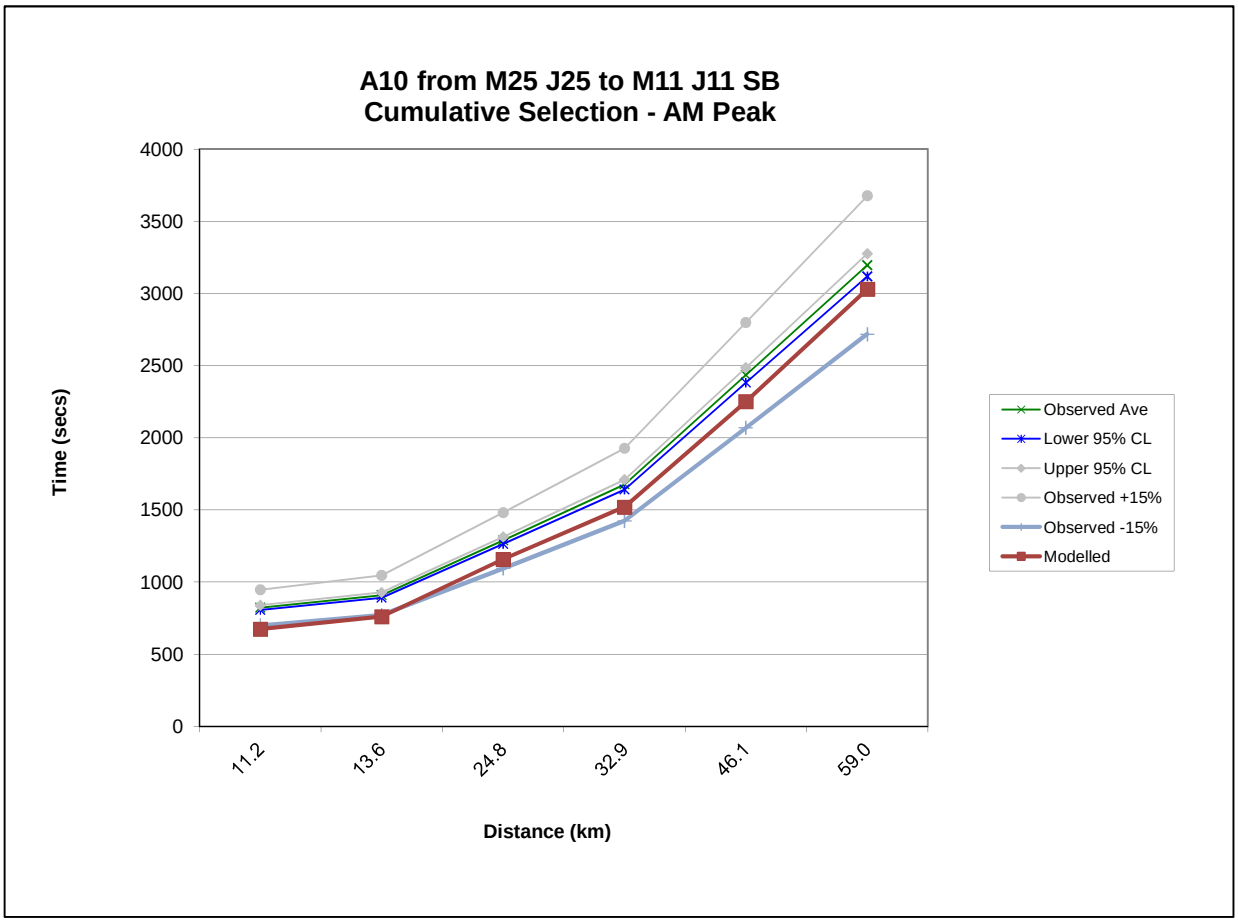

A10 from M25 J25 to M11 J11 NB
Individual Selection - AM Peak
Time (secs)
1000
900
800
700
600
500
400
300
200
100
0
0
1
2
3
4
5
6
7
Section
Modelled
Observed ± 1 min
Observed ± 15%

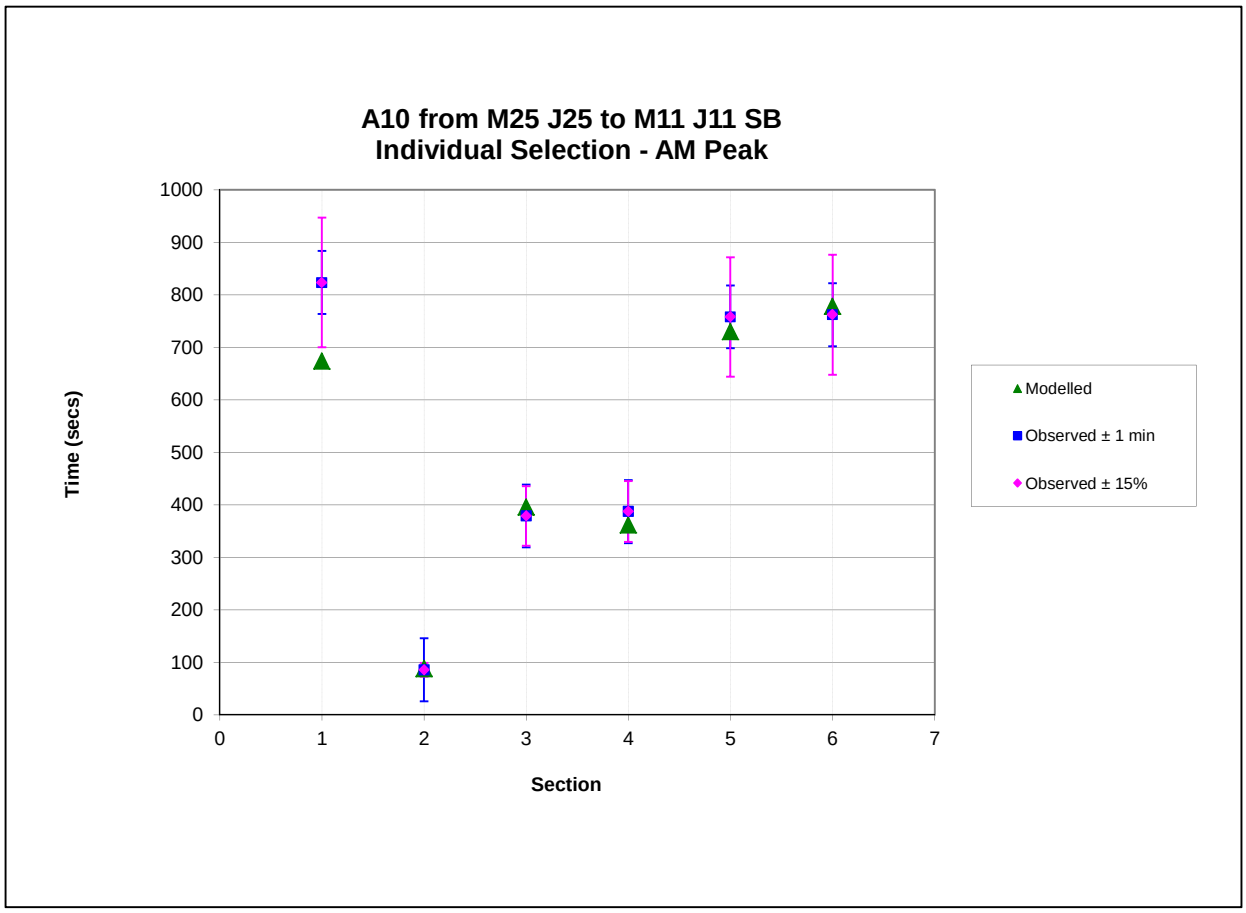

A10 from M25 J25 to M11 J11 NB
Cumulative Selection - IP Peak
Time (secs)
4000
3500
3000
2500
2000
1500
1000
500
0
11.2
13.6
24.8
32.8
45.9
58.8
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

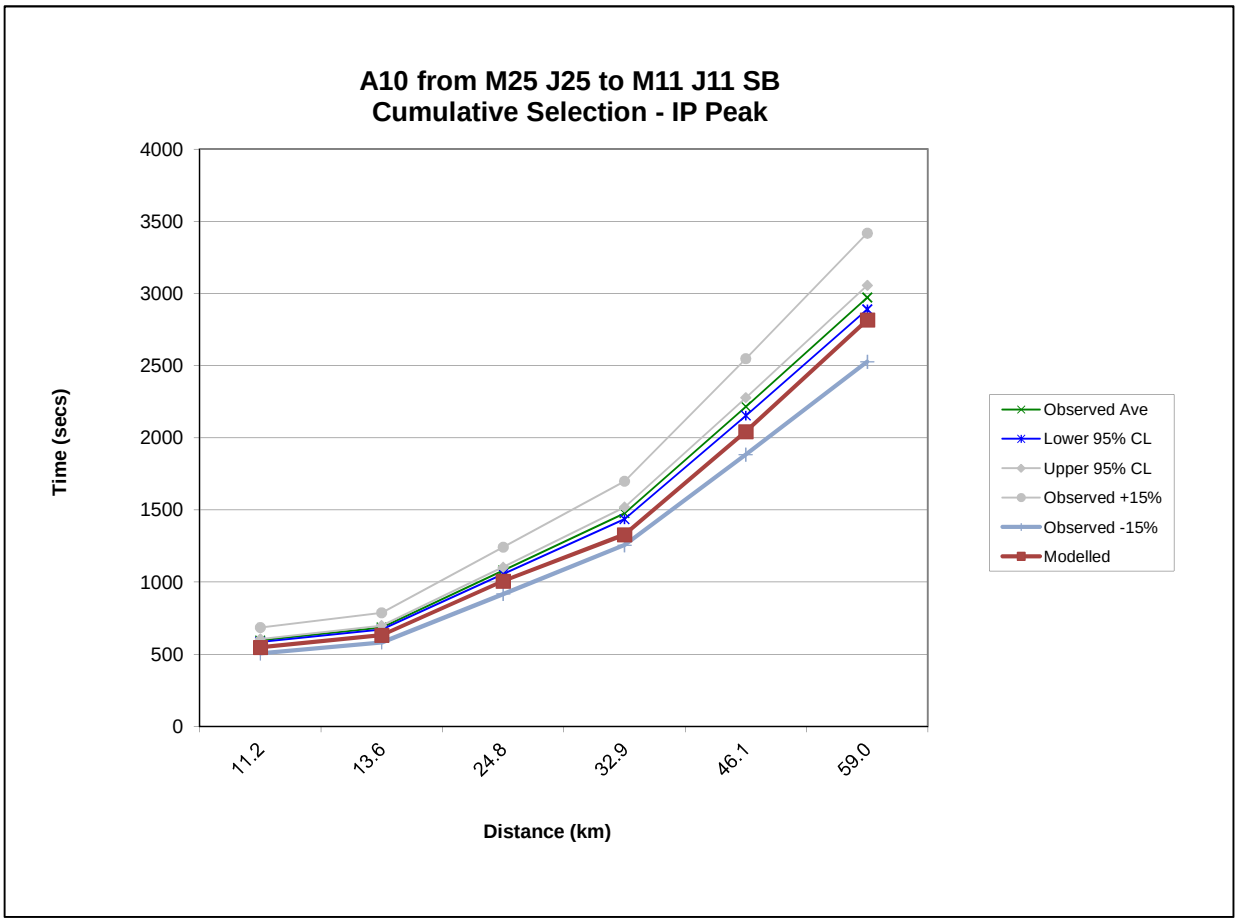

A10 from M25 J25 to M11 J11 NB
Individual Selection - IP Peak
Time (secs)
1000
900
800
700
600
500
400
300
200
100
0
0
1
2
3
4
5
6
7
Section
Modelled
Observed ± 1 min
Observed ± 15%

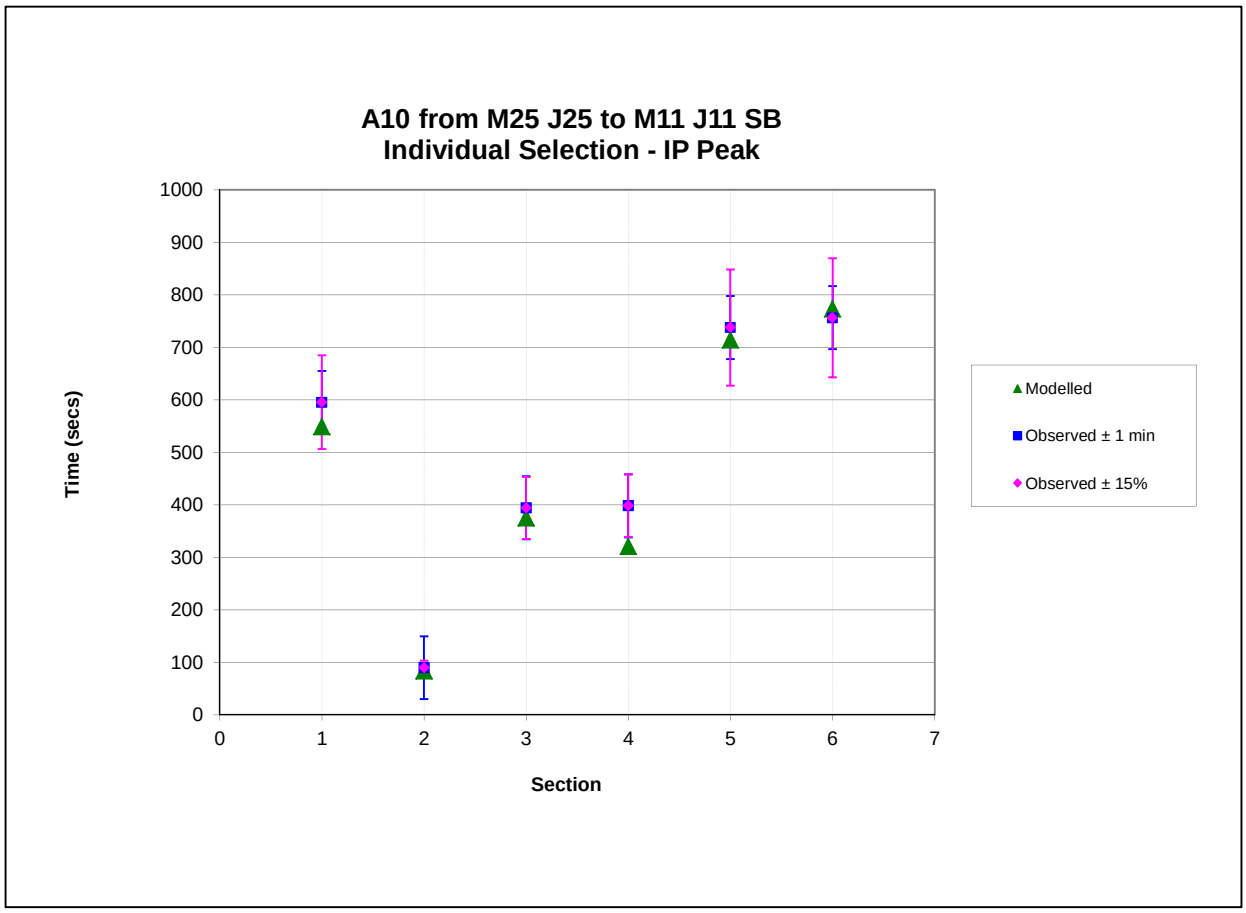

A10 from M25 J25 to M11 J11 NB
Cumulative Selection - PM Peak
Time (secs)
4000
3500
3000
2500
2000
1500
1000
500
0
11.2
13.6
24.8
32.8
45.9
58.8
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

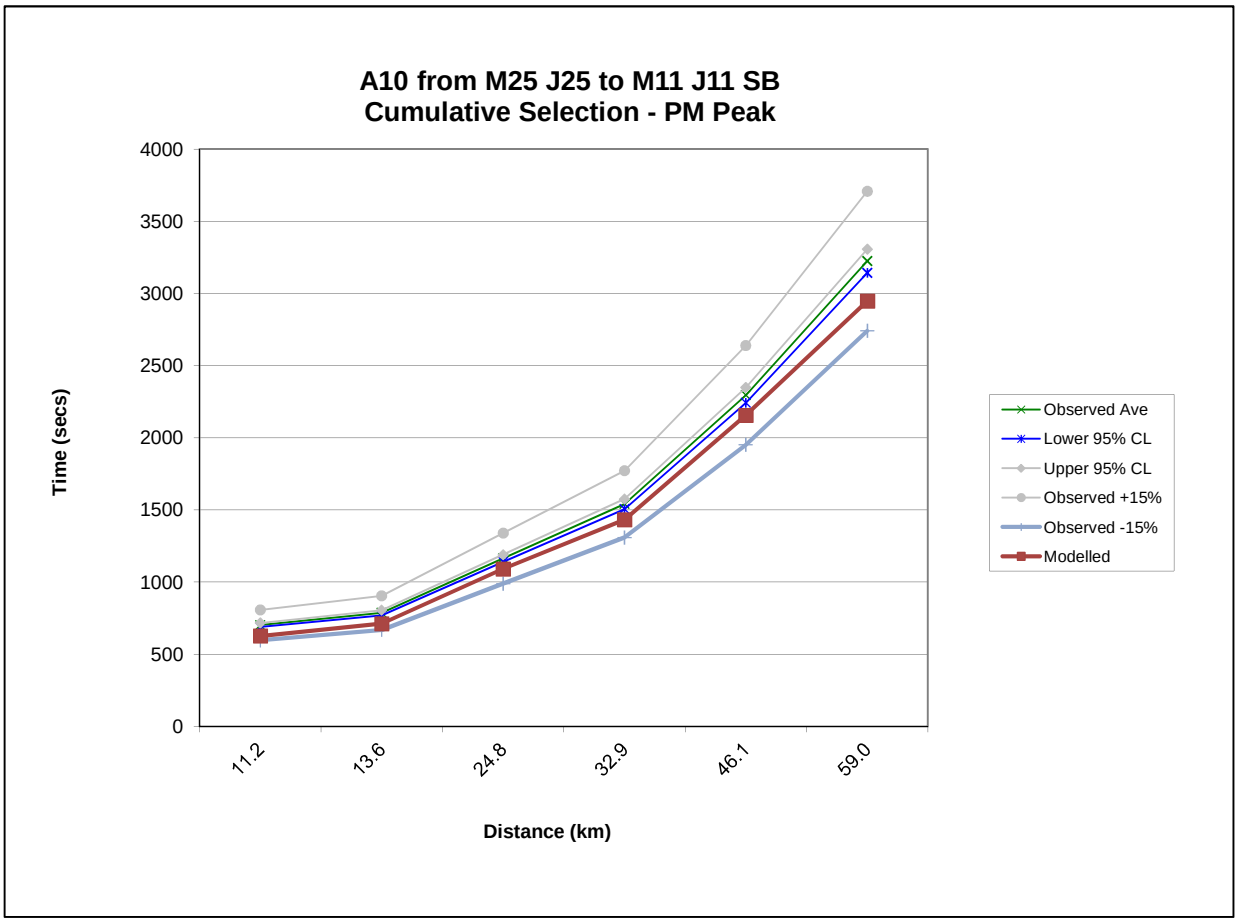

A10 from M25 J25 to M11 J11 NB
Individual Selection - PM Peak
Time (secs)
1000
900
800
700
600
500
400
300
200
100
0
0
1
2
3
4
5
6
7
Section
Modelled
Observed ± 1 min
Observed ± 15%

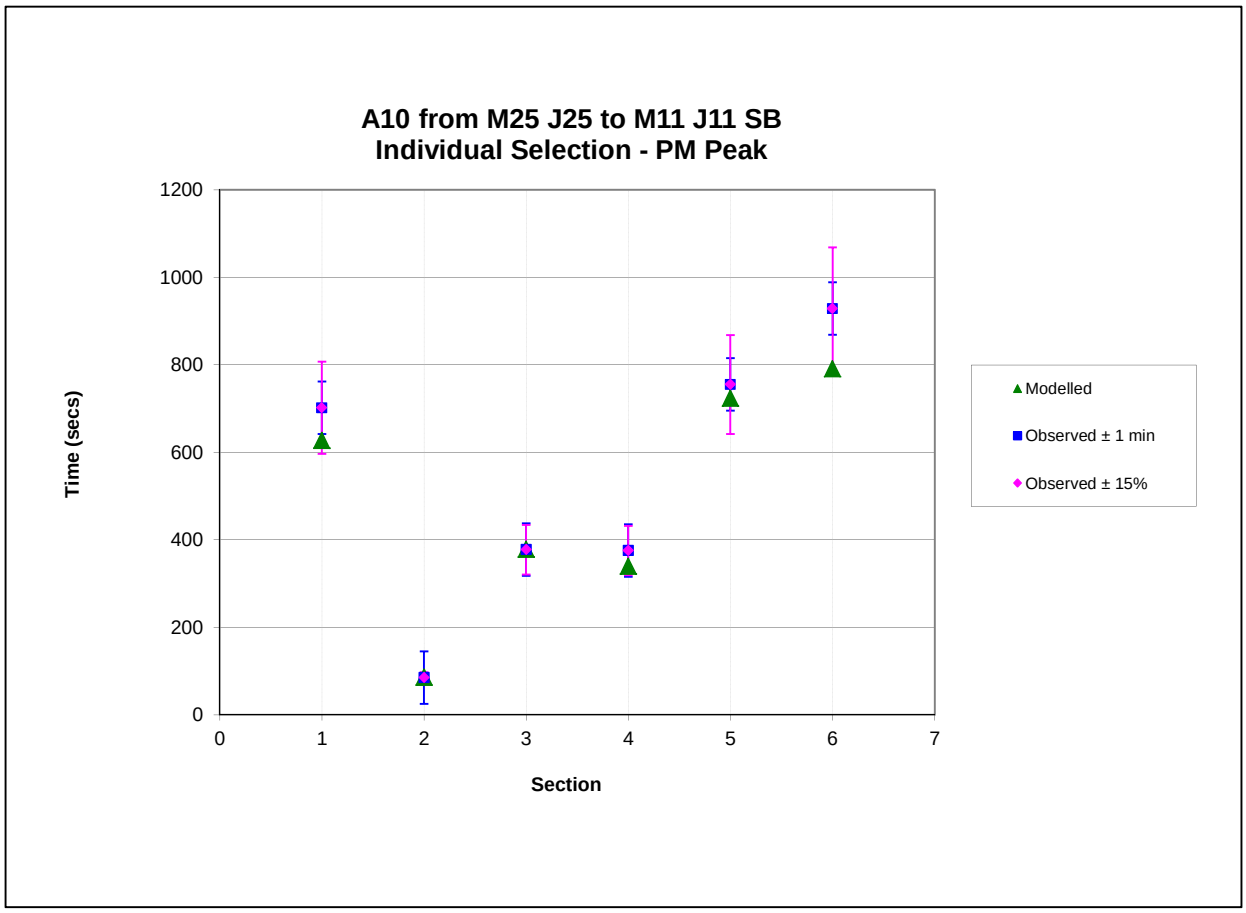

A10 from M25 J25 to M11 J11 SB
Cumulative Selection - AM Peak
Time (secs)
4000
3500
3000
2500
2000
1500
1000
500
0
11.2
13.6
24.8
32.9
46.1
59.0
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

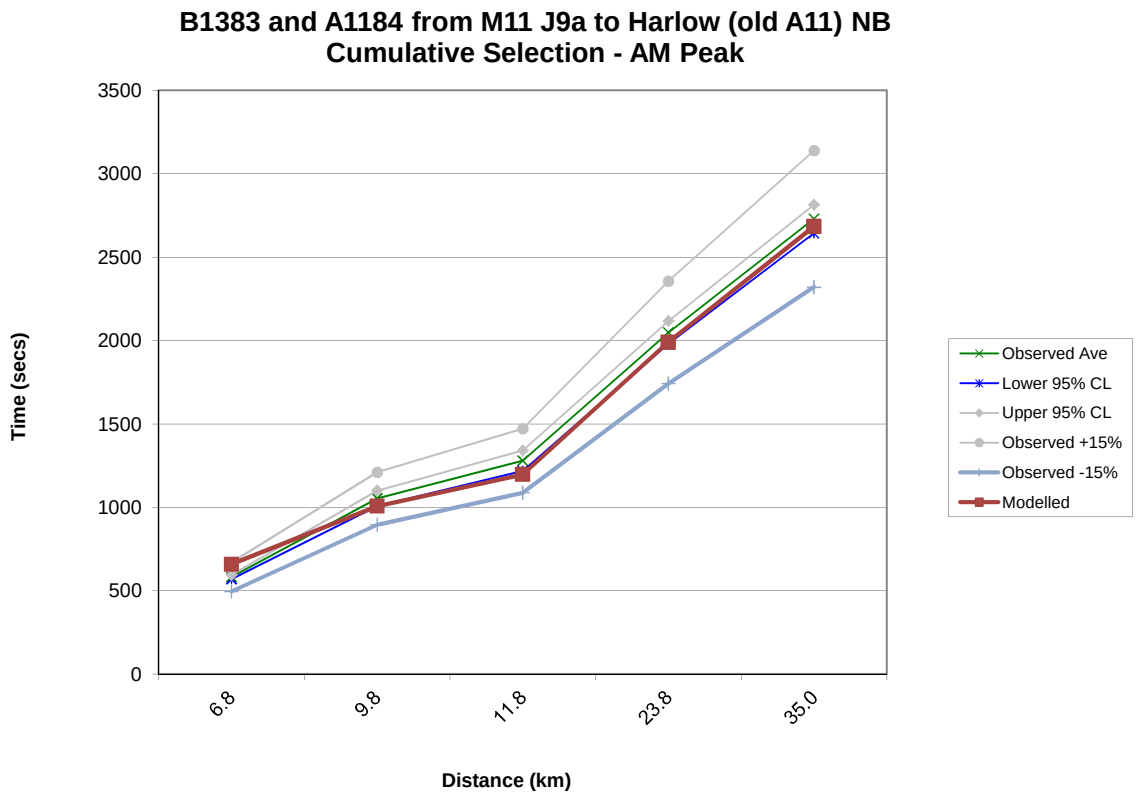

A10 from M25 J25 to M11 J11 SB
Individual Selection - AM Peak
Time (secs)
1000
900
800
700
600
500
400
300
200
100
0
0
1
2
3
4
5
6
7
Section
Modelled
Observed ± 1 min
Observed ± 15%

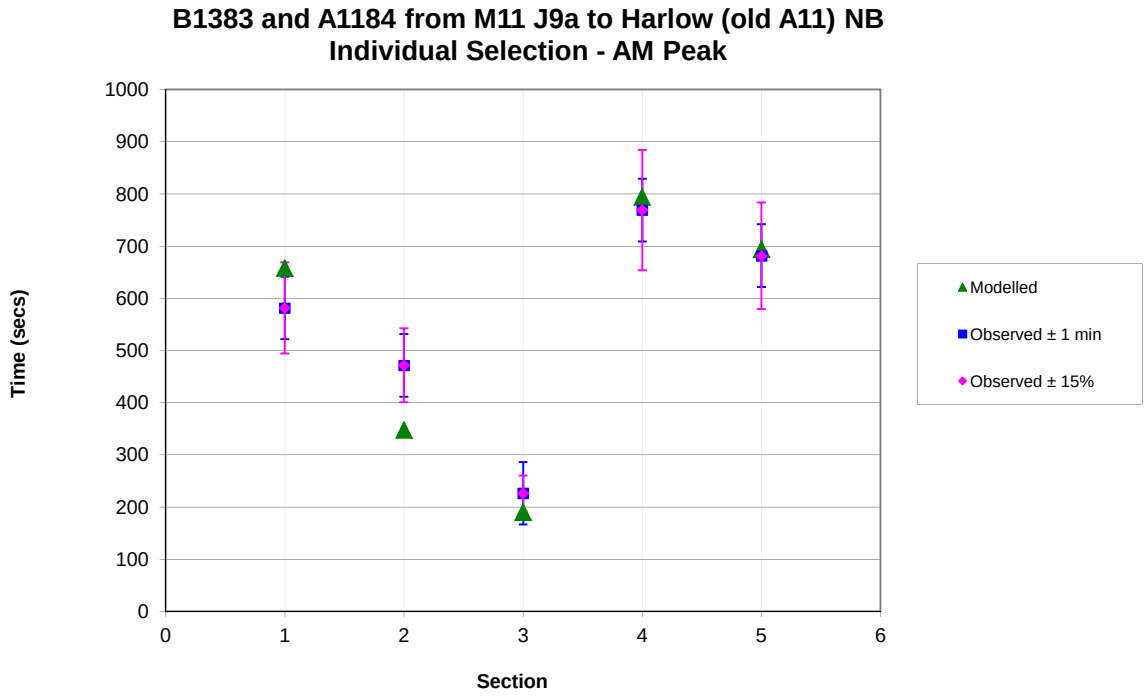

A10 from M25 J25 to M11 J11 SB
Cumulative Selection - IP Peak
Time (secs)
4000
3500
3000
2500
2000
1500
1000
500
0
11.2
13.6
24.8
32.9
46.1
59.0
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

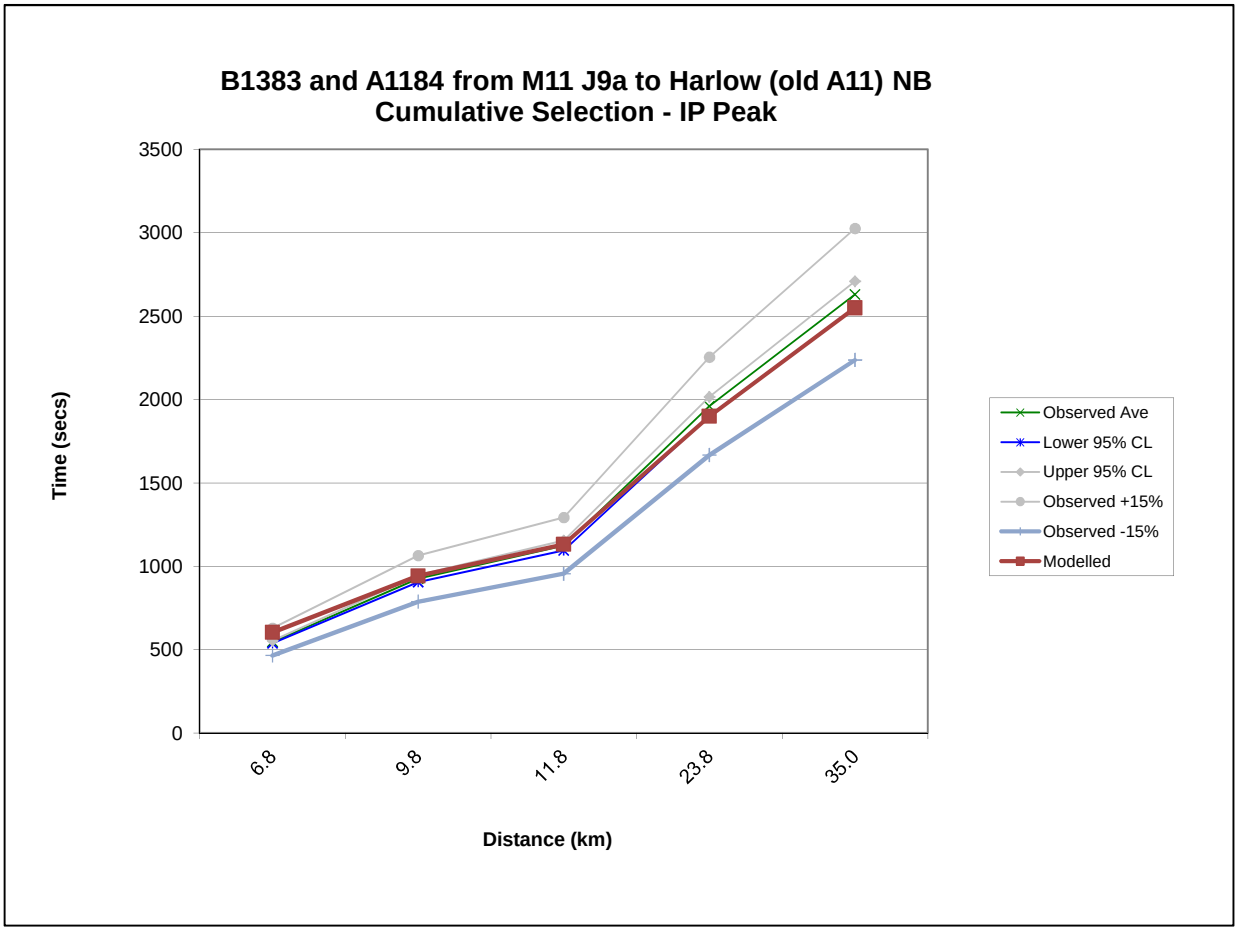

A10 from M25 J25 to M11 J11 SB
Individual Selection - IP Peak
Time (secs)
1000
900
800
700
600
500
400
300
200
100
0
0
1
2
3
4
5
6
7
Section
Modelled
Observed ± 1 min
Observed ± 15%

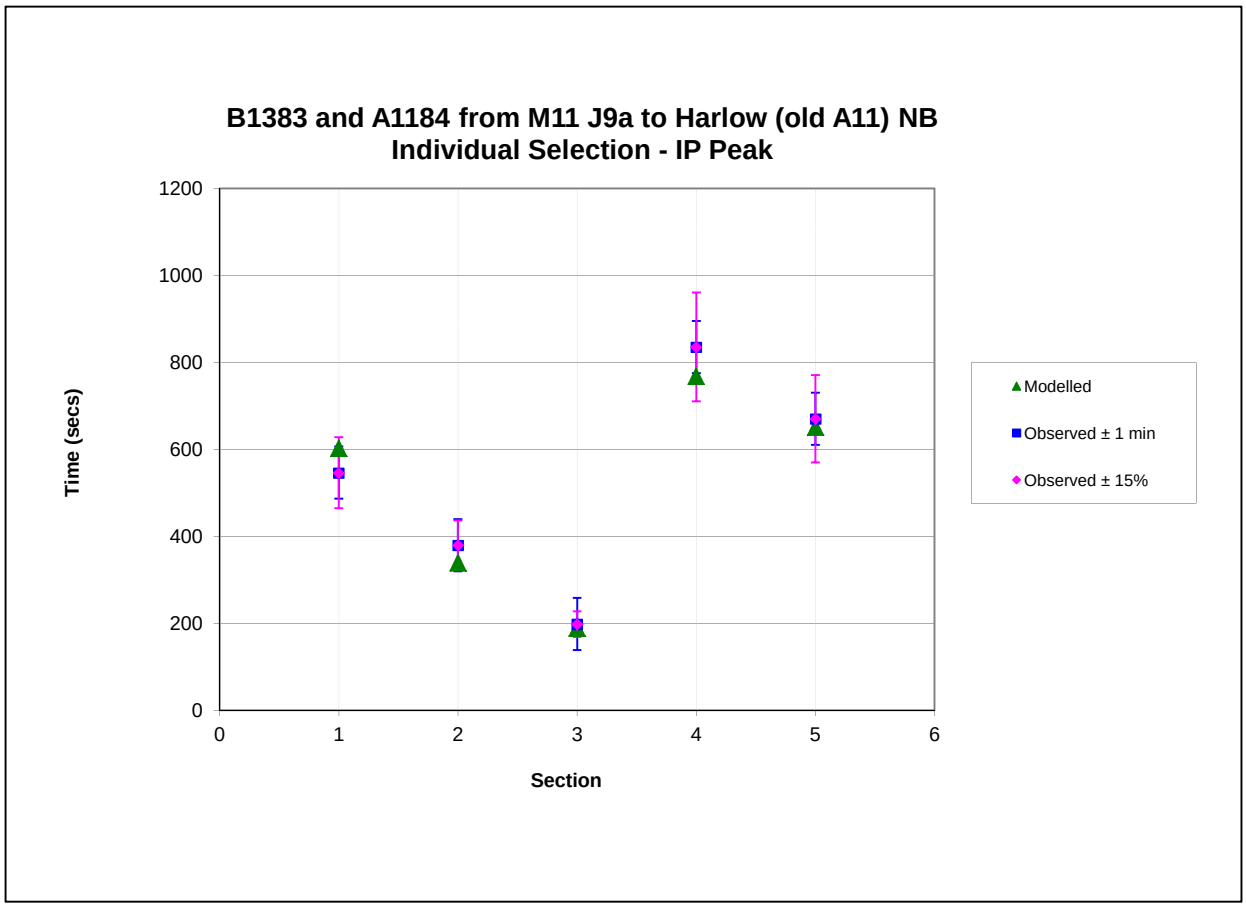

A10 from M25 J25 to M11 J11 SB
Cumulative Selection - PM Peak
Time (secs)
4000
3500
3000
2500
2000
1500
1000
500
0
11.2
13.6
24.8
32.9
46.1
59.0
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

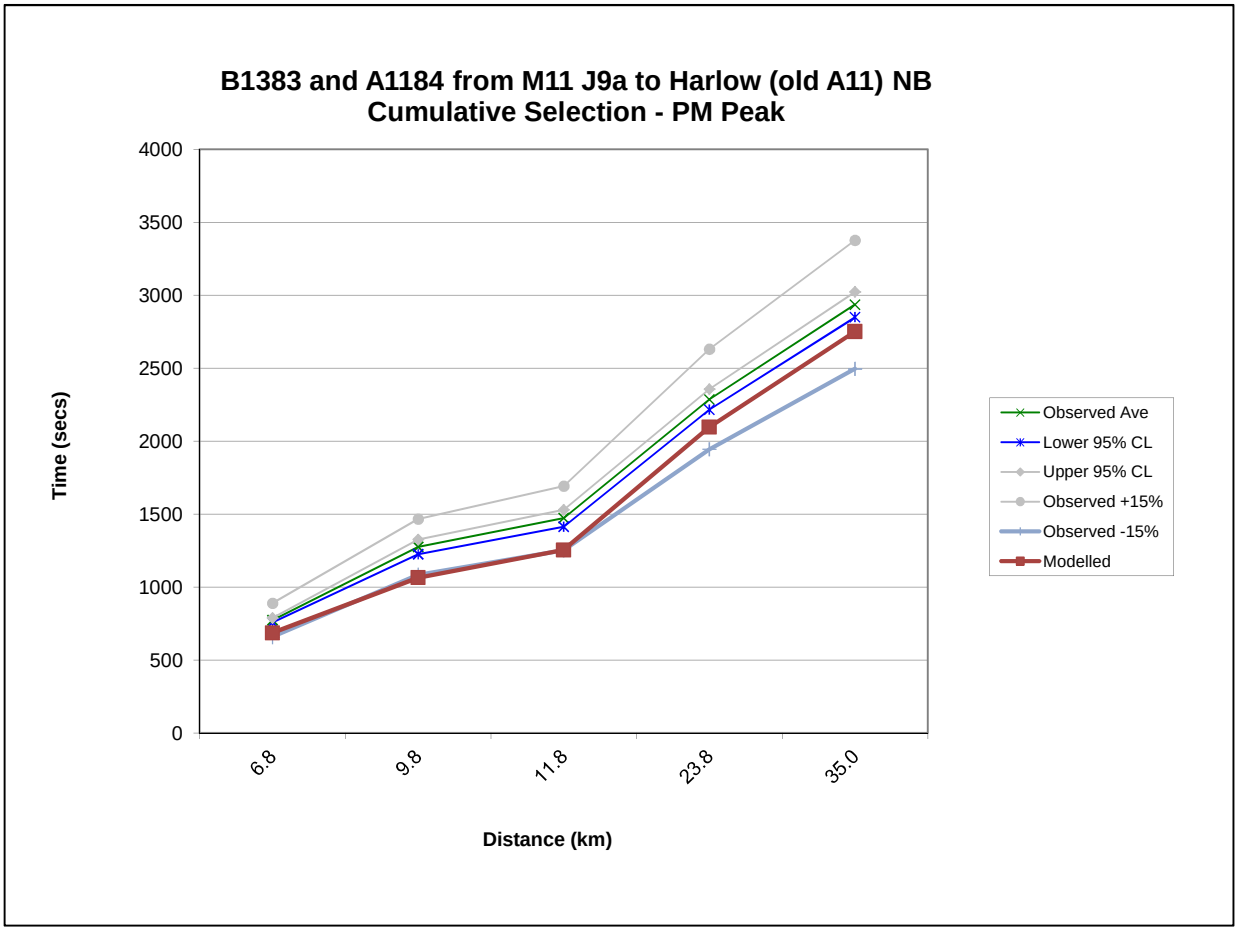

A10 from M25 J25 to M11 J11 SB
Individual Selection - PM Peak
Time (secs)
1200
1000
800
600
400
200
0
0
1
2
3
4
5
6
7
Section
Modelled
Observed ± 1 min
Observed ± 15%

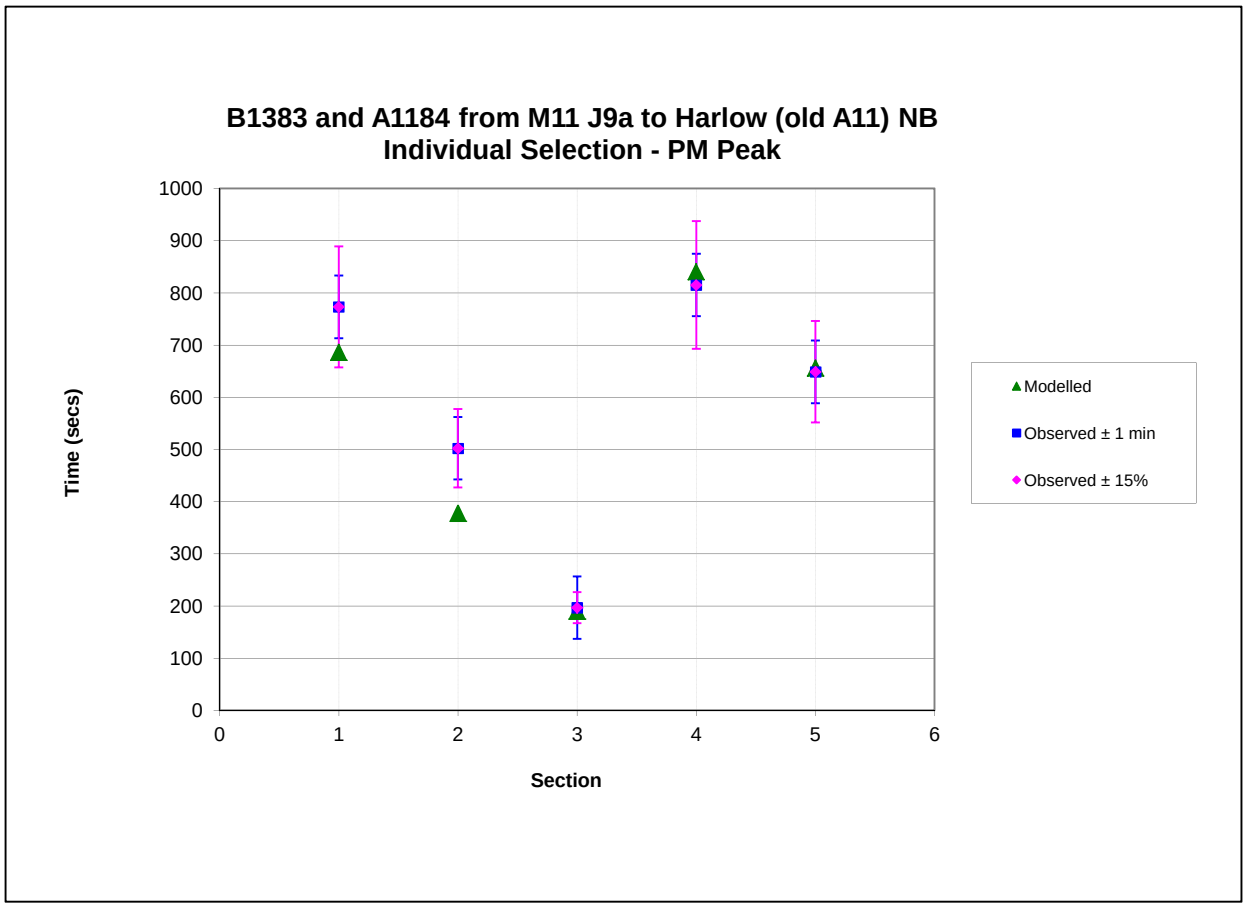

B1383 and A1184 from M11 J9a to Harlow (old A11) NB
Cumulative Selection - AM Peak
Time (secs)
3500
3000
2500
2000
1500
1000
500
0
6.8
9.8
11.8
23.8
35.0
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

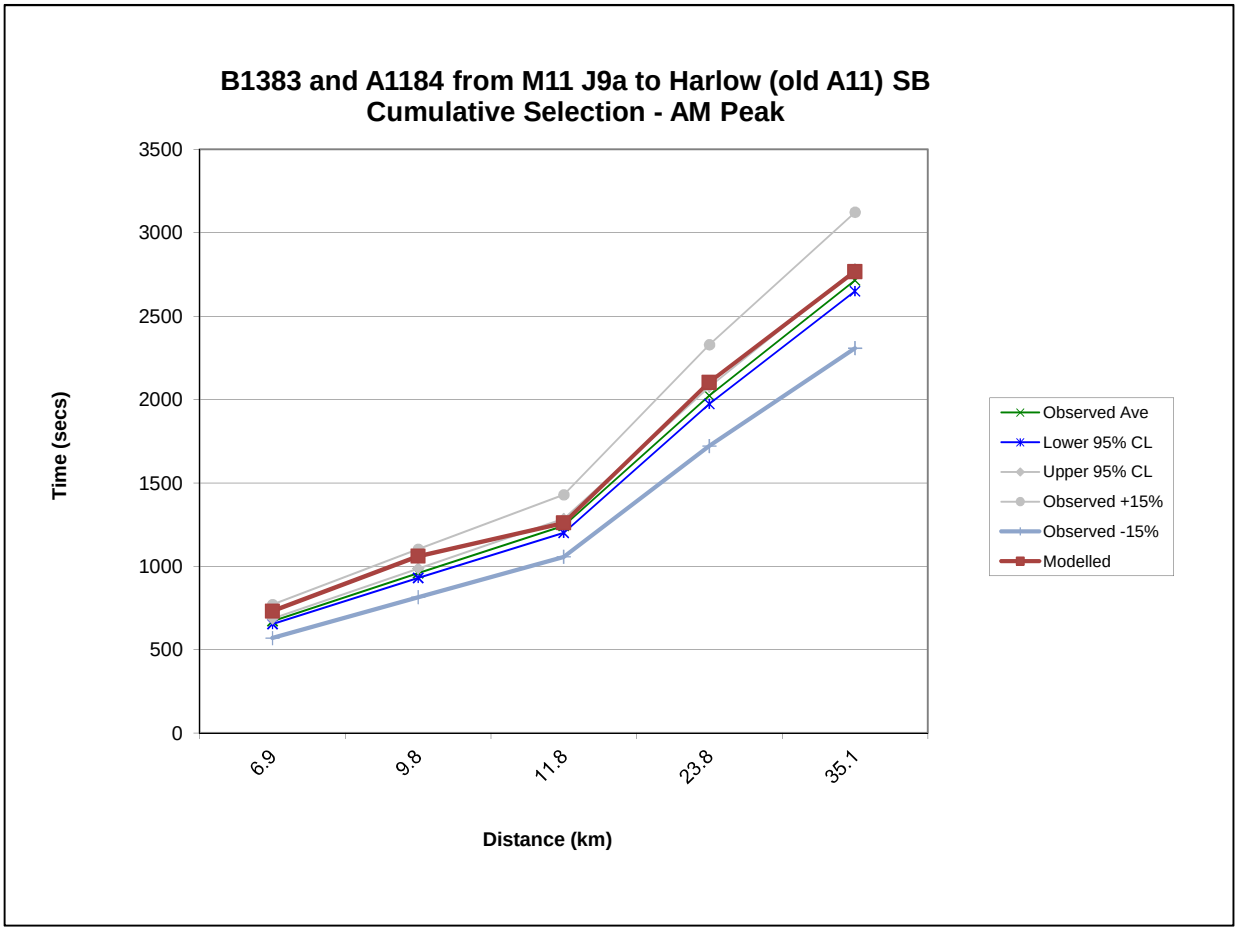

B1383 and A1184 from M11 J9a to Harlow (old A11) NB
Individual Selection - AM Peak
Time (secs)
1000
900
800
700
600
500
400
300
200
100
0
0
1
2
3
4
5
6
Section
Modelled
Observed ± 1 min
Observed ± 15%

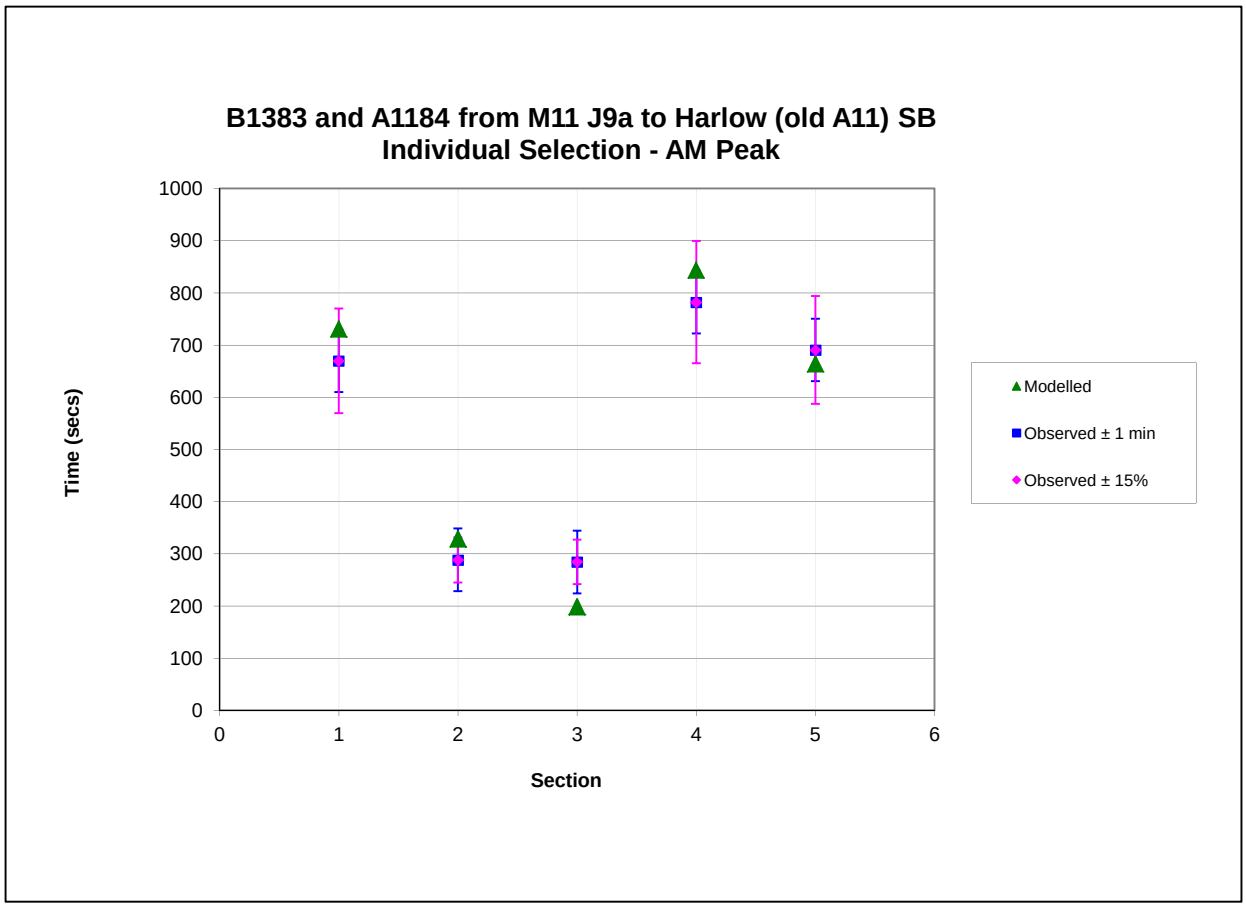

B1383 and A1184 from M11 J9a to Harlow (old A11) NB
Cumulative Selection - IP Peak
Time (secs)
3500
3000
2500
2000
1500
1000
500
0
6.8
9.8
11.8
23.8
35.0
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

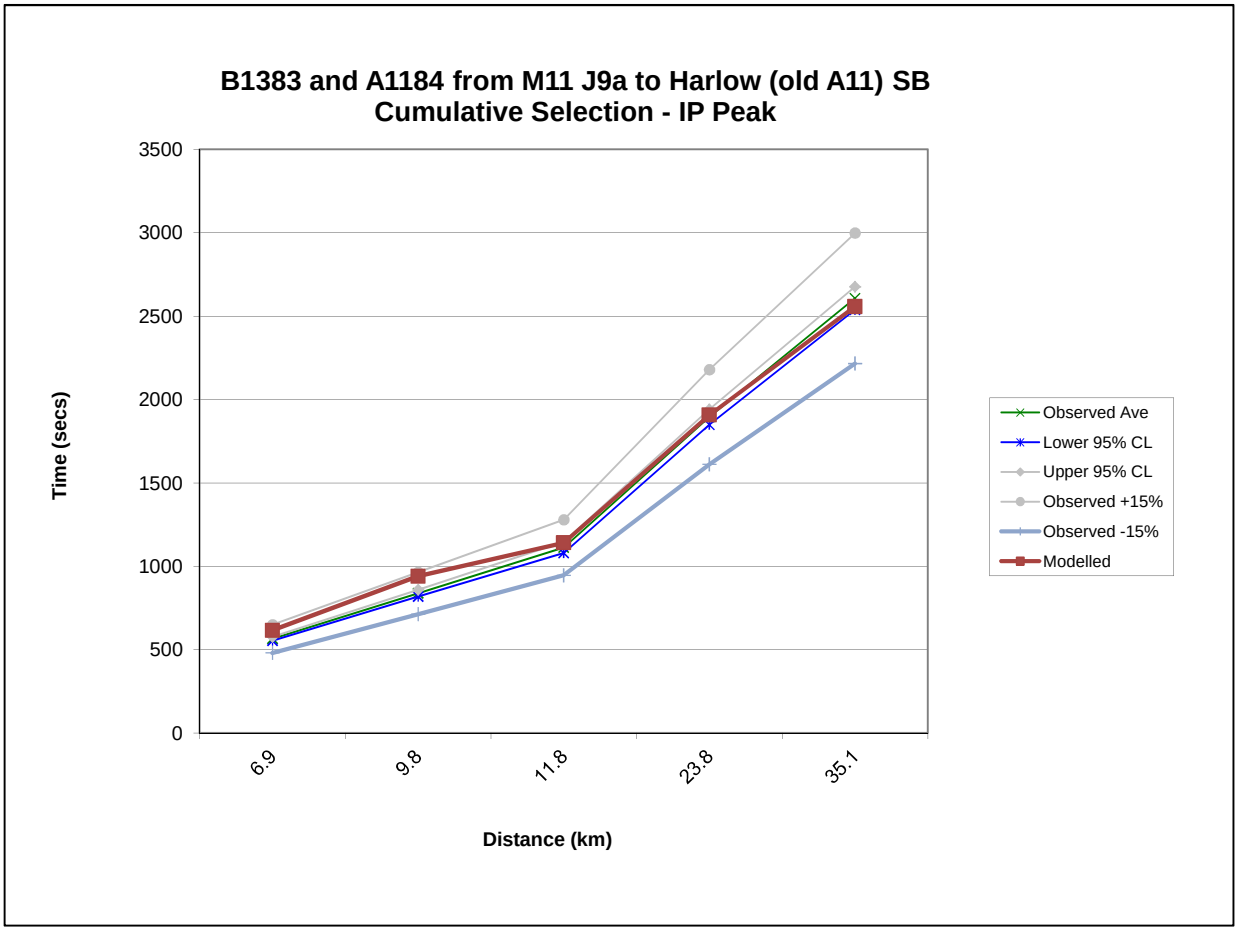

B1383 and A1184 from M11 J9a to Harlow (old A11) NB
Individual Selection - IP Peak
Time (secs)
1200
1000
800
600
400
200
0
0
1
2
3
4
5
6
Section
Modelled
Observed ± 1 min
Observed ± 15%

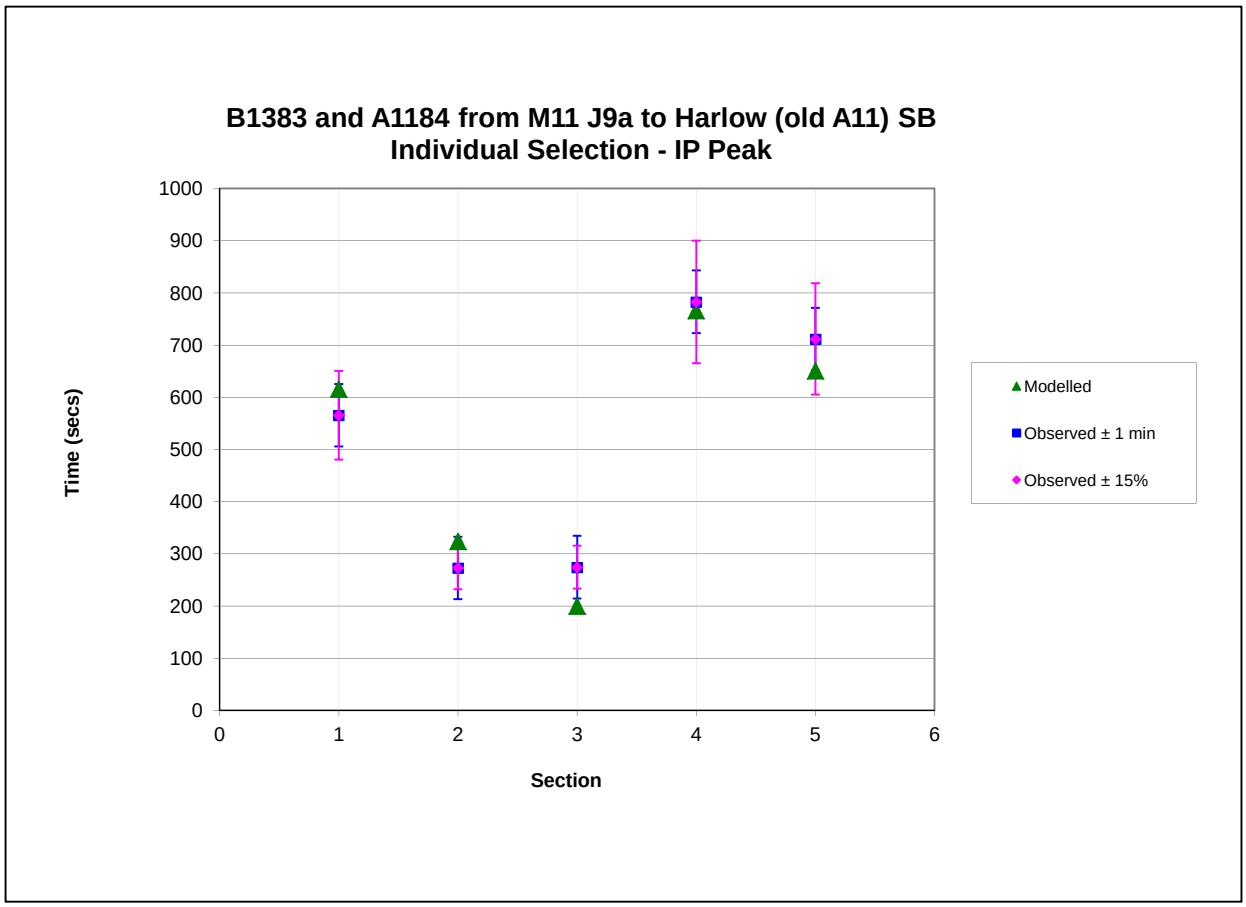

B1383 and A1184 from M11 J9a to Harlow (old A11) NB
Cumulative Selection - PM Peak
Time (secs)
4000
3500
3000
2500
2000
1500
1000
500
0
6.8
9.8
11.8
23.8
35.0
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

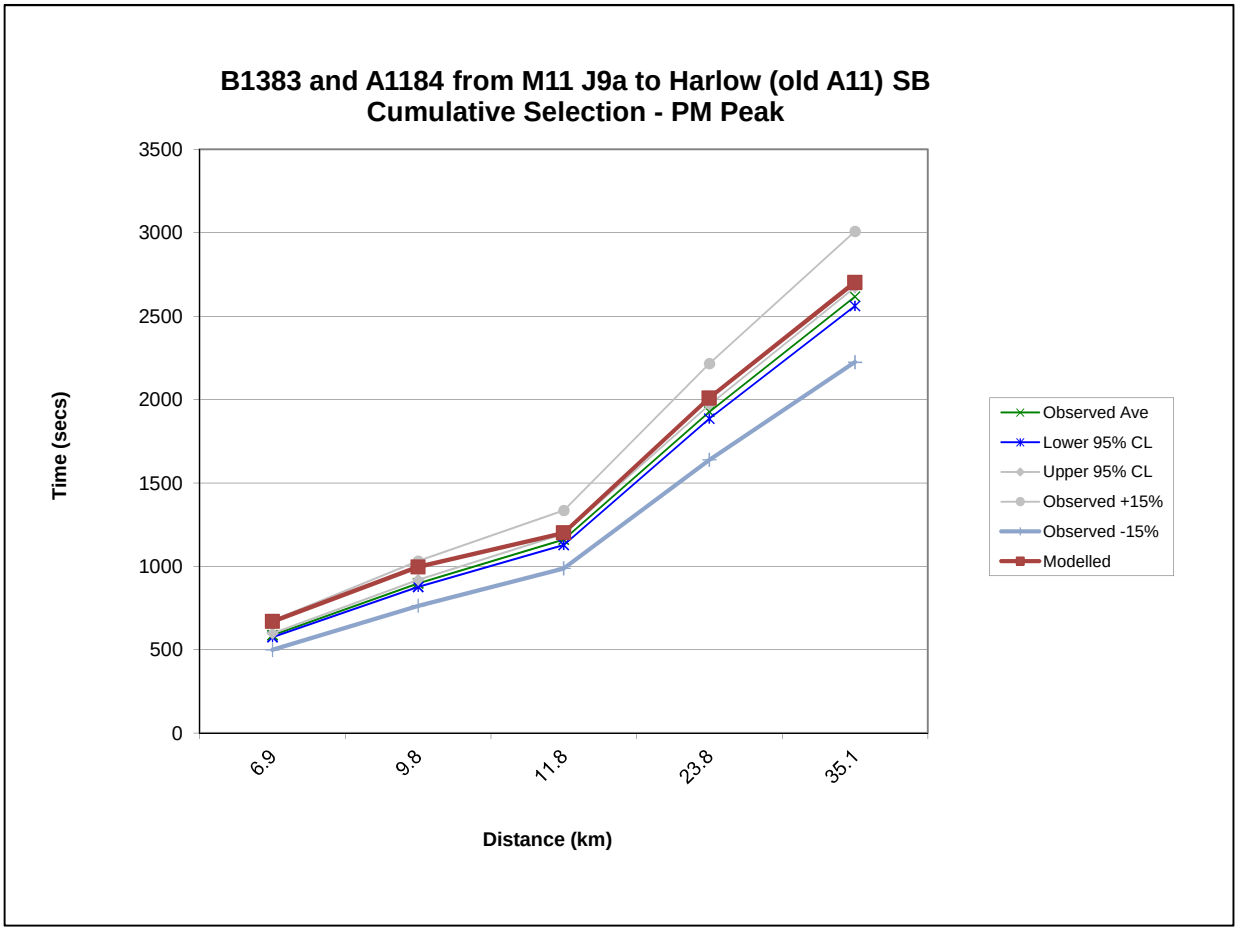

B1383 and A1184 from M11 J9a to Harlow (old A11) NB
Individual Selection - PM Peak
Time (secs)
1000
900
800
700
600
500
400
300
200
100
0
0
1
2
3
4
5
6
Section
Modelled
Observed ± 1 min
Observed ± 15%

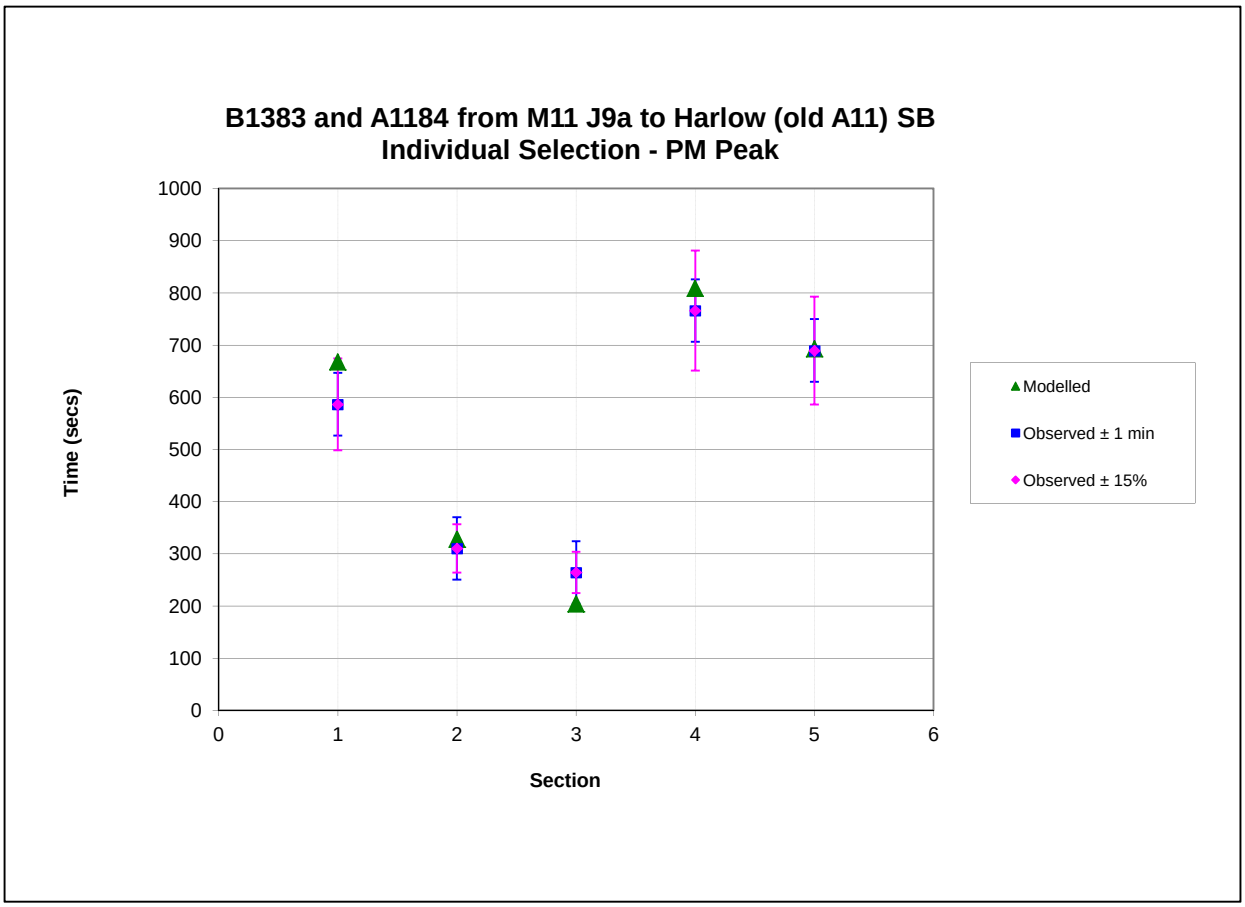

B1383 and A1184 from M11 J9a to Harlow (old A11) SB
Cumulative Selection - AM Peak
Time (secs)
3500
3000
2500
2000
1500
1000
500
0
6.9
9.8
11.8
23.8
35.1
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

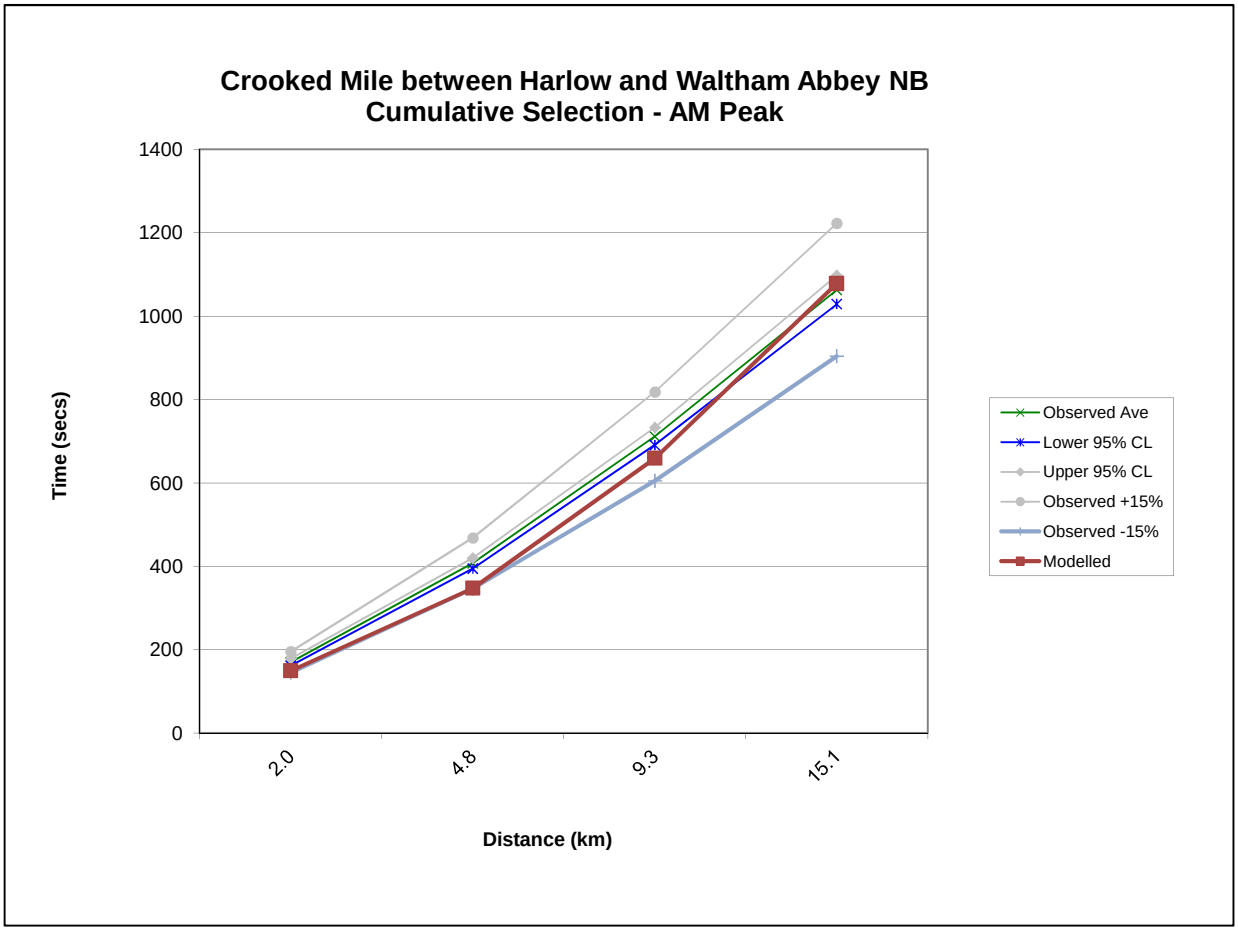

B1383 and A1184 from M11 J9a to Harlow (old A11) SB
Individual Selection - AM Peak
Time (secs)
1000
900
800
700
600
500
400
300
200
100
0
0
1
2
3
4
5
6
Section
Modelled
Observed ± 1 min
Observed ± 15%

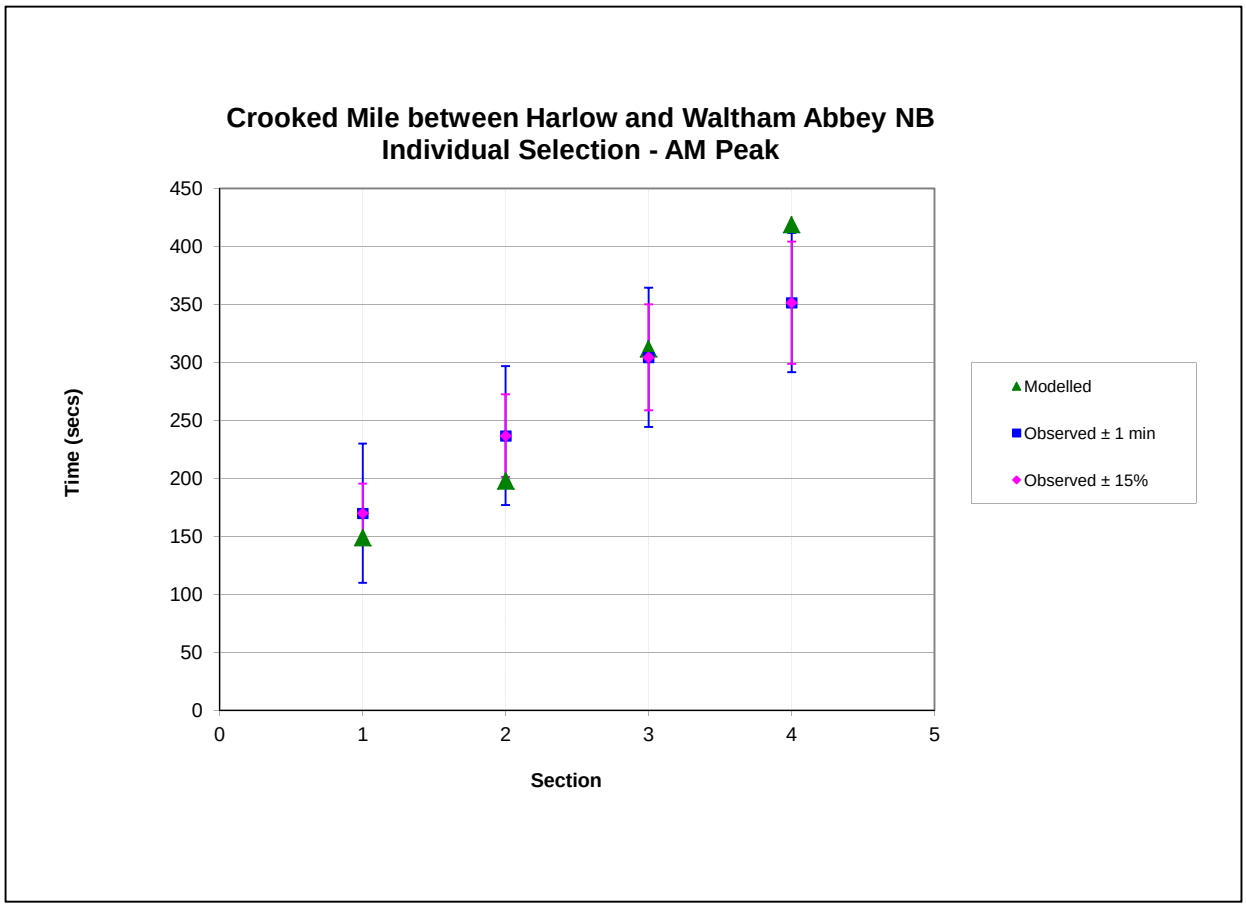

B1383 and A1184 from M11 J9a to Harlow (old A11) SB
Cumulative Selection - IP Peak
Time (secs)
3500
3000
2500
2000
1500
1000
500
0
6.9
9.8
11.8
23.8
35.1
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

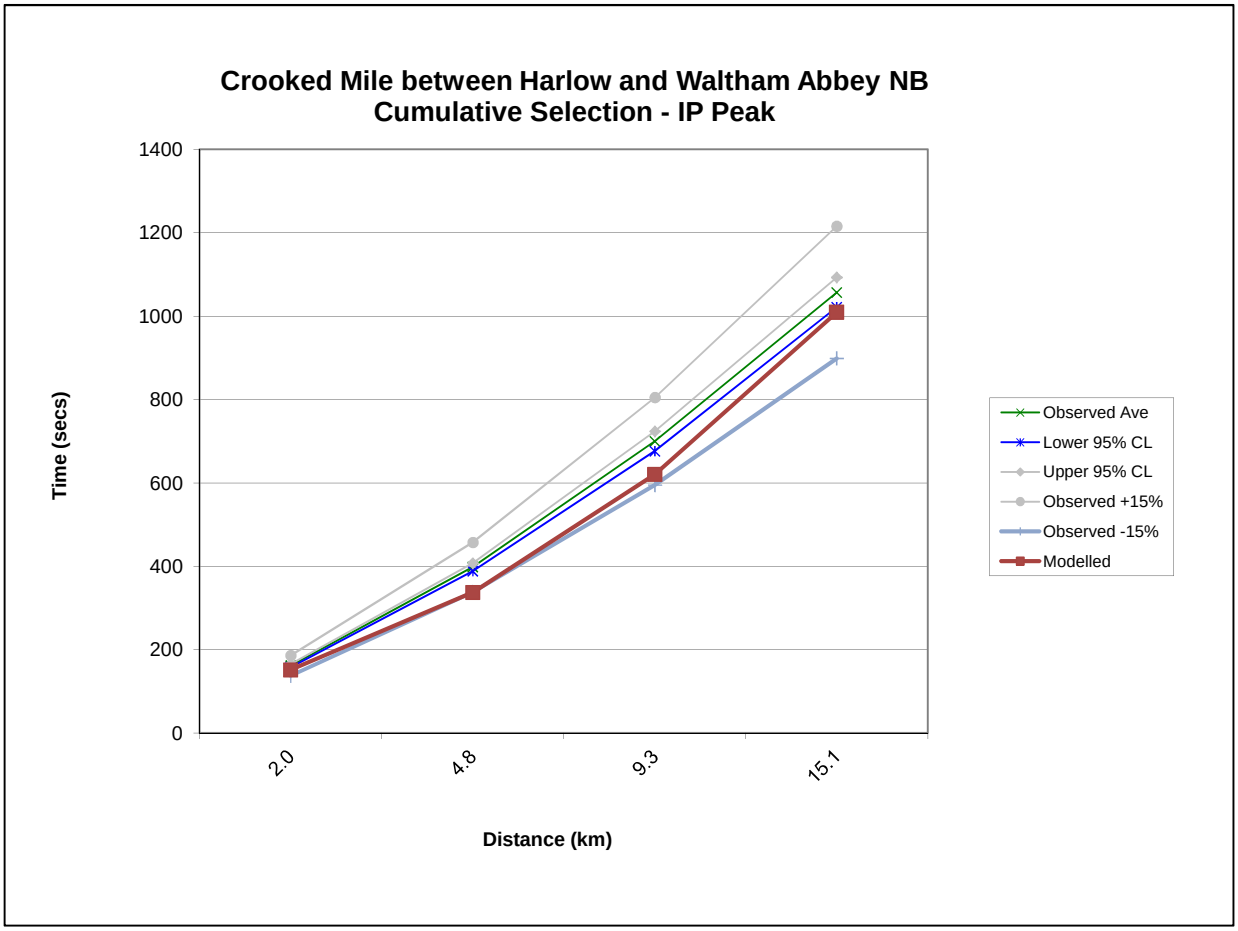

B1383 and A1184 from M11 J9a to Harlow (old A11) SB
Individual Selection - IP Peak
Time (secs)
1000
900
800
700
600
500
400
300
200
100
0
0
1
2
3
4
5
6
Section
Modelled
Observed ± 1 min
Observed ± 15%

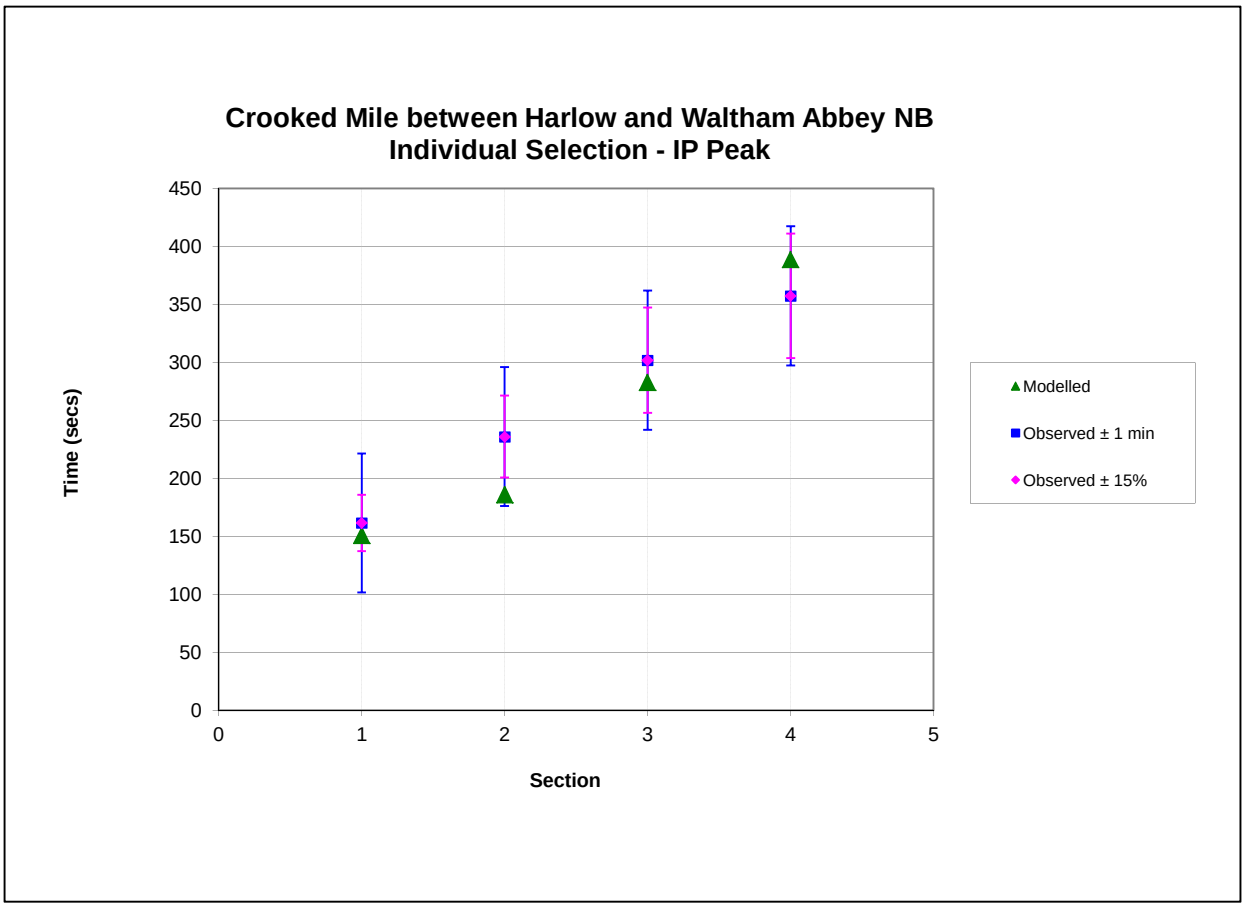

B1383 and A1184 from M11 J9a to Harlow (old A11) SB
Cumulative Selection - PM Peak
Time (secs)
3500
3000
2500
2000
1500
1000
500
0
6.9
9.8
11.8
23.8
35.1
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

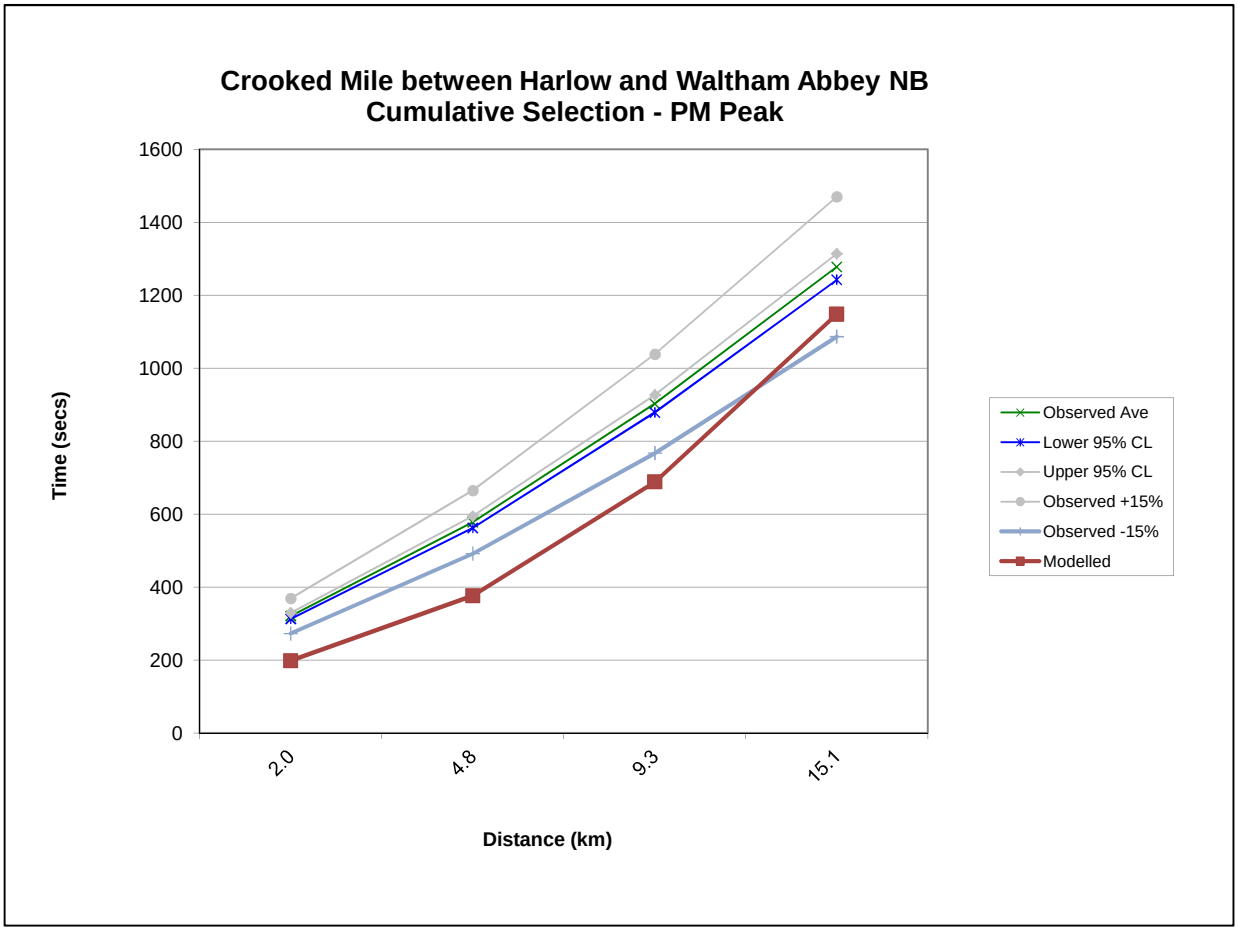

B1383 and A1184 from M11 J9a to Harlow (old A11) SB
Individual Selection - PM Peak
Time (secs)
1000
900
800
700
600
500
400
300
200
100
0
0
1
2
3
4
5
6
Section
Modelled
Observed ± 1 min
Observed ± 15%

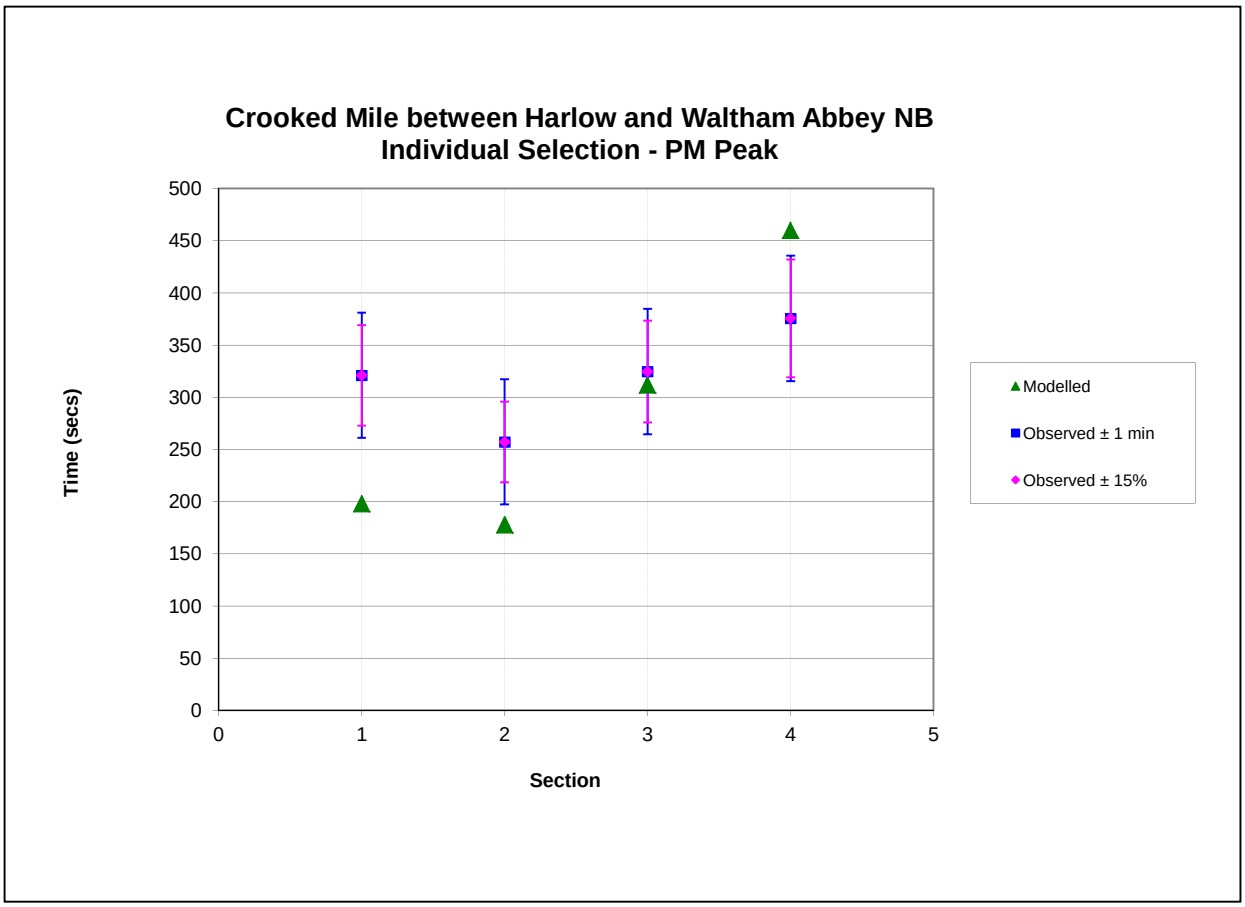

Crooked Mile between Harlow and Waltham Abbey NB
Cumulative Selection - AM Peak
Time (secs)
1400
1200
1000
800
600
400
200
0
2.0
4.8
9.3
15.1
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

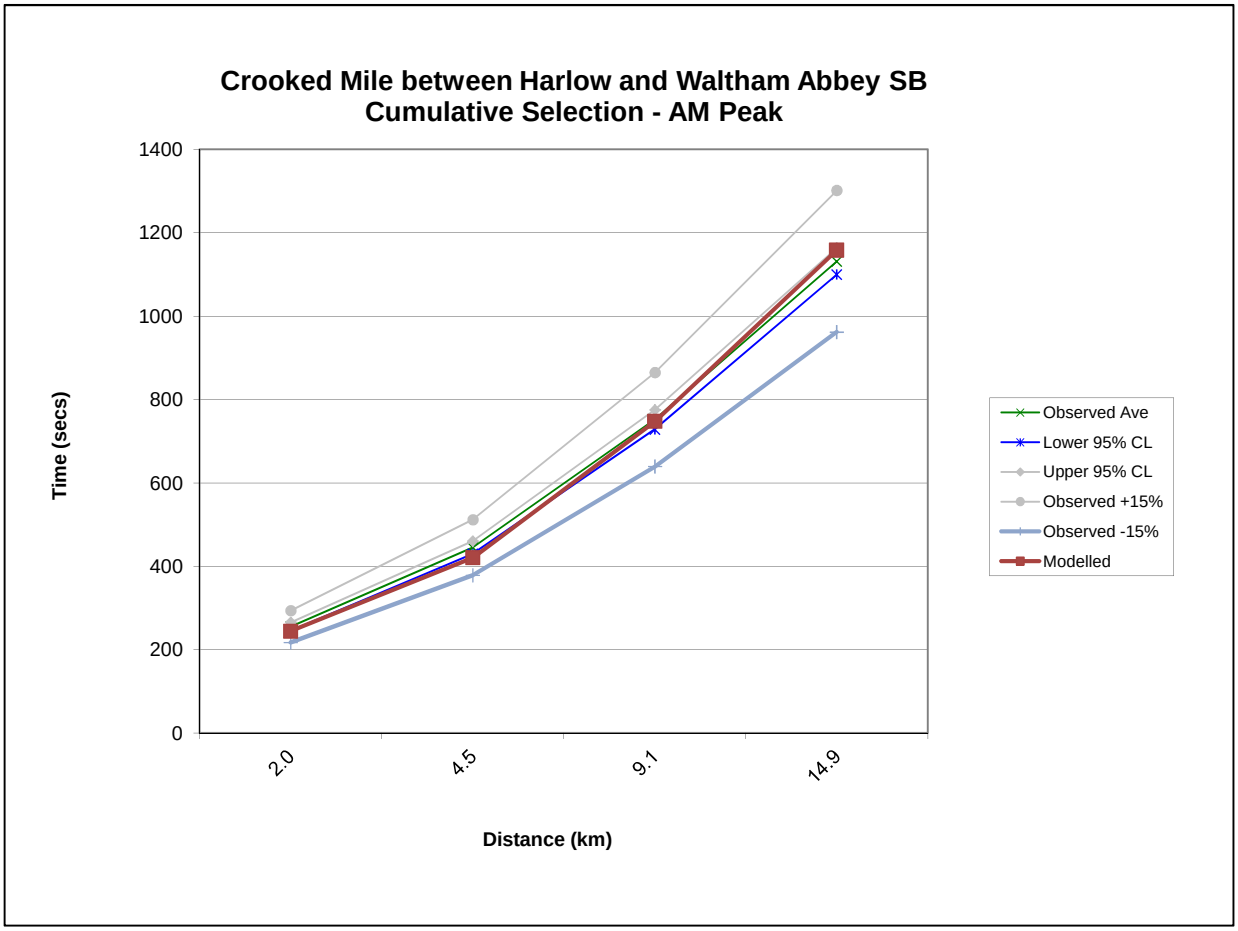

Crooked Mile between Harlow and Waltham Abbey NB
Individual Selection - AM Peak
Time (secs)
450
400
350
300
250
200
150
100
50
0
0
1
2
3
4
5
Section
Modelled
Observed ± 1 min
Observed ± 15%

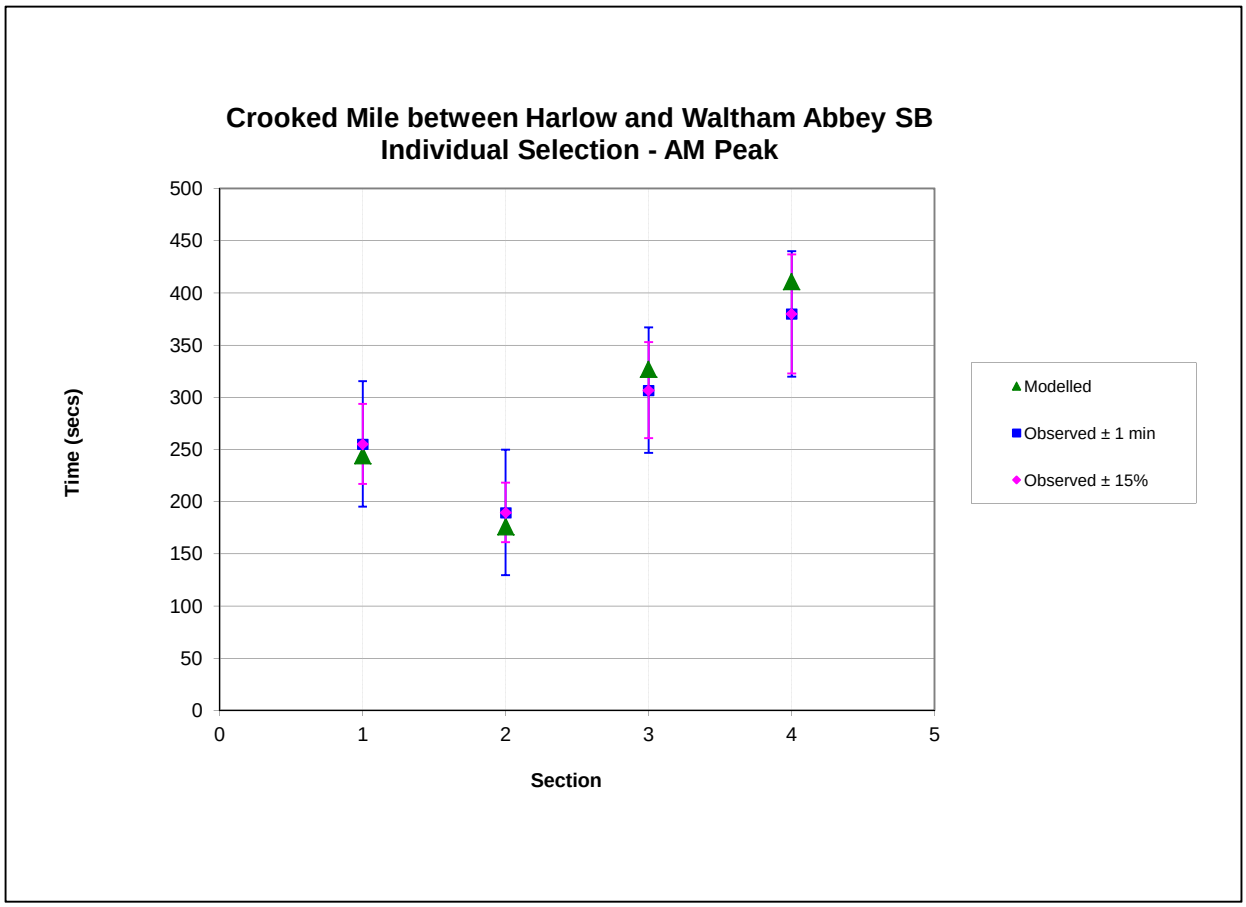

Crooked Mile between Harlow and Waltham Abbey NB
Cumulative Selection - IP Peak
Time (secs)
1400
1200
1000
800
600
400
200
0
2.0
4.8
9.3
15.1
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

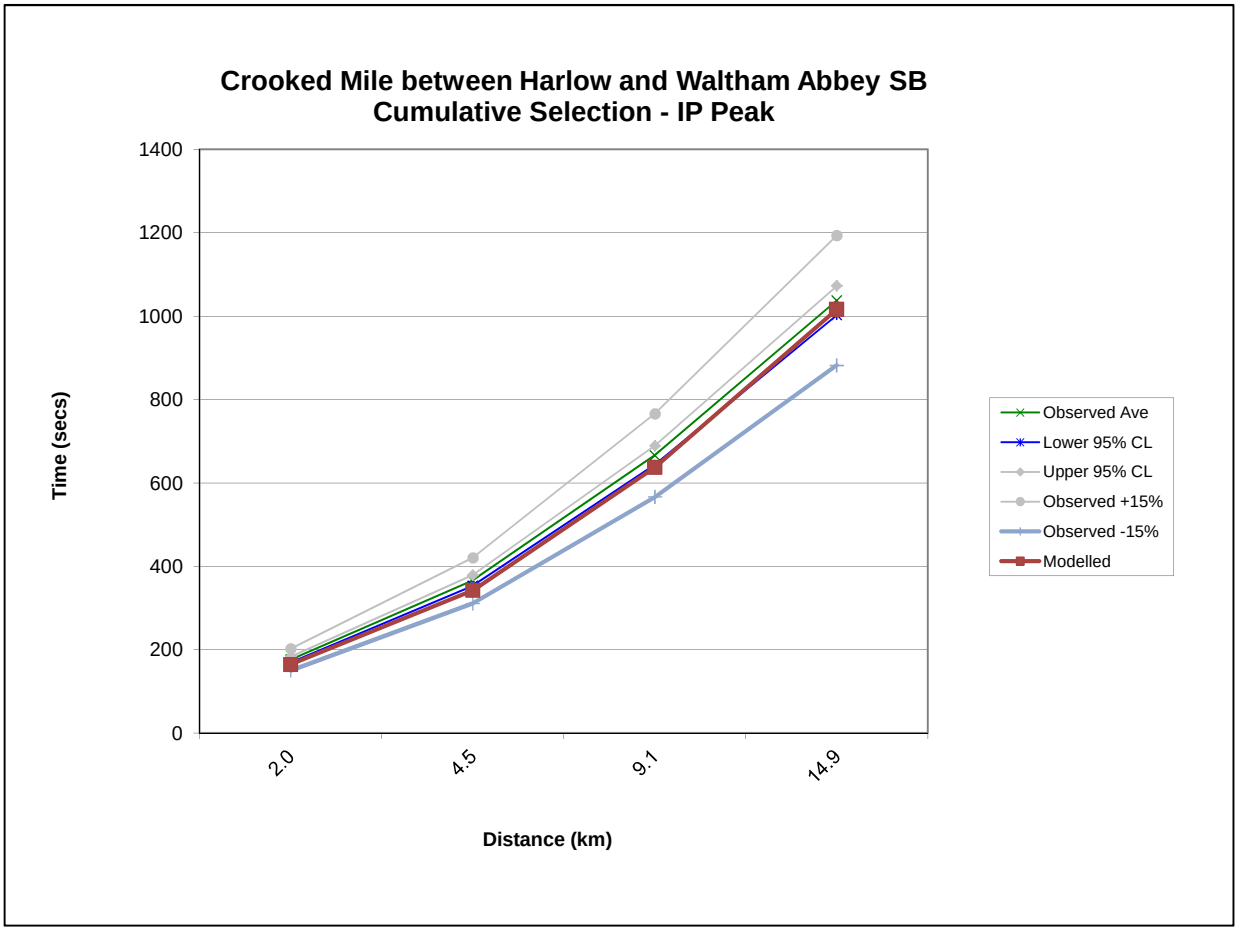

Crooked Mile between Harlow and Waltham Abbey NB
Individual Selection - IP Peak
Time (secs)
450
400
350
300
250
200
150
100
50
0
0
1
2
3
4
5
Section
Modelled
Observed ± 1 min
Observed ± 15%

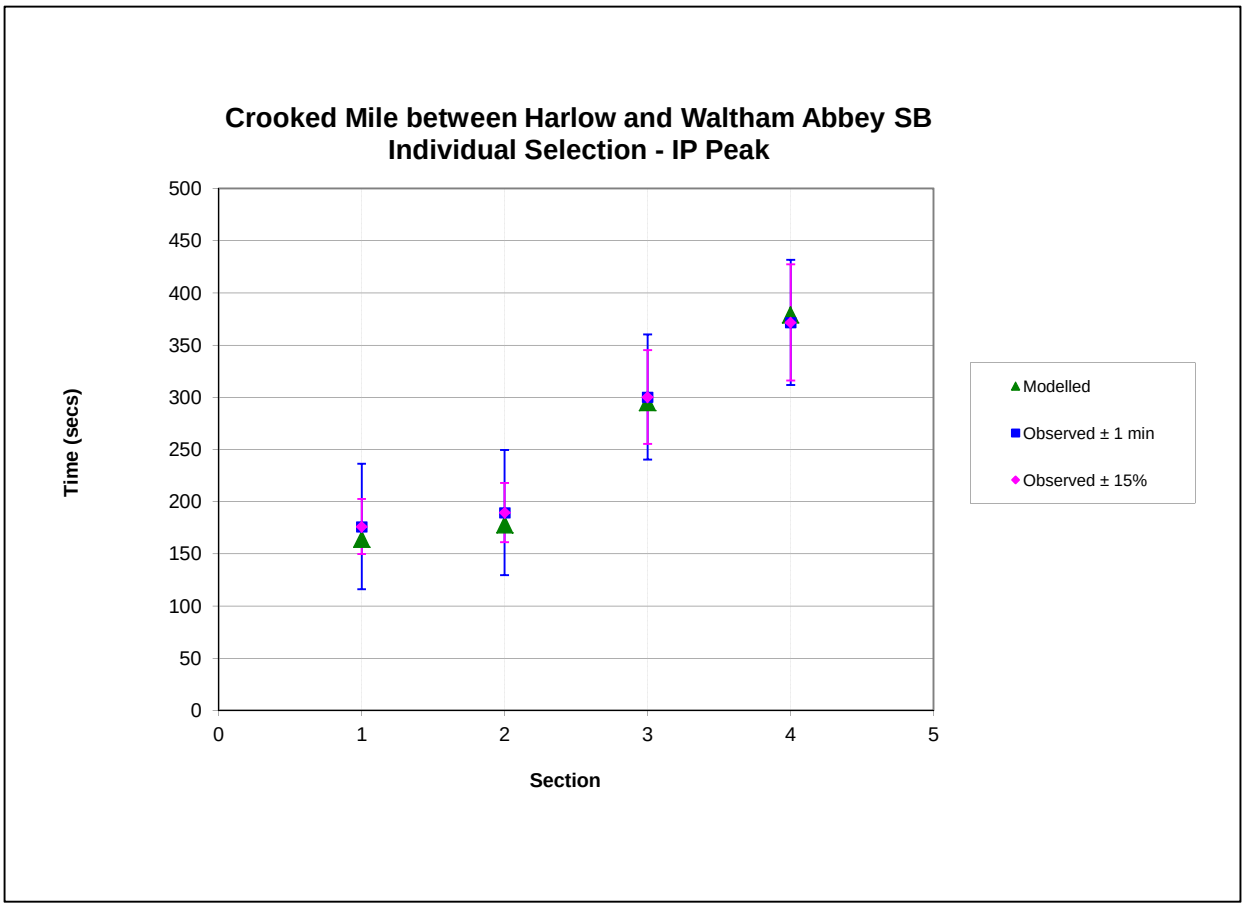

Crooked Mile between Harlow and Waltham Abbey NB
Cumulative Selection - PM Peak
Time (secs)
1600
1400
1200
1000
800
600
400
200
0
2.0
4.8
9.3
15.1
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

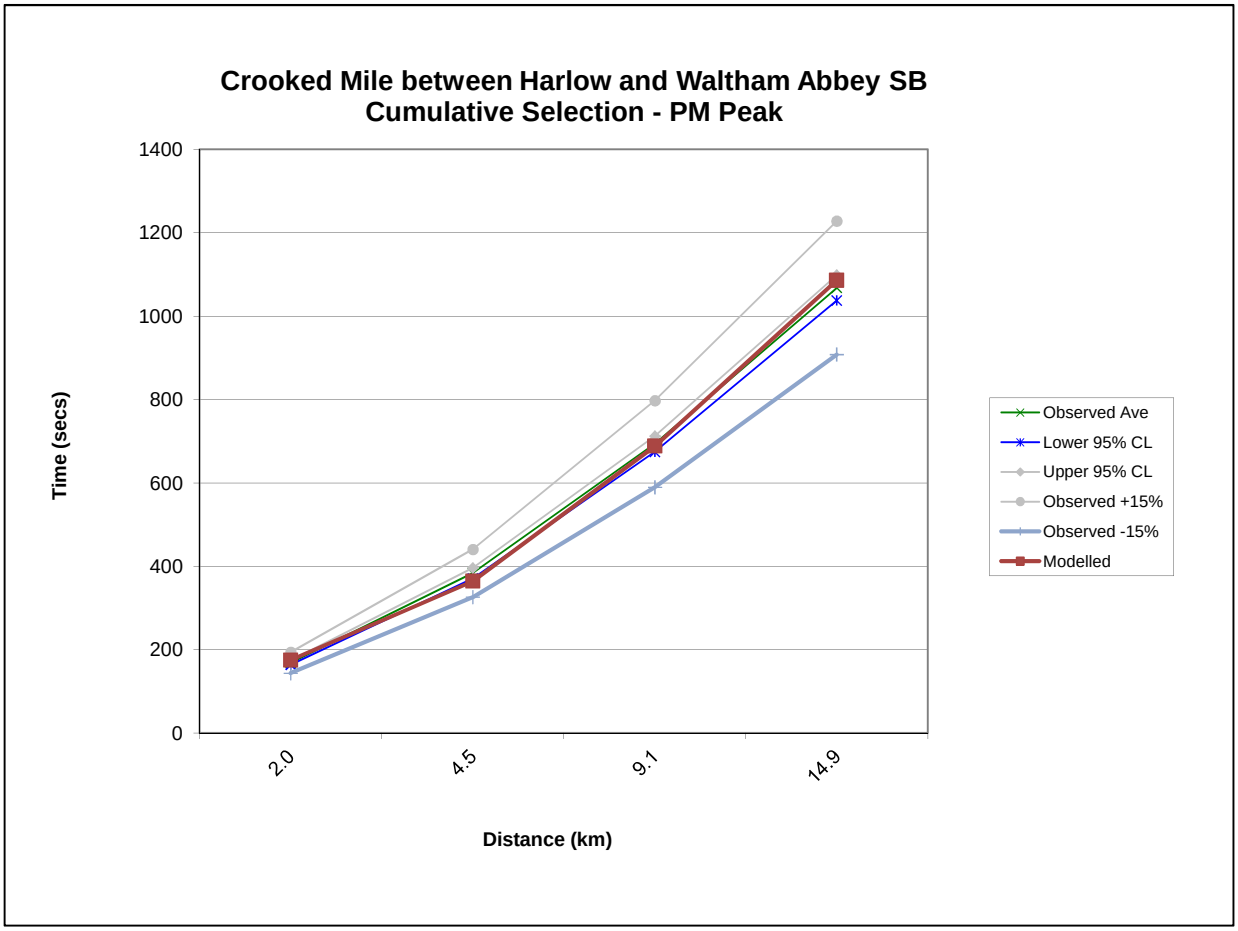

Crooked Mile between Harlow and Waltham Abbey NB
Individual Selection - PM Peak
Time (secs)
500
450
400
350
300
250
200
150
100
50
0
0
1
2
3
4
5
Section
Modelled
Observed ± 1 min
Observed ± 15%

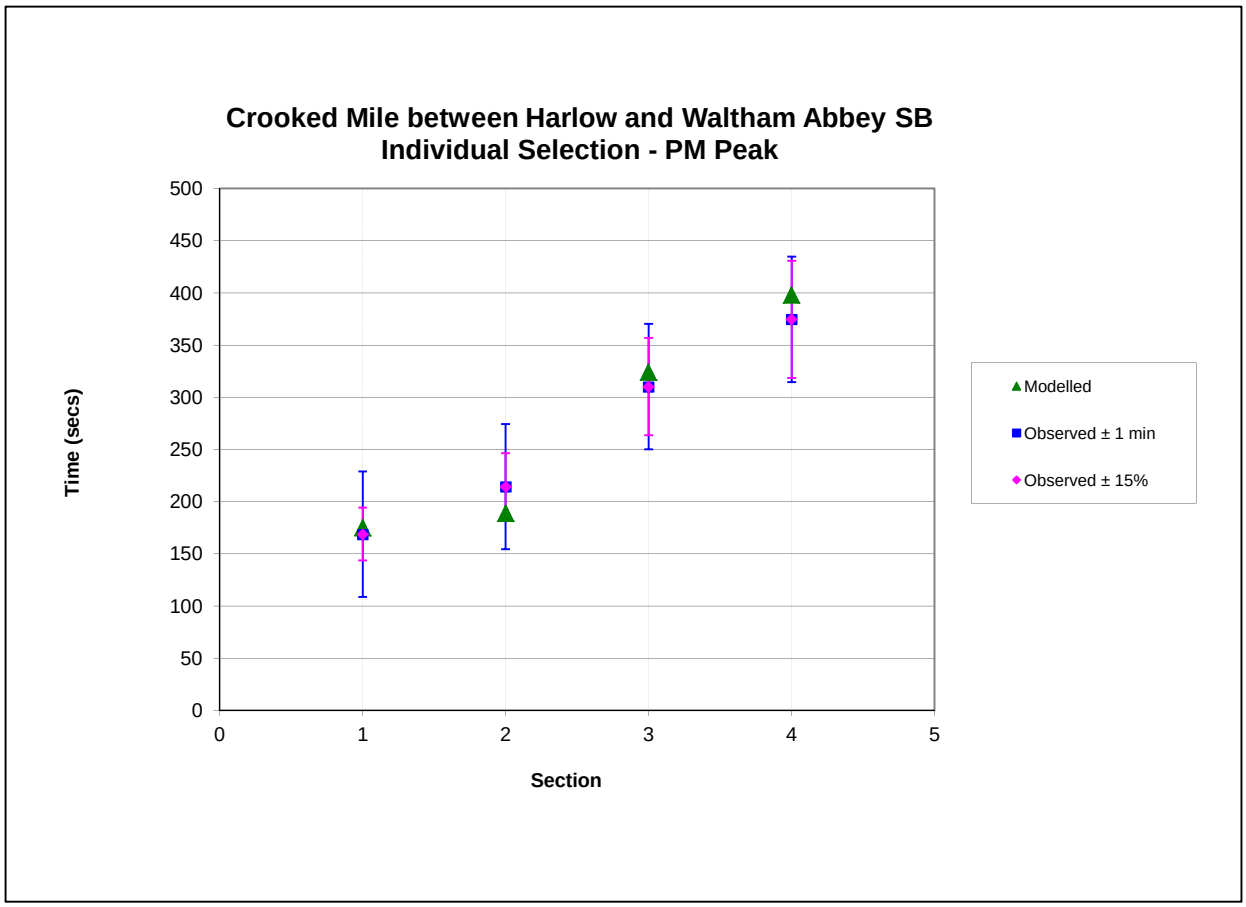

Crooked Mile between Harlow and Waltham Abbey SB
Cumulative Selection - AM Peak
Time (secs)
1400
1200
1000
800
600
400
200
0
2.0
4.5
9.1
14.9
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

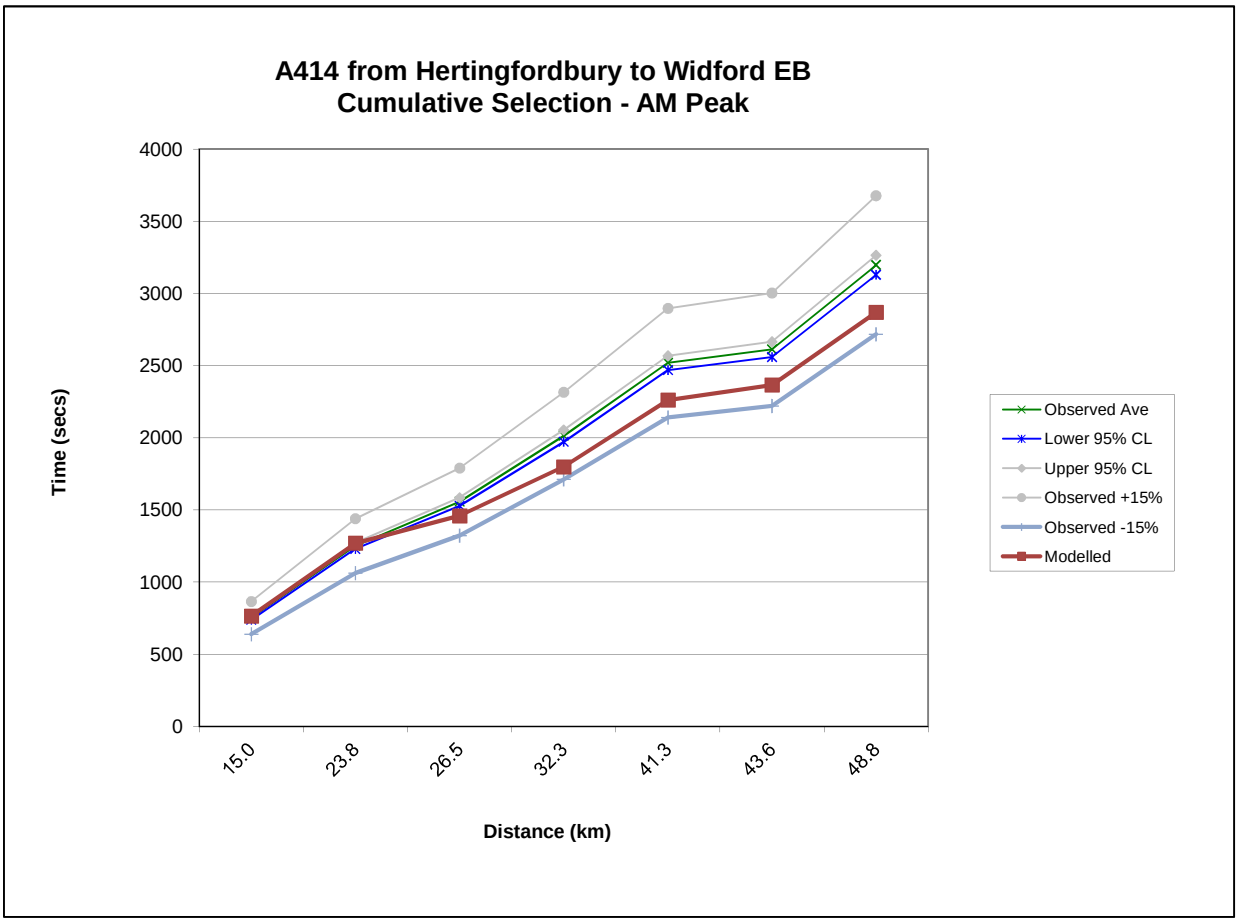

Crooked Mile between Harlow and Waltham Abbey SB
Individual Selection - AM Peak
Time (secs)
500
450
400
350
300
250
200
150
100
50
0
0
1
2
3
4
5
Section
Modelled
Observed ± 1 min
Observed ± 15%

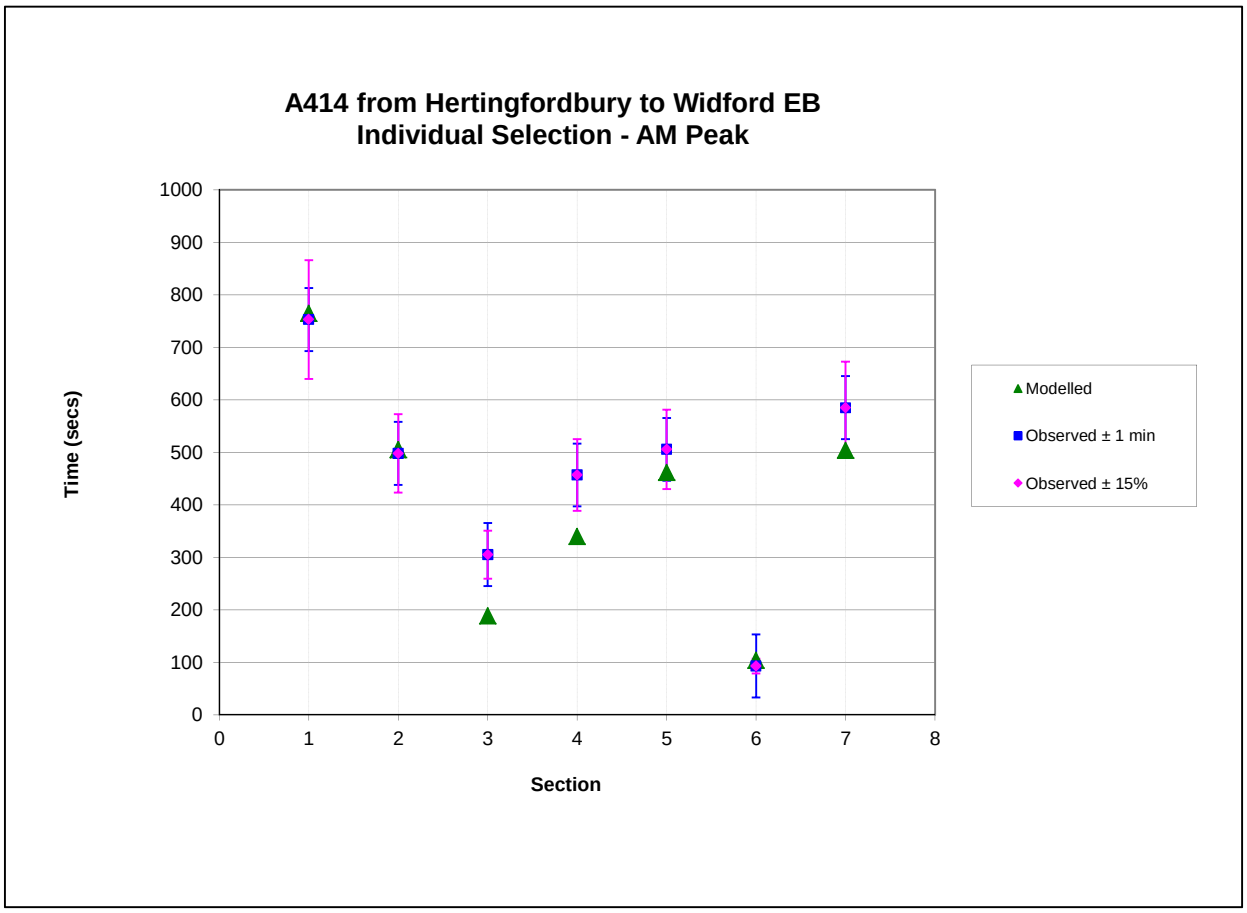

Crooked Mile between Harlow and Waltham Abbey SB
Cumulative Selection - IP Peak
Time (secs)
1400
1200
1000
800
600
400
200
0
2.0
4.5
9.1
14.9
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

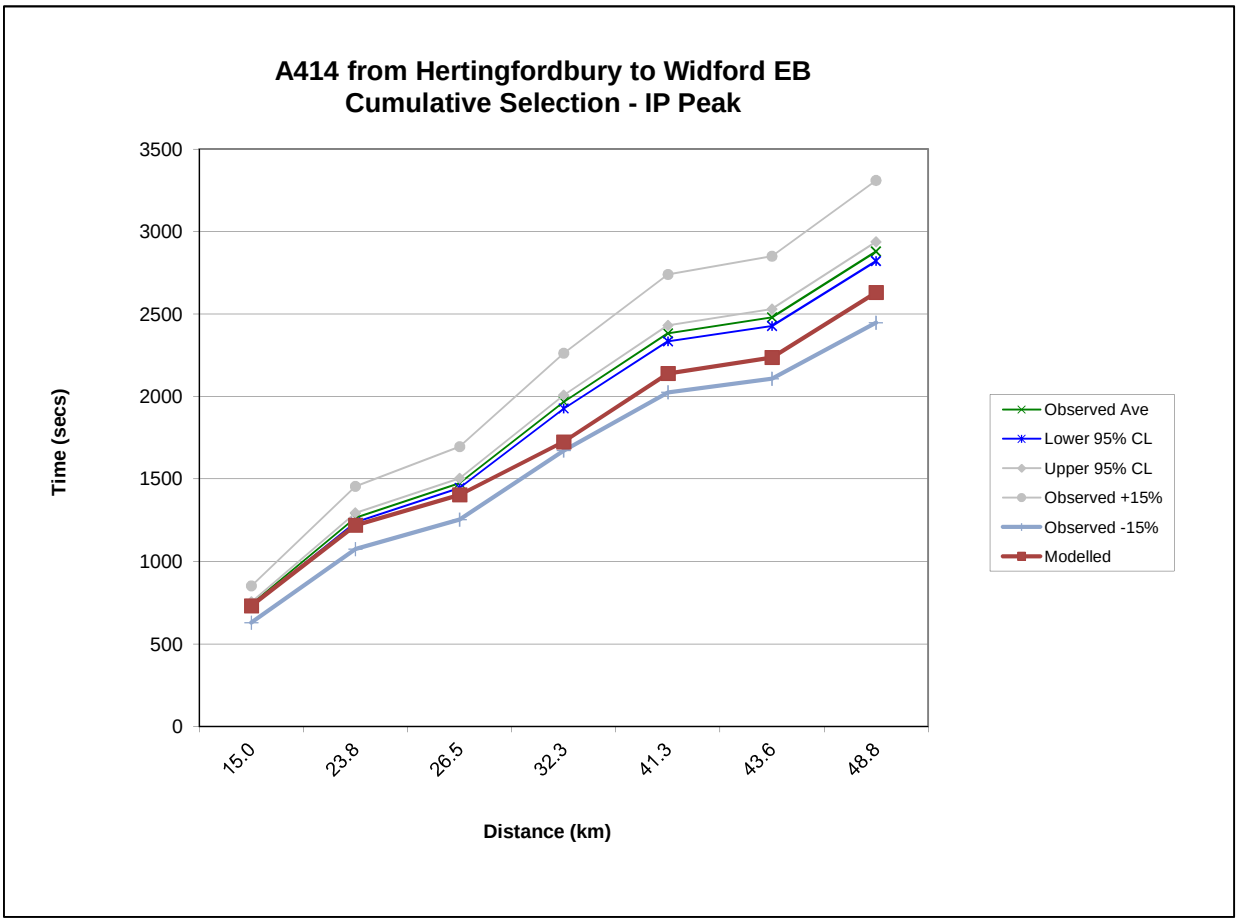

Crooked Mile between Harlow and Waltham Abbey SB
Individual Selection - IP Peak
Time (secs)
500
450
400
350
300
250
200
150
100
50
0
0
1
2
3
4
5
Section
Modelled
Observed ± 1 min
Observed ± 15%

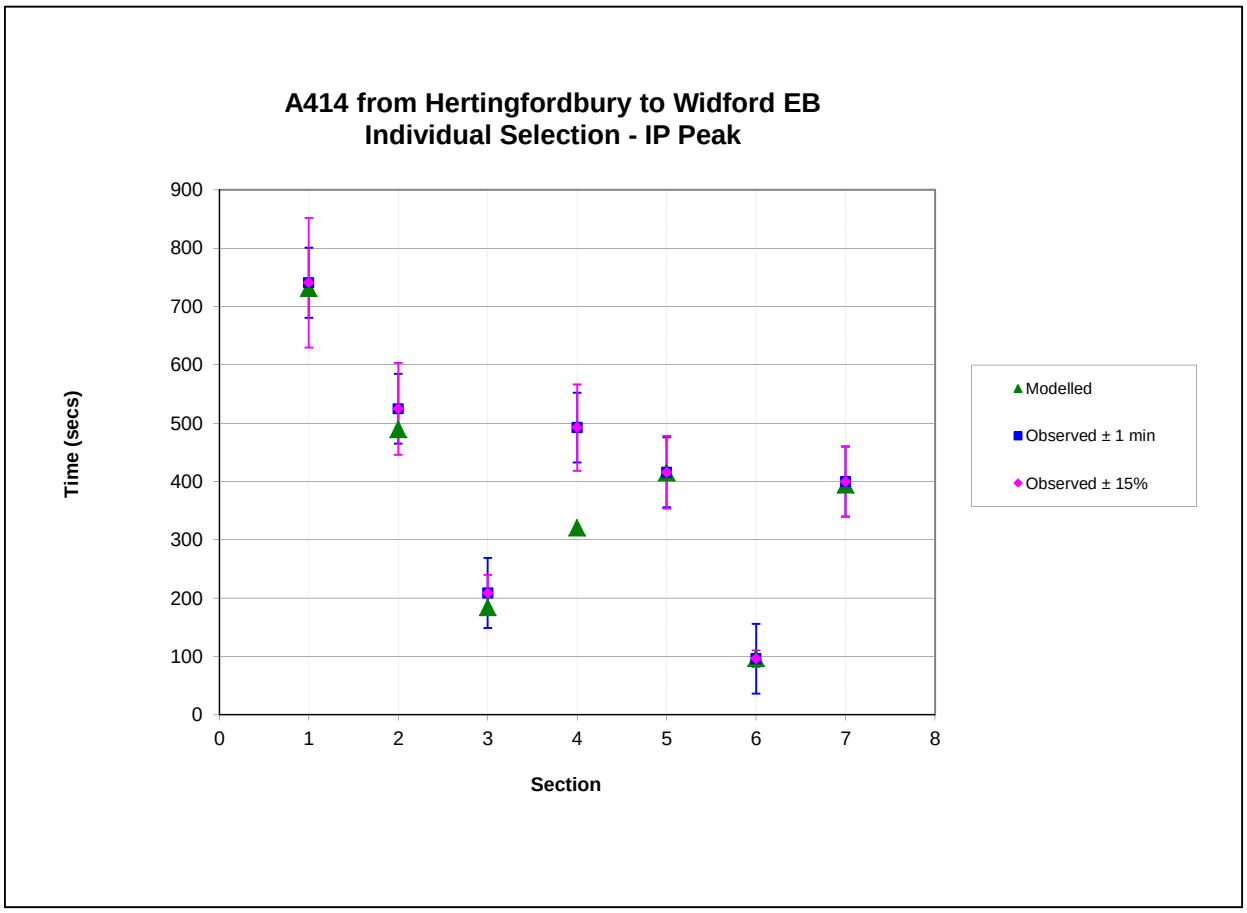

Crooked Mile between Harlow and Waltham Abbey SB
Cumulative Selection - PM Peak
Time (secs)
1400
1200
1000
800
600
400
200
0
2.0
4.5
9.1
14.9
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

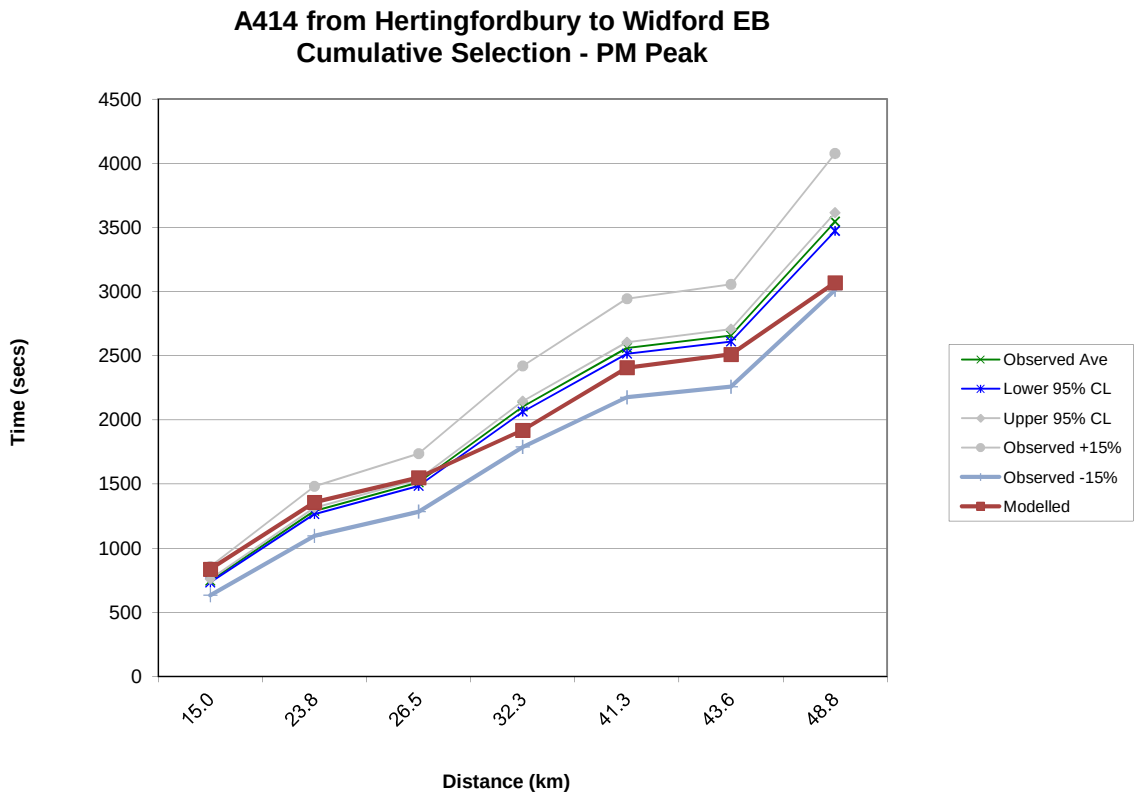

Crooked Mile between Harlow and Waltham Abbey SB
Individual Selection - PM Peak
Time (secs)
500
450
400
350
300
250
200
150
100
50
0
0
1
2
3
4
5
Section
Modelled
Observed ± 1 min
Observed ± 15%

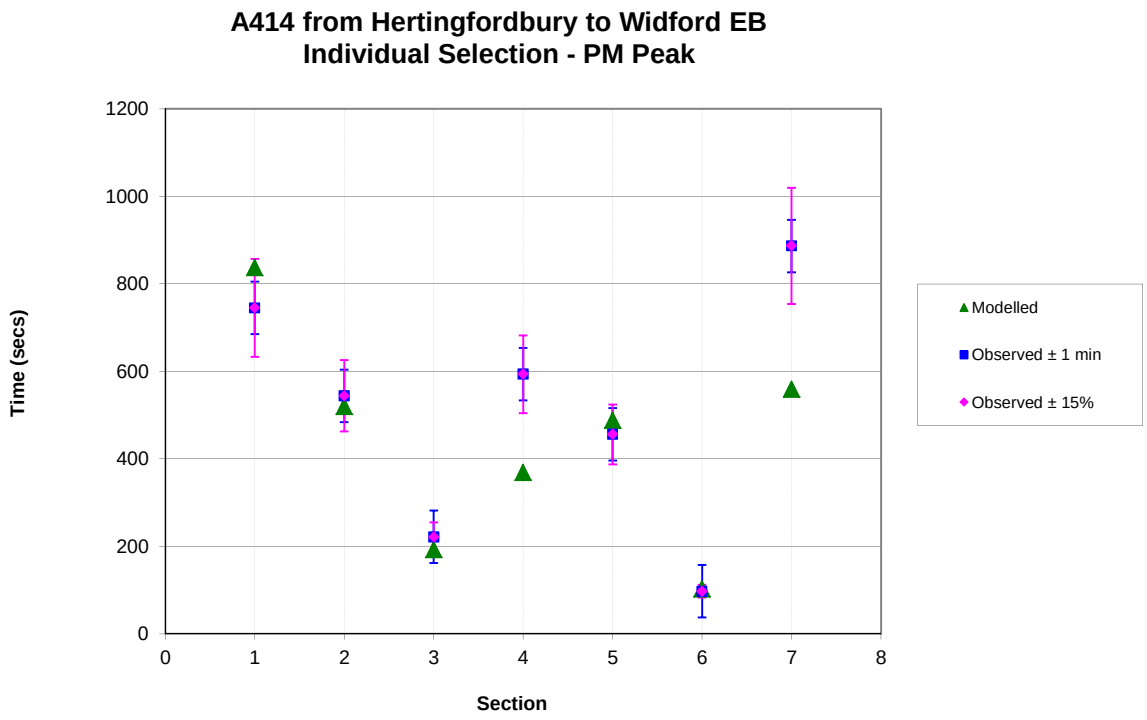

A414 from Hertingfordbury to Widford EB
Cumulative Selection - AM Peak
Time (secs)
4000
3500
3000
2500
2000
1500
1000
500
0
15.0
23.8
26.5
32.3
41.3
43.6
48.8
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

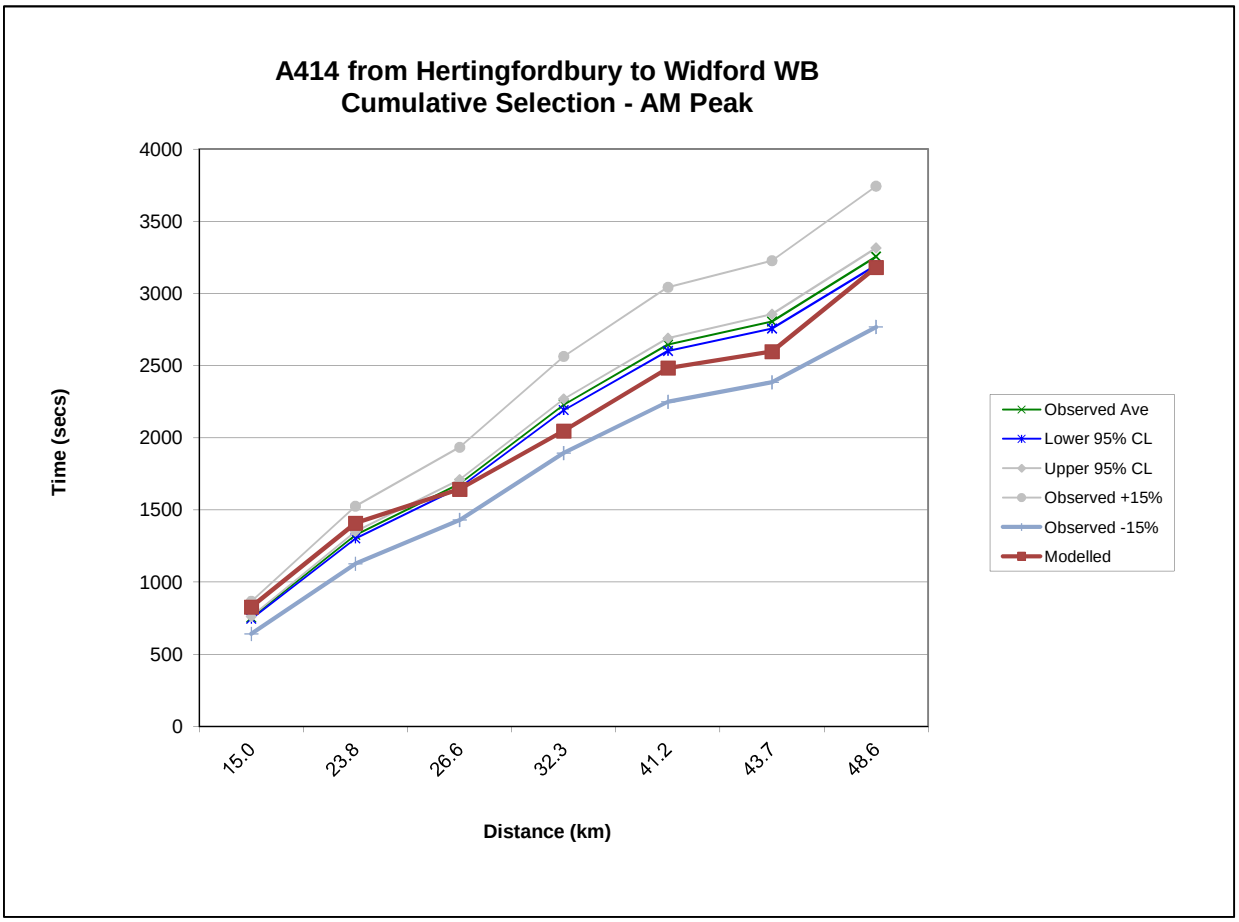

A414 from Hertingfordbury to Widford EB
Individual Selection - AM Peak
Time (secs)
1000
900
800
700
600
500
400
300
200
100
0
0
1
2
3
4
5
6
7
8
Section
Modelled
Observed ± 1 min
Observed ± 15%

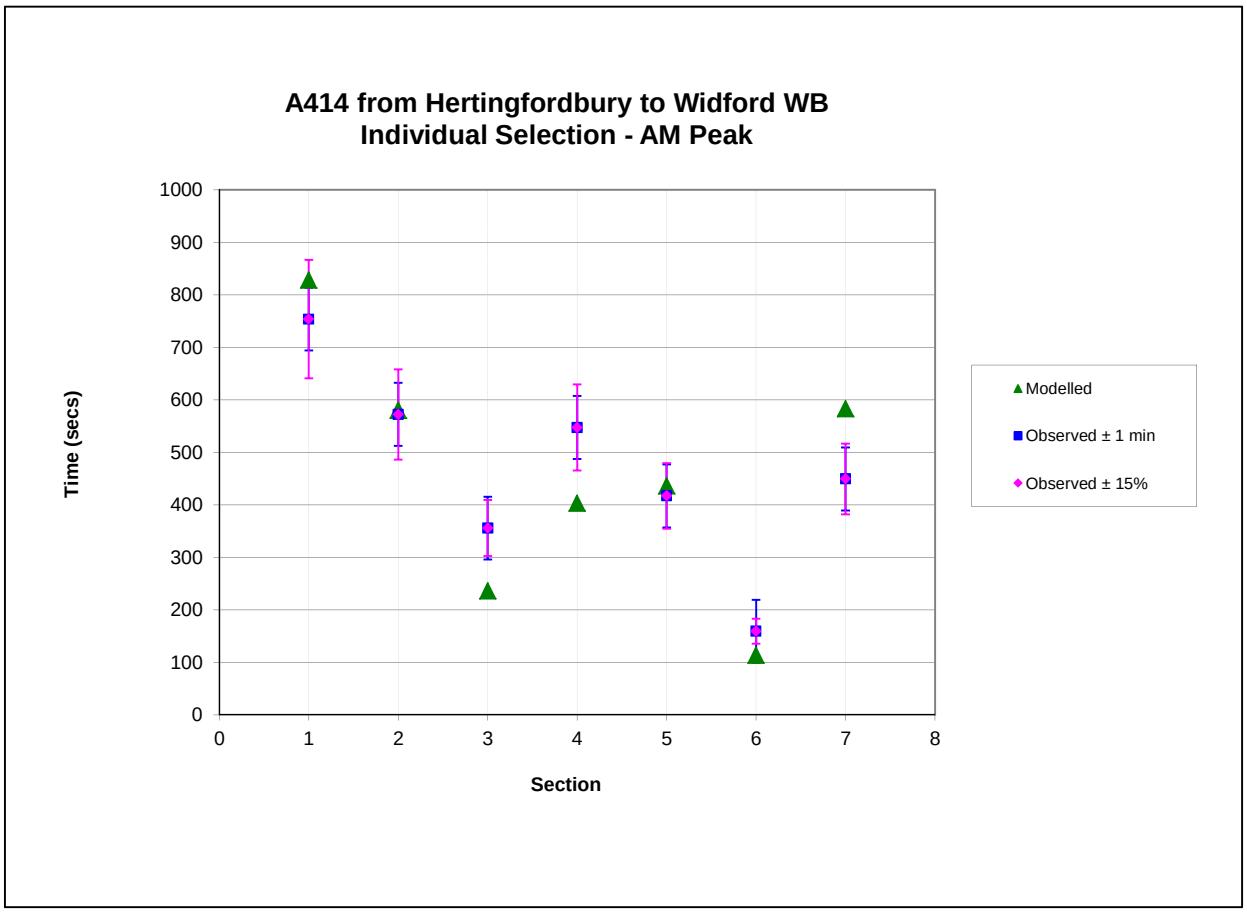

A414 from Hertingfordbury to Widford EB
Cumulative Selection - IP Peak
Time (secs)
3500
3000
2500
2000
1500
1000
500
0
15.0
23.8
26.5
32.3
41.3
43.6
48.8
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

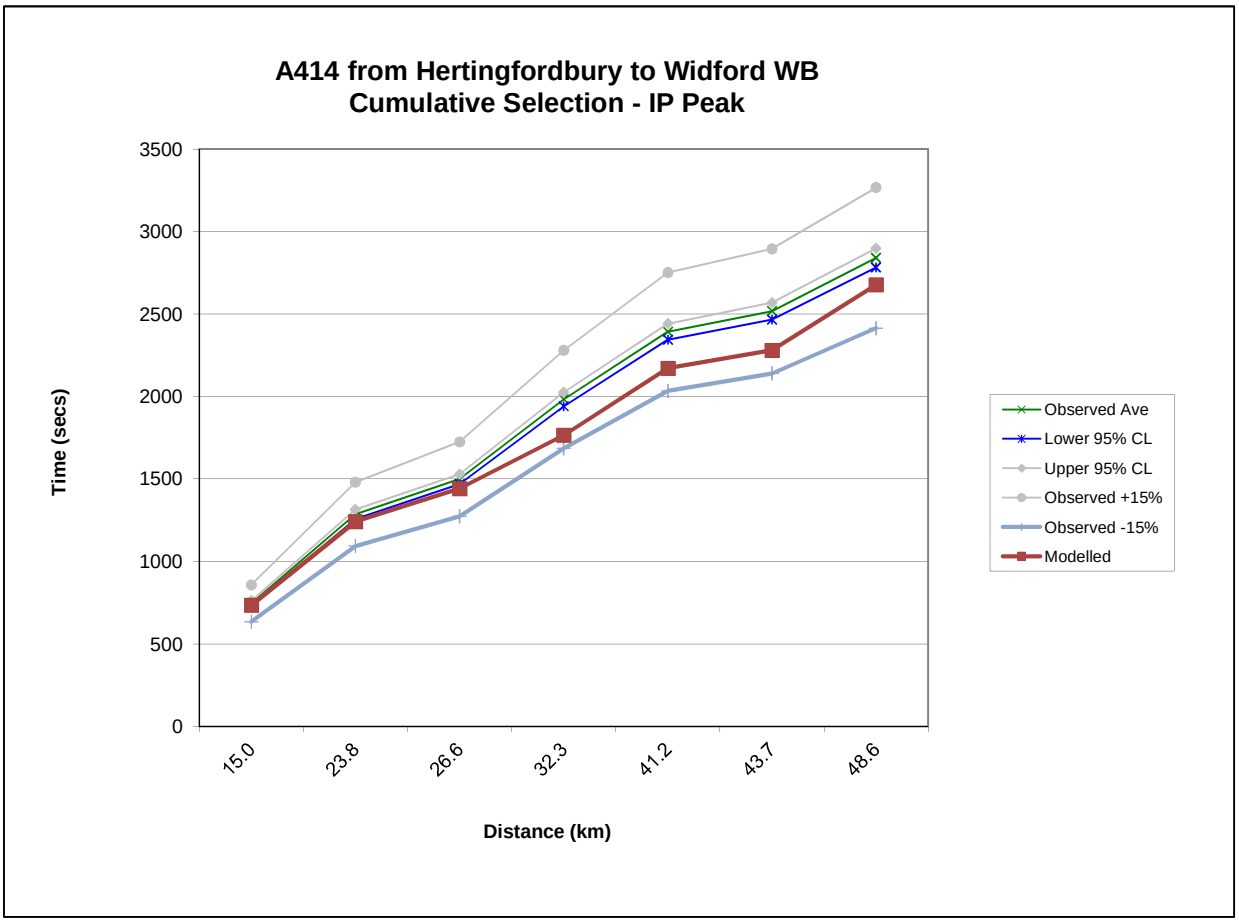

A414 from Hertingfordbury to Widford EB
Individual Selection - IP Peak
Time (secs)
900
800
700
600
500
400
300
200
100
0
0
1
2
3
4
5
6
7
8
Section
Modelled
Observed ± 1 min
Observed ± 15%

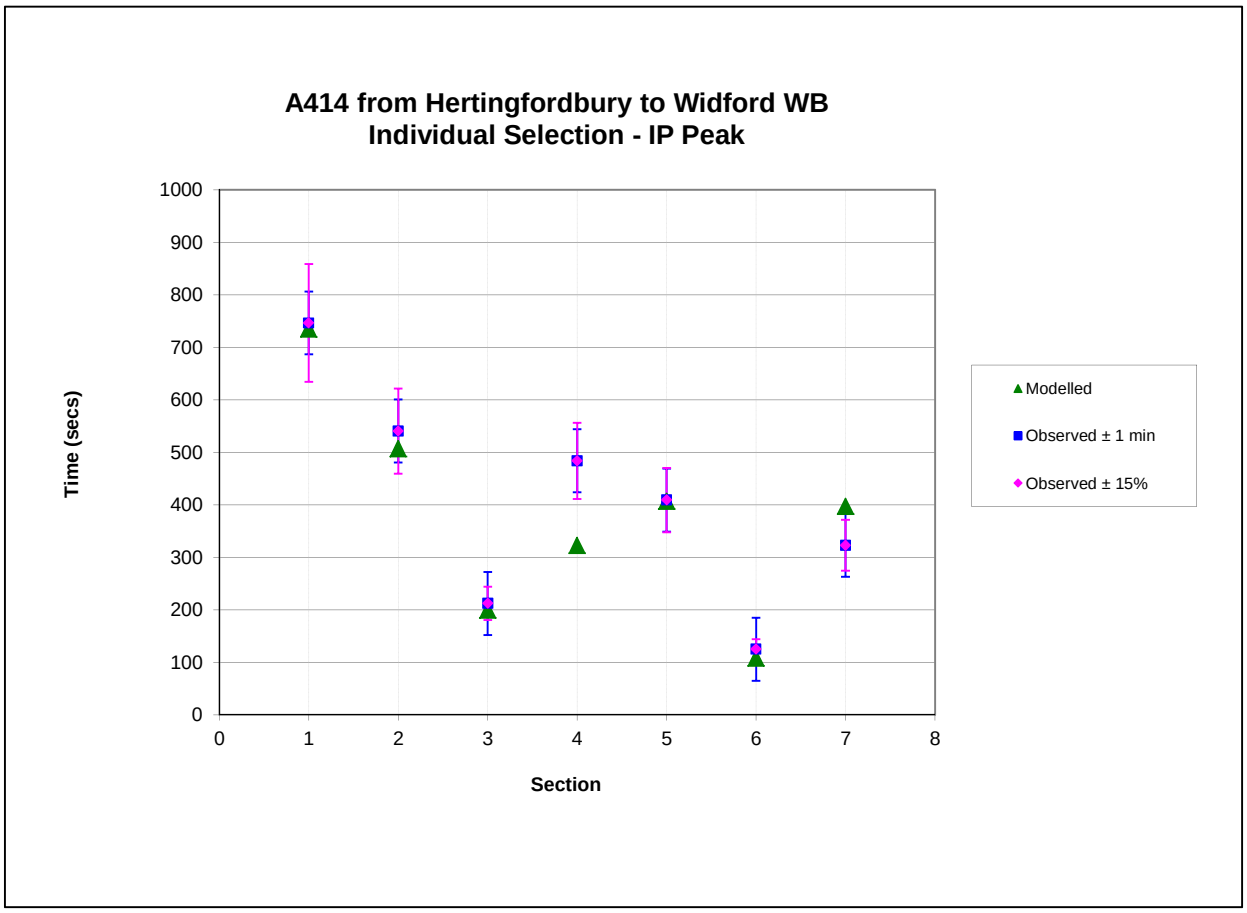

A414 from Hertingfordbury to Widford EB
Cumulative Selection - PM Peak
Time (secs)
4500
4000
3500
3000
2500
2000
1500
1000
500
0
15.0
23.8
26.5
32.3
41.3
43.6
48.8
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

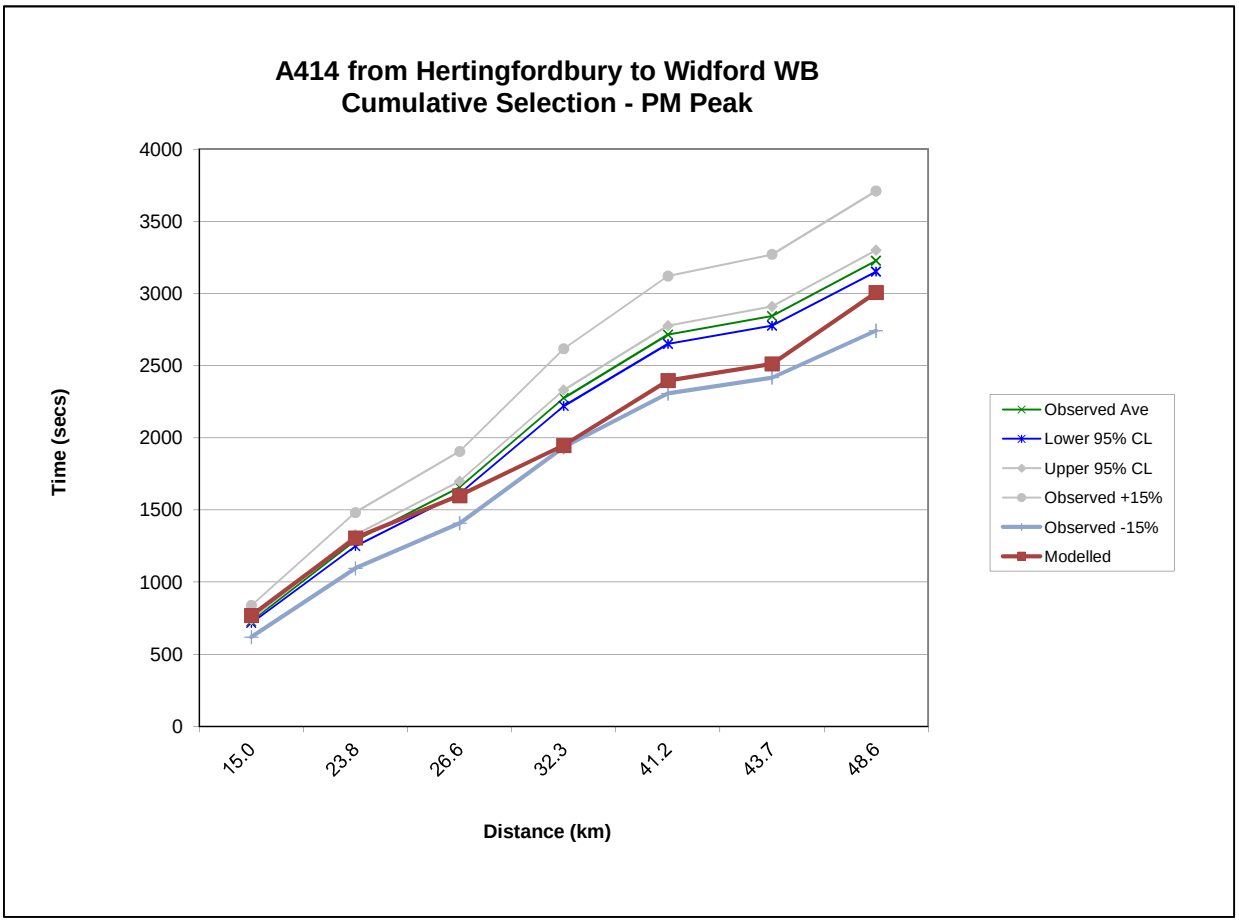

A414 from Hertingfordbury to Widford EB
Individual Selection - PM Peak
Time (secs)
1200
1000
800
600
400
200
0
0
1
2
3
4
5
6
7
8
Section
Modelled
Observed ± 1 min
Observed ± 15%

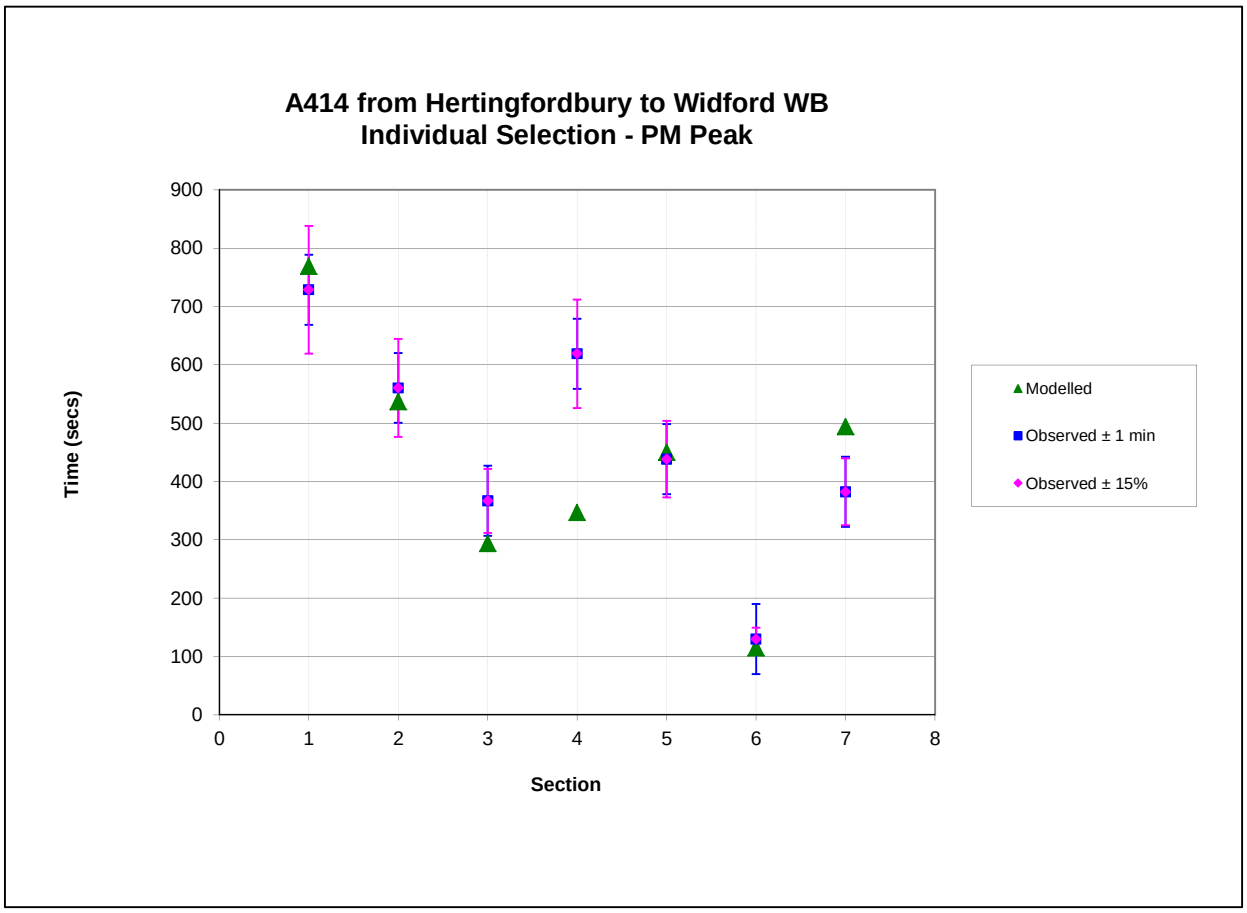

A414 from Hertingfordbury to Widford WB
Cumulative Selection - AM Peak
Time (secs)
4000
3500
3000
2500
2000
1500
1000
500
0
15.0
23.8
26.6
32.3
41.2
43.7
48.6
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

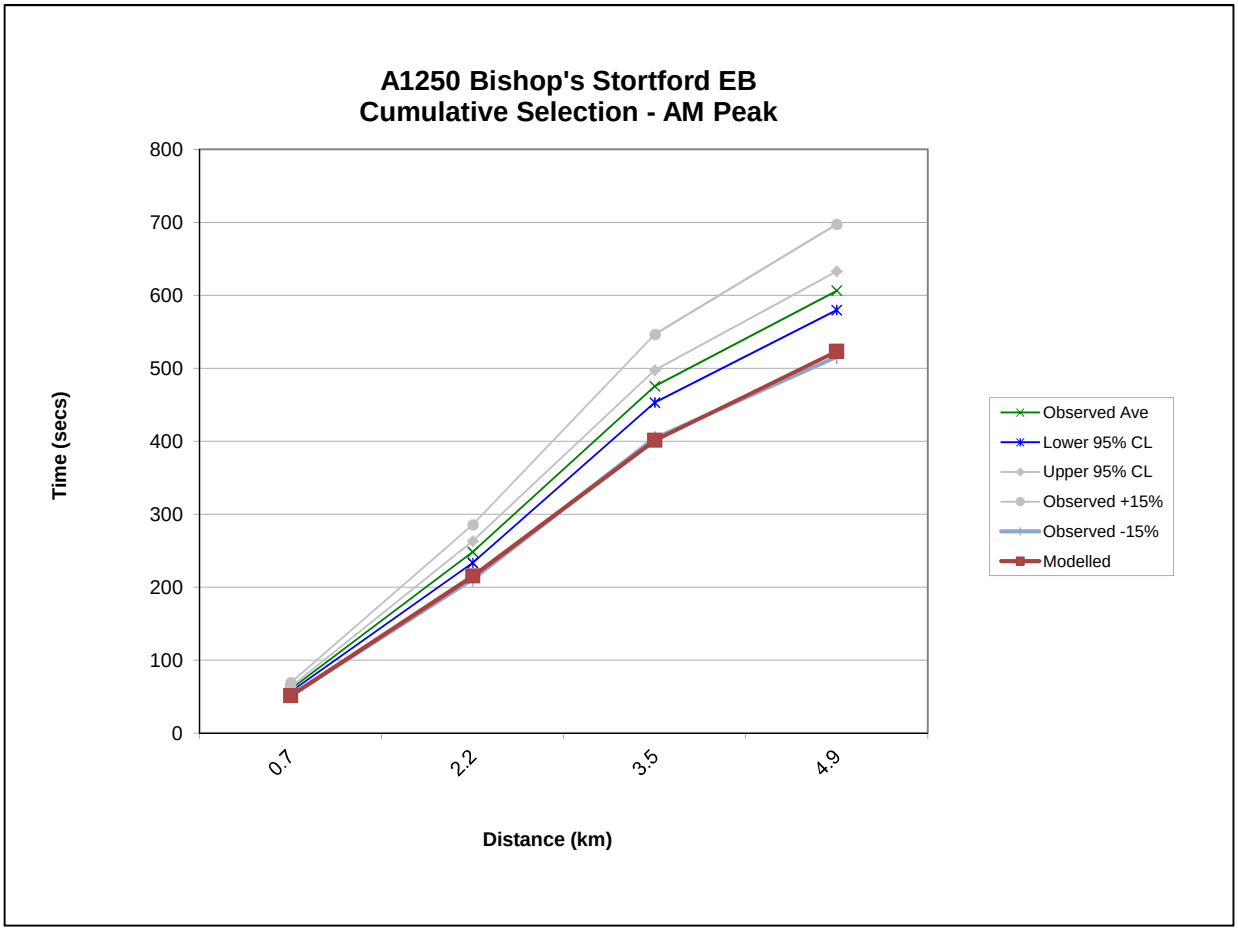

A414 from Hertingfordbury to Widford WB
Individual Selection - AM Peak
Time (secs)
1000
900
800
700
600
500
400
300
200
100
0
0
1
2
3
4
5
6
7
8
Section
Modelled
Observed ± 1 min
Observed ± 15%

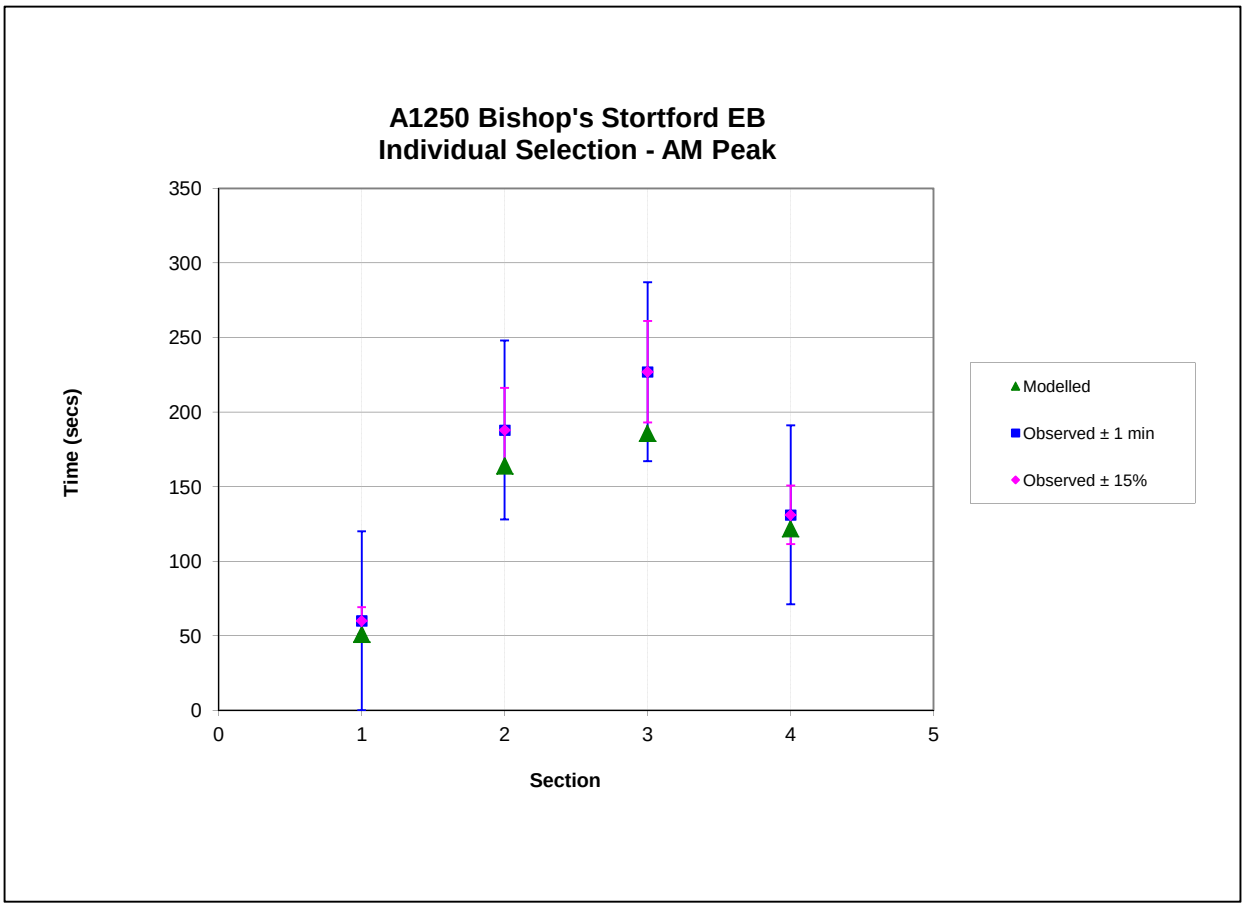

A414 from Hertingfordbury to Widford WB
Cumulative Selection - IP Peak
Time (secs)
3500
3000
2500
2000
1500
1000
500
0
15.0
23.8
26.6
32.3
41.2
43.7
48.6
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

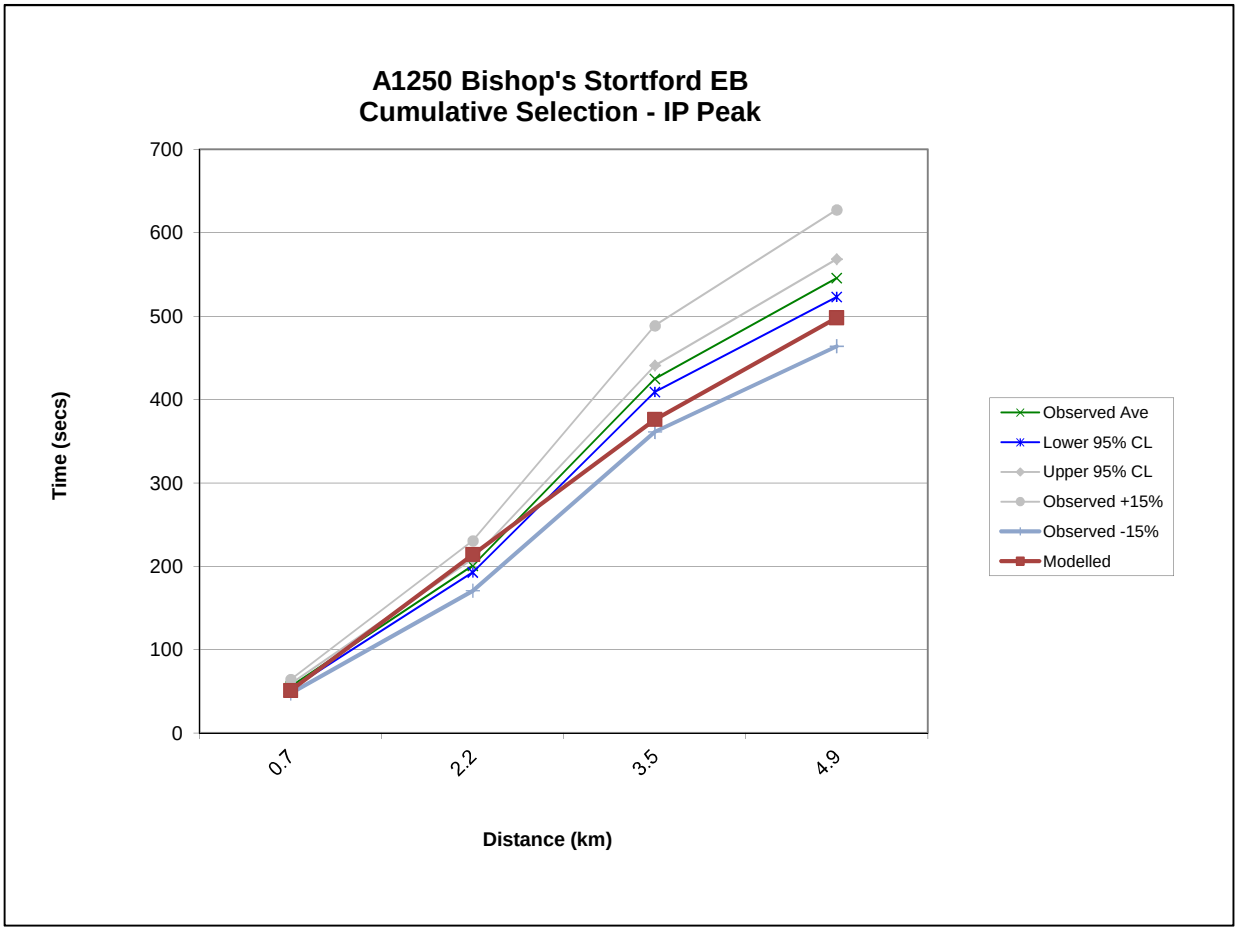

A414 from Hertingfordbury to Widford WB
Individual Selection - IP Peak
Time (secs)
1000
900
800
700
600
500
400
300
200
100
0
0
1
2
3
4
5
6
7
8
Section
Modelled
Observed ± 1 min
Observed ± 15%

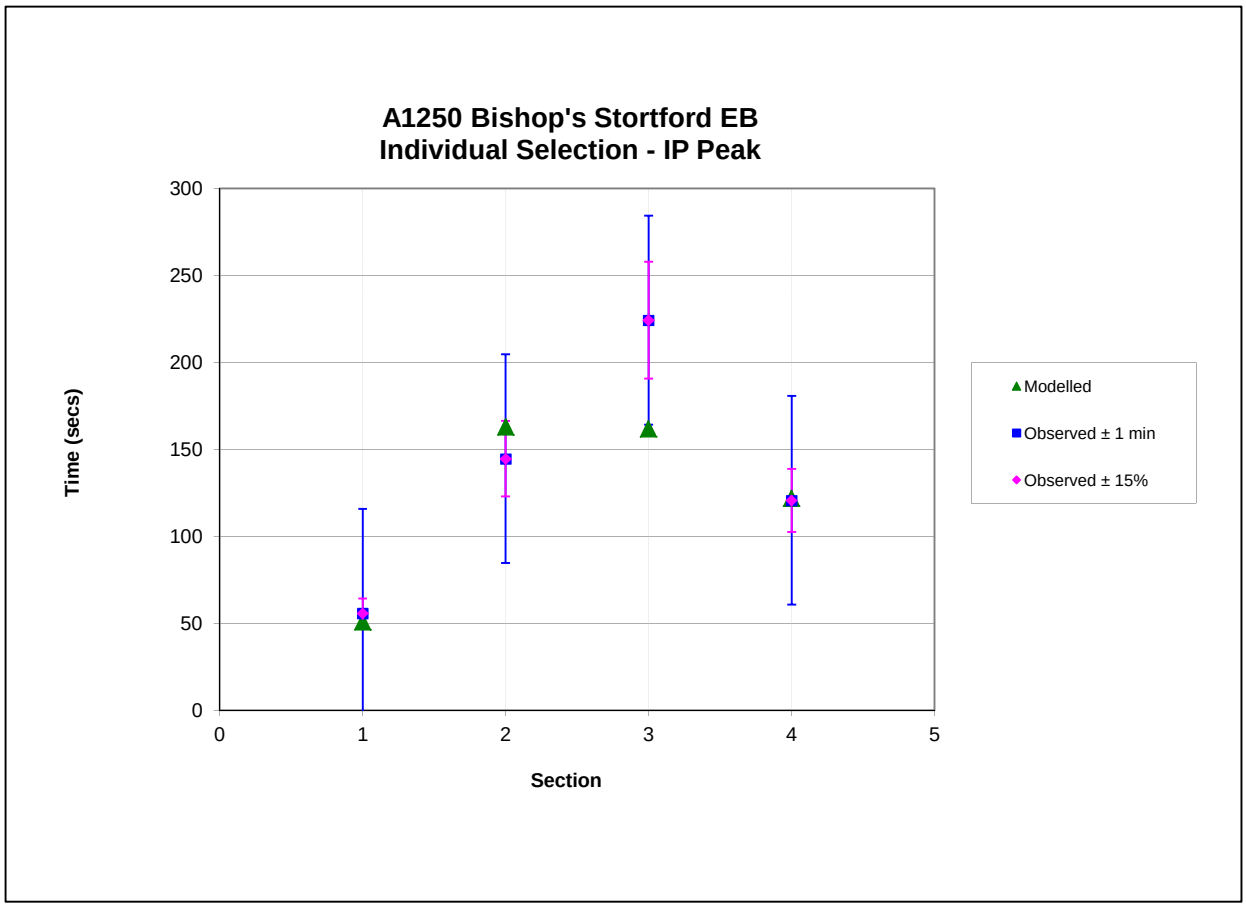

A414 from Hertingfordbury to Widford WB
Cumulative Selection - PM Peak
Time (secs)
4000
3500
3000
2500
2000
1500
1000
500
0
15.0
23.8
26.6
32.3
41.2
43.7
48.6
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

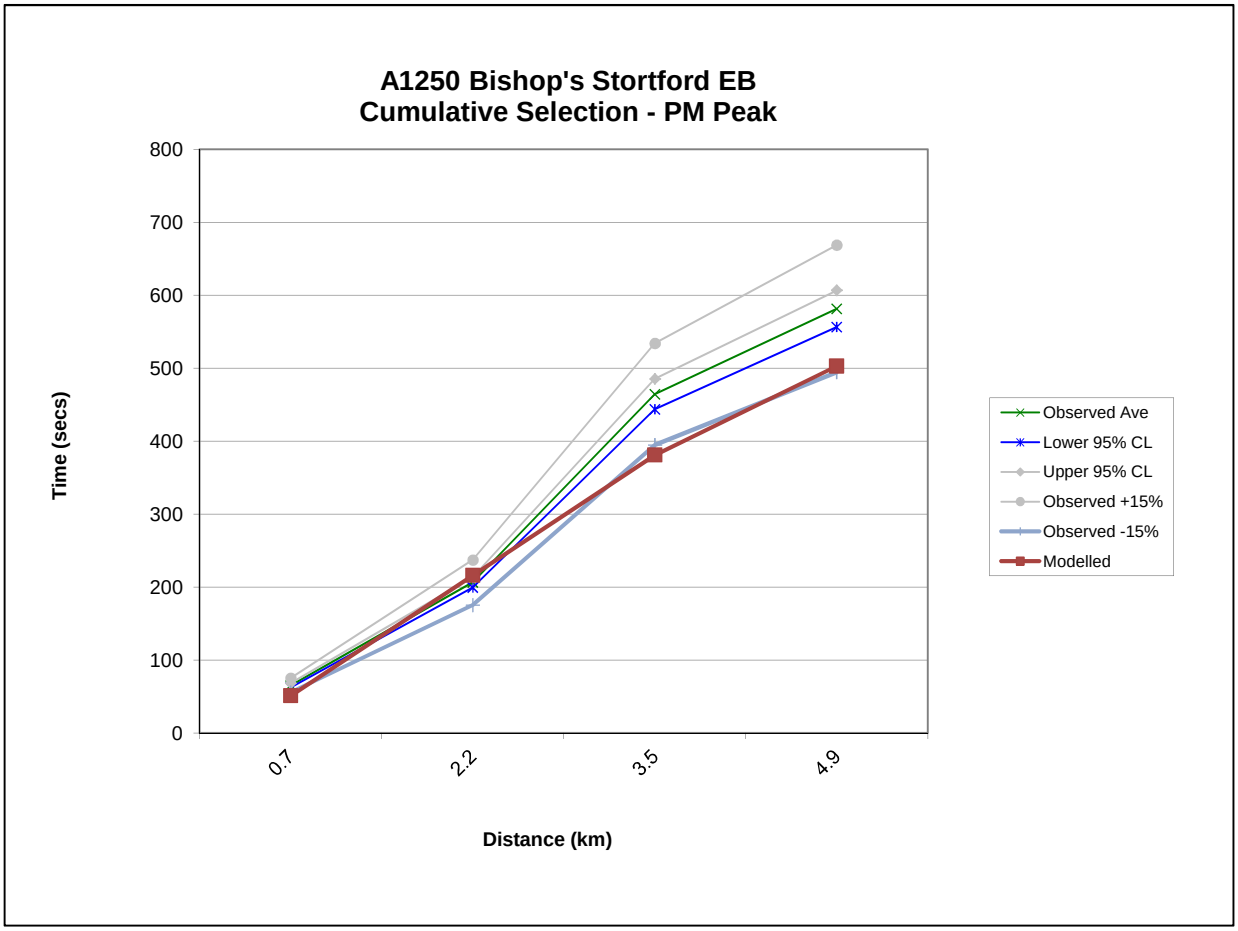

A414 from Hertingfordbury to Widford WB
Individual Selection - PM Peak
Time (secs)
900
800
700
600
500
400
300
200
100
0
0
1
2
3
4
5
6
7
8
Section
Modelled
Observed ± 1 min
Observed ± 15%

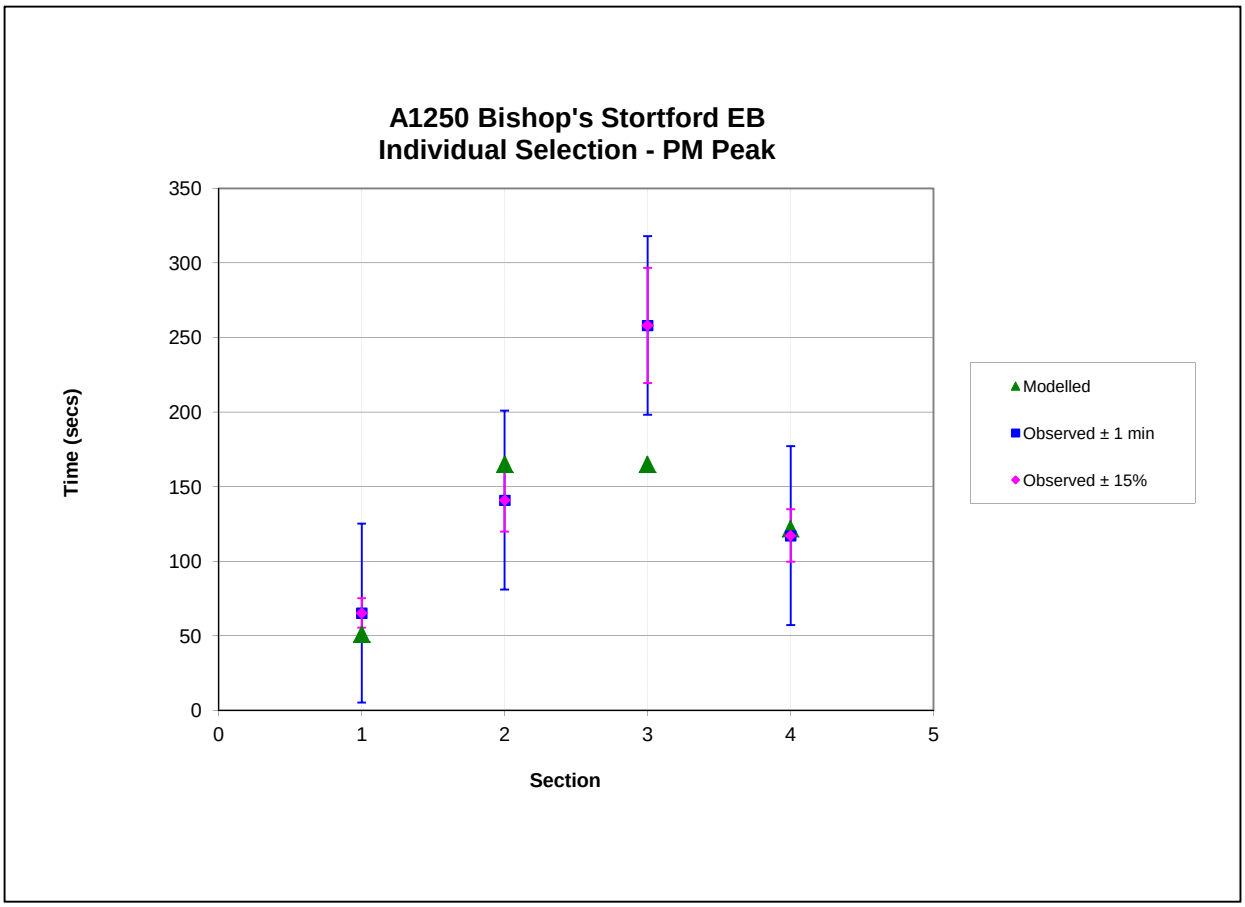

A1250 Bishop's Stortford EB
Cumulative Selection - AM Peak
Time (secs)
800
700
600
500
400
300
200
100
0
0.7
2.2
3.5
4.9
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

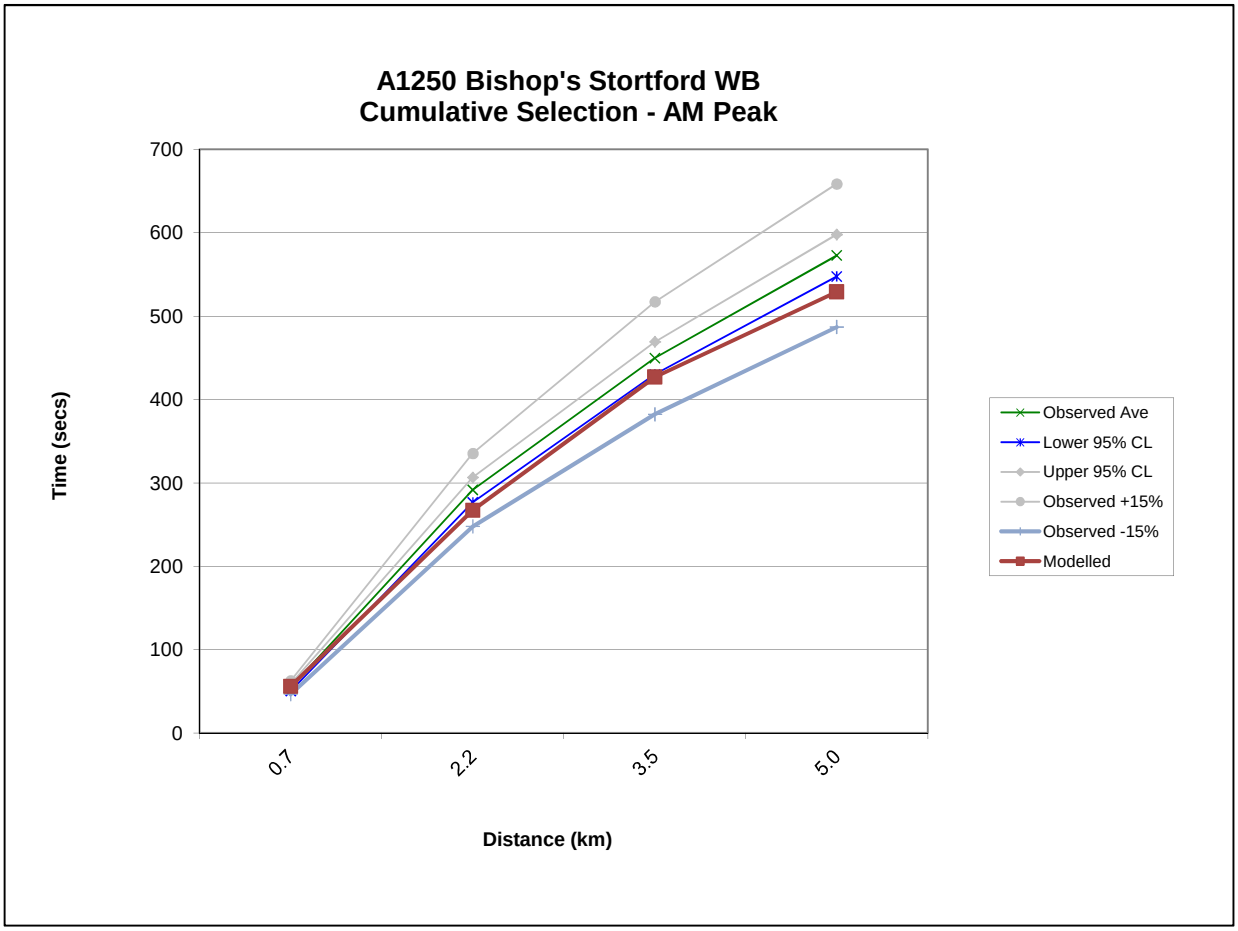

A1250 Bishop's Stortford EB
Individual Selection - AM Peak
Time (secs)
350
300
250
200
150
100
50
0
0
1
2
3
4
5
Section
Modelled
Observed ± 1 min
Observed ± 15%

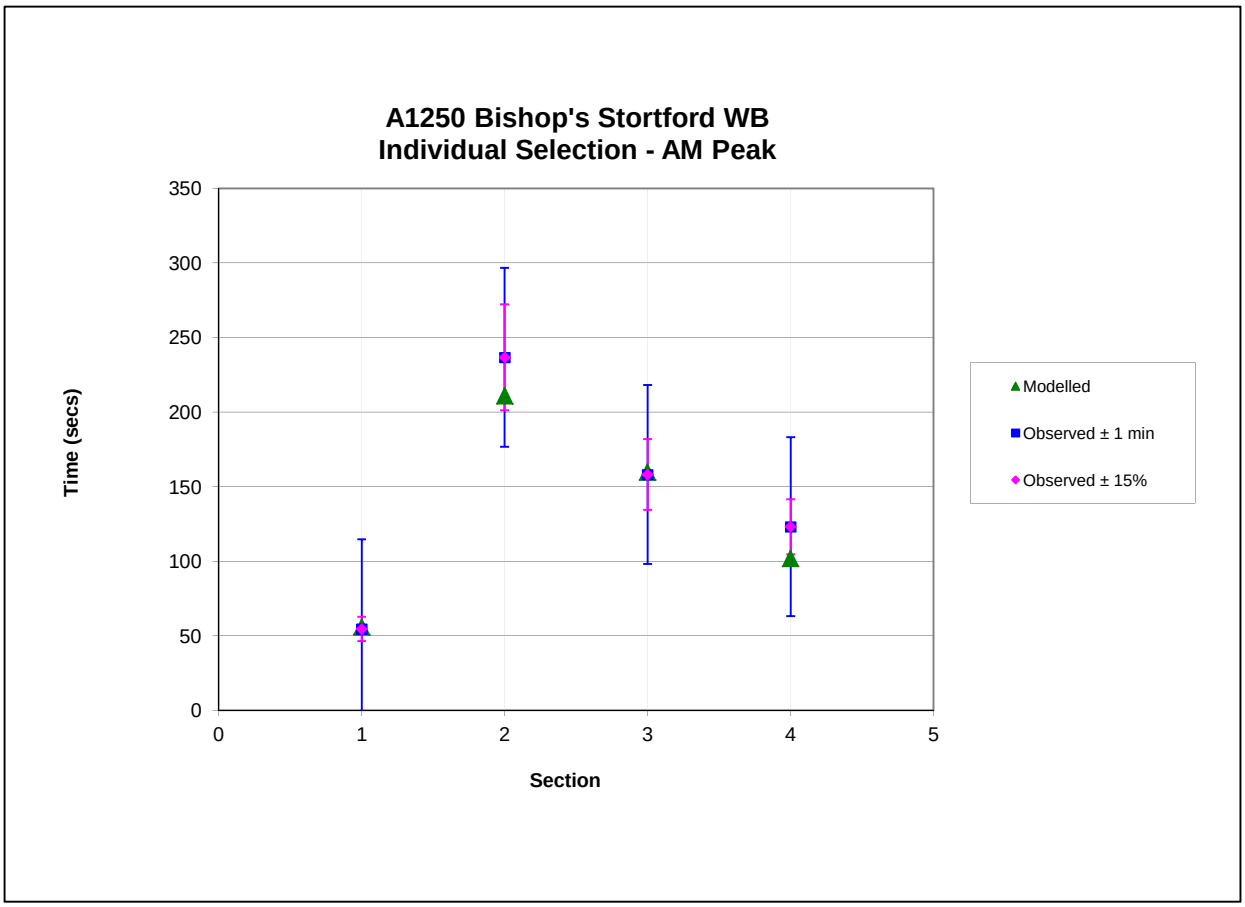

A1250 Bishop's Stortford EB
Cumulative Selection - IP Peak
Time (secs)
700
600
500
400
300
200
100
0
0.7
2.2
3.5
4.9
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

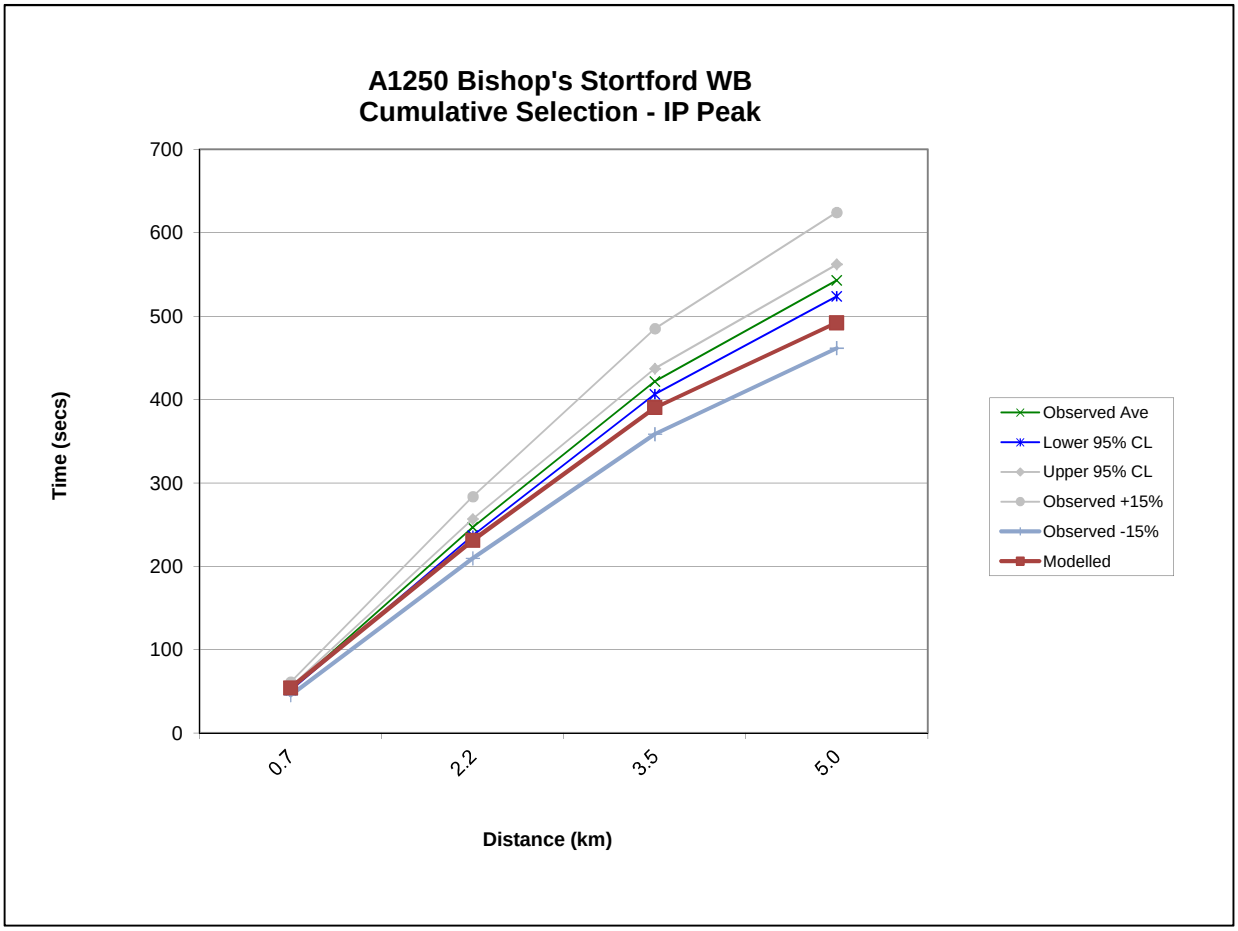

A1250 Bishop's Stortford EB
Individual Selection - IP Peak
Time (secs)
300
250
200
150
100
50
0
0
1
2
3
4
5
Section
Modelled
Observed ± 1 min
Observed ± 15%

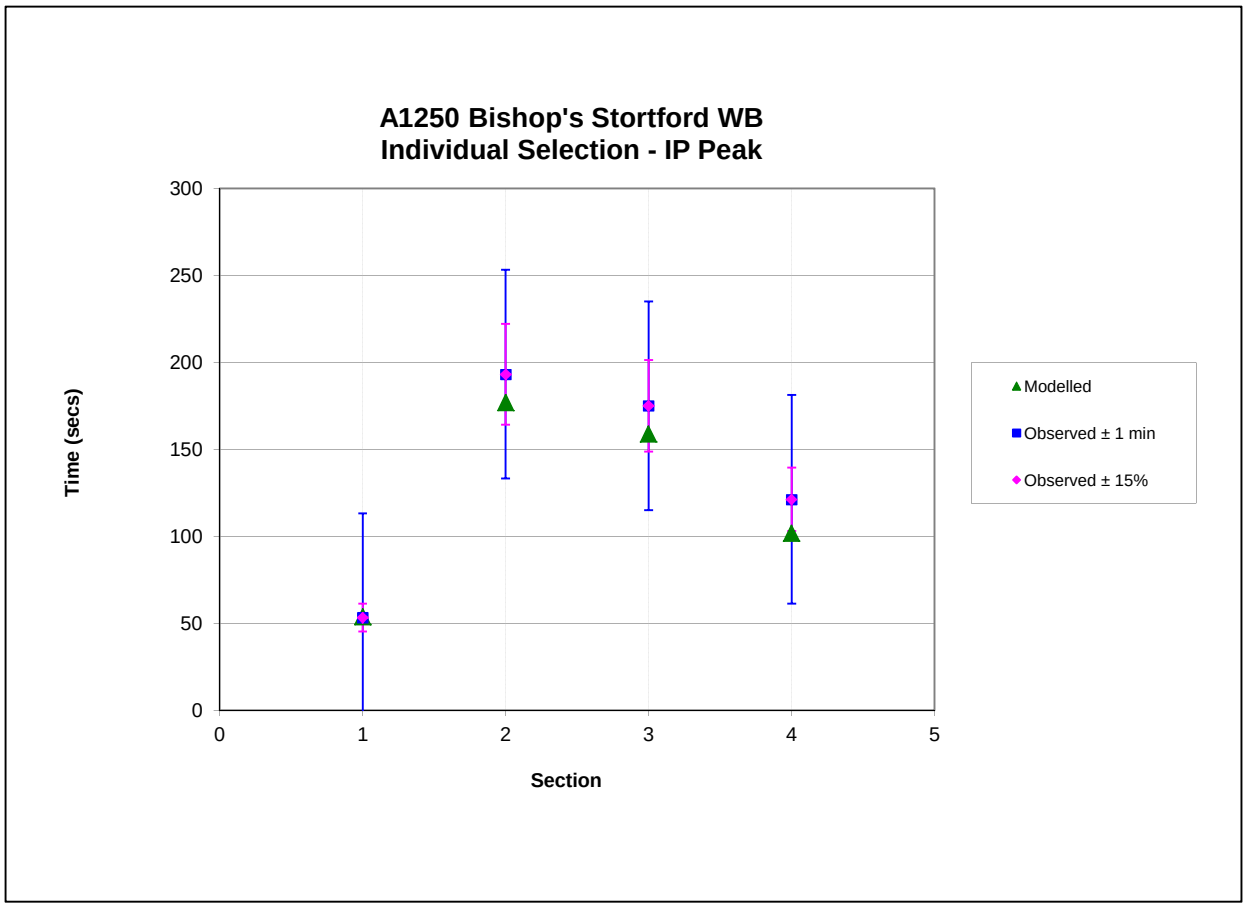

A1250 Bishop's Stortford EB
Cumulative Selection - PM Peak
Time (secs)
800
700
600
500
400
300
200
100
0
0.7
2.2
3.5
4.9
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

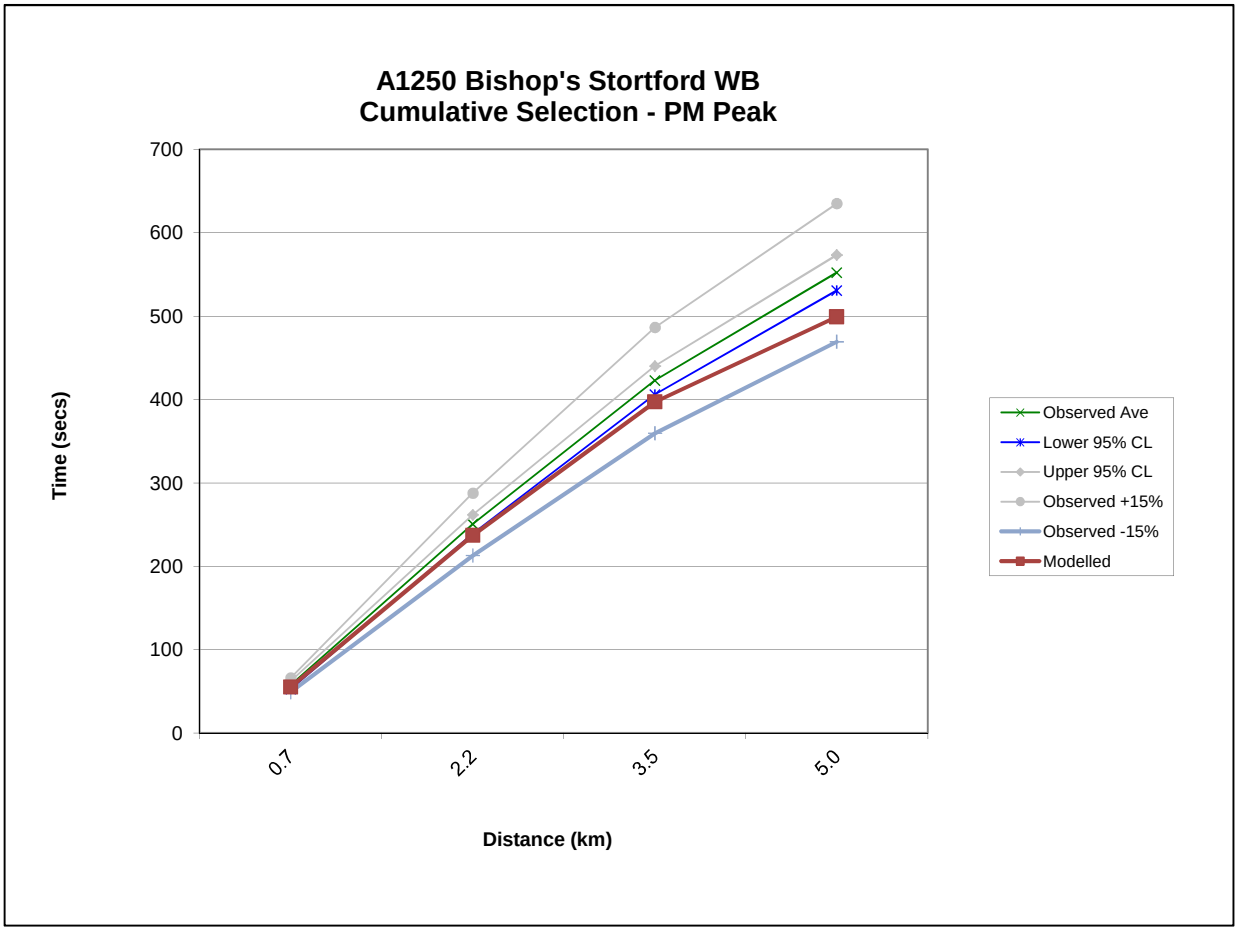

A1250 Bishop's Stortford EB
Individual Selection - PM Peak
Time (secs)
350
300
250
200
150
100
50
0
0
1
2
3
4
5
Section
Modelled
Observed ± 1 min
Observed ± 15%

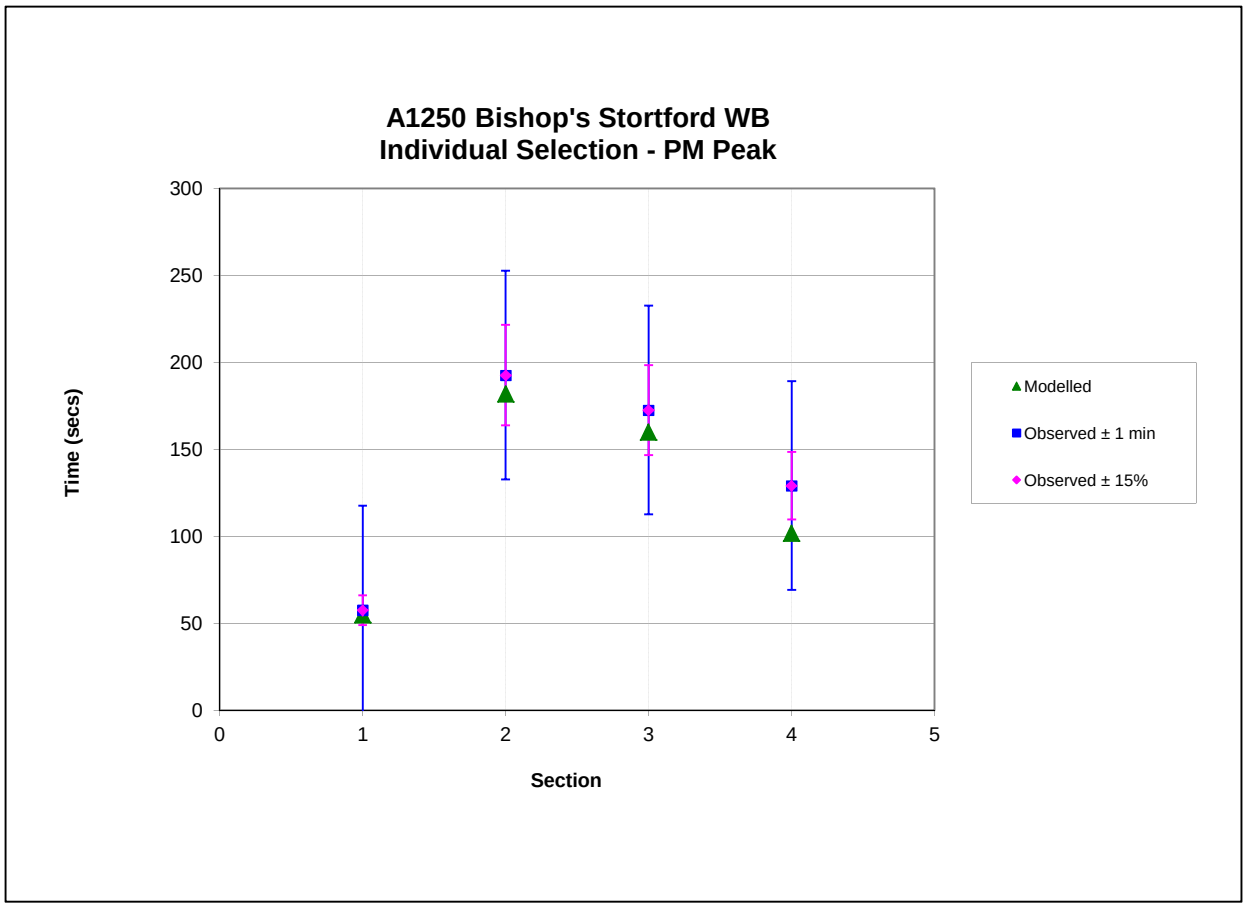

A1250 Bishop's Stortford WB
Cumulative Selection - AM Peak
Time (secs)
700
600
500
400
300
200
100
0
0.7
2.2
3.5
5.0
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

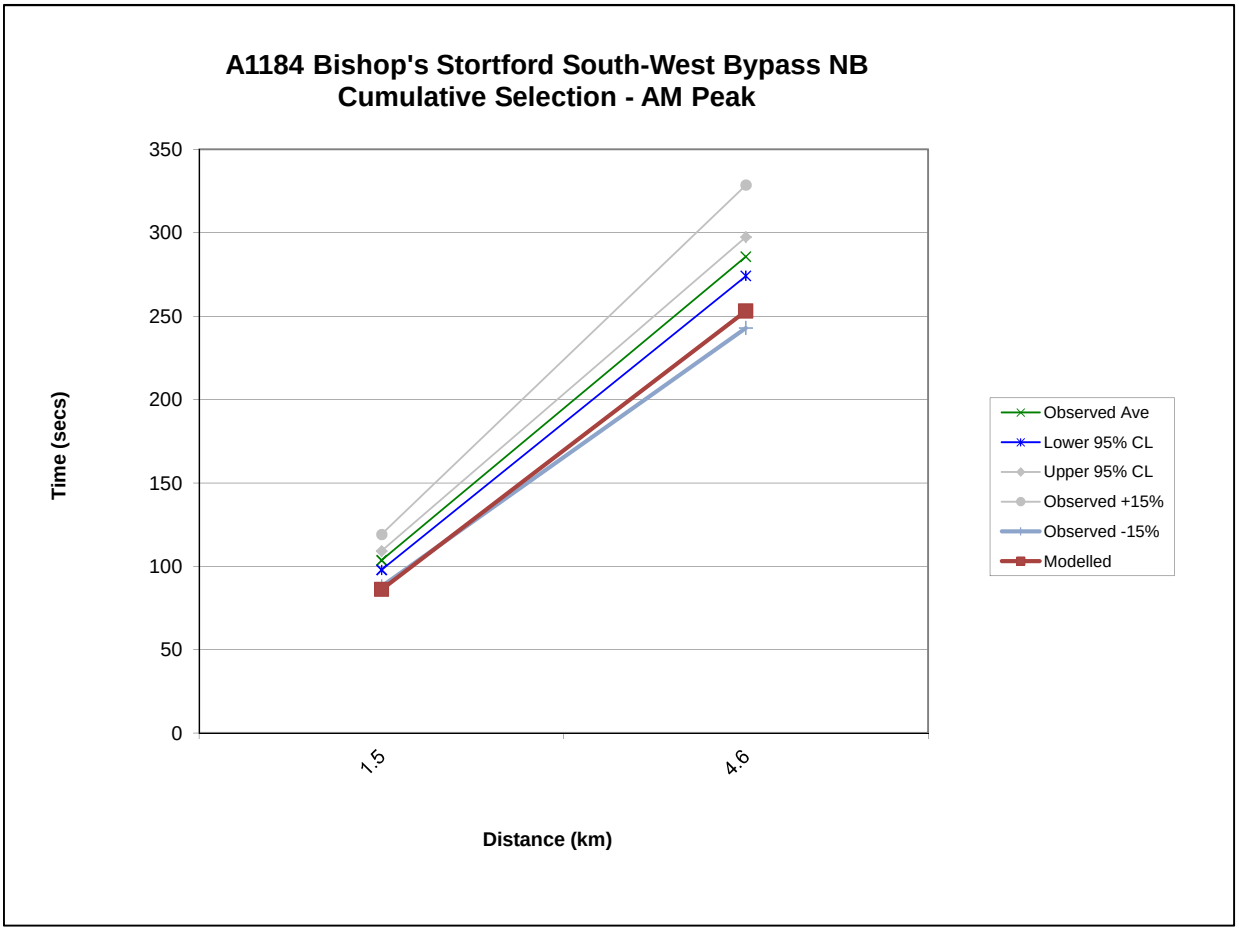

A1250 Bishop's Stortford WB
Individual Selection - AM Peak
Time (secs)
350
300
250
200
150
100
50
0
0
1
2
3
4
5
Section
Modelled
Observed ± 1 min
Observed ± 15%

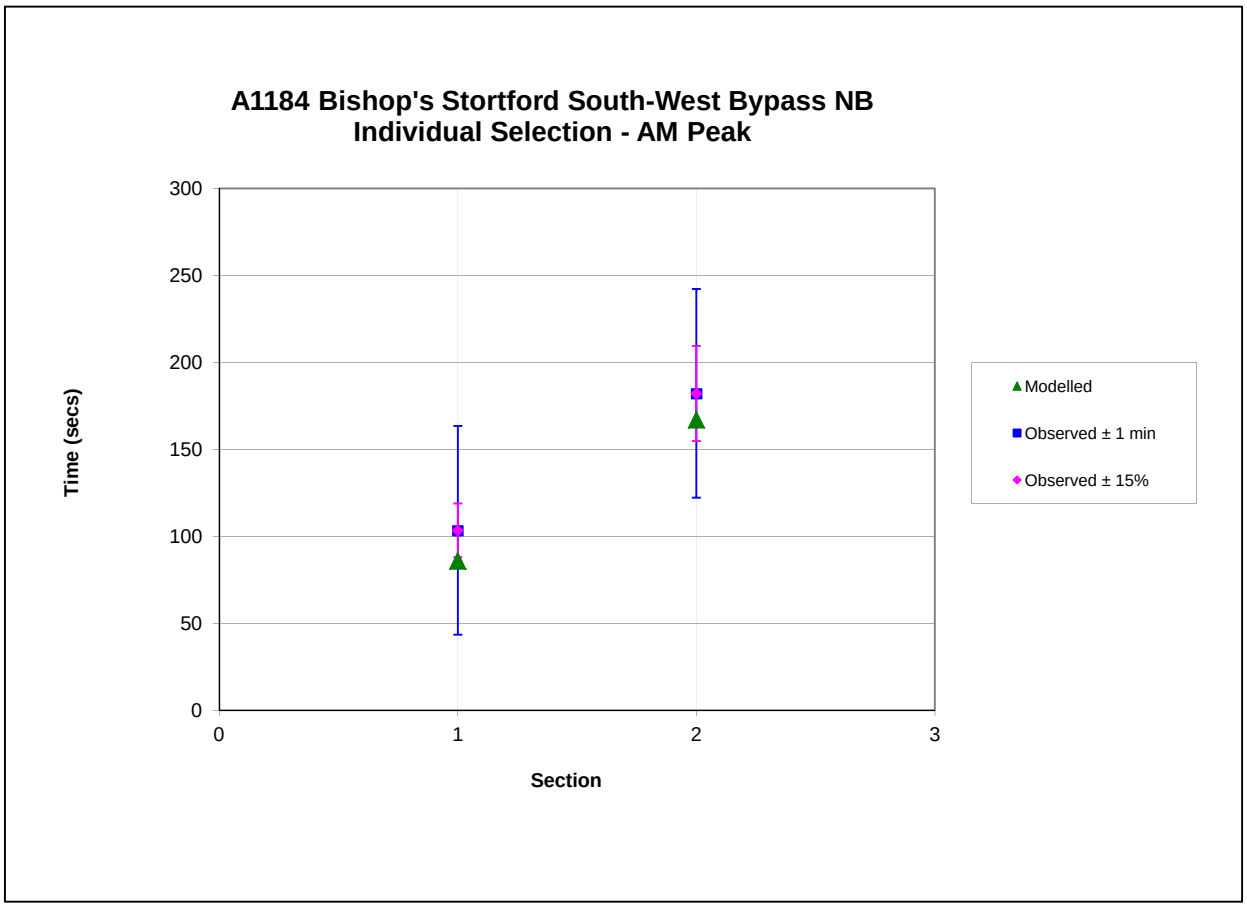

A1250 Bishop's Stortford WB
Cumulative Selection - IP Peak
Time (secs)
700
600
500
400
300
200
100
0
0.7
2.2
3.5
5.0
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

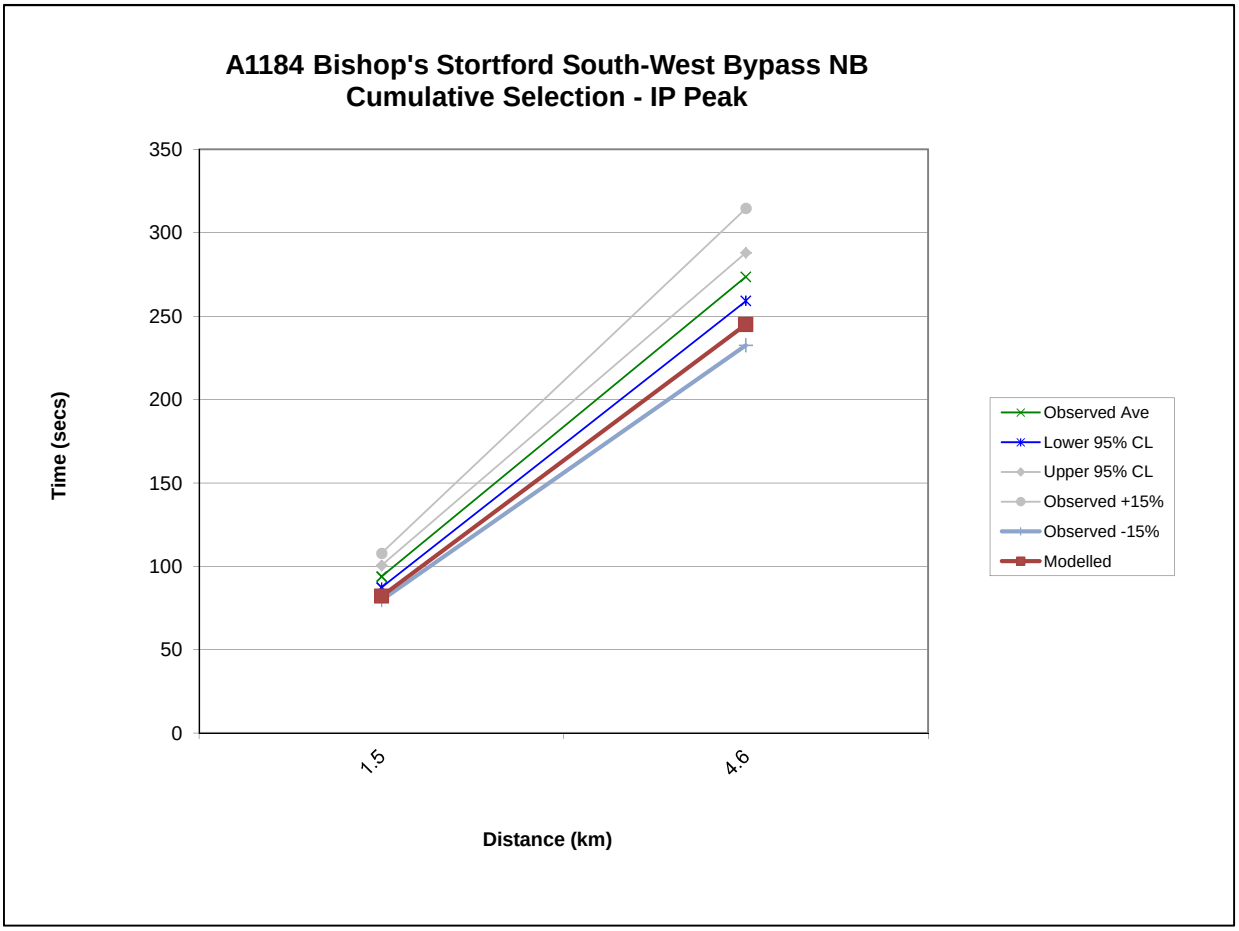

A1250 Bishop's Stortford WB
Individual Selection - IP Peak
Time (secs)
300
250
200
150
100
50
0
0
1
2
3
4
5
Section
Modelled
Observed ± 1 min
Observed ± 15%

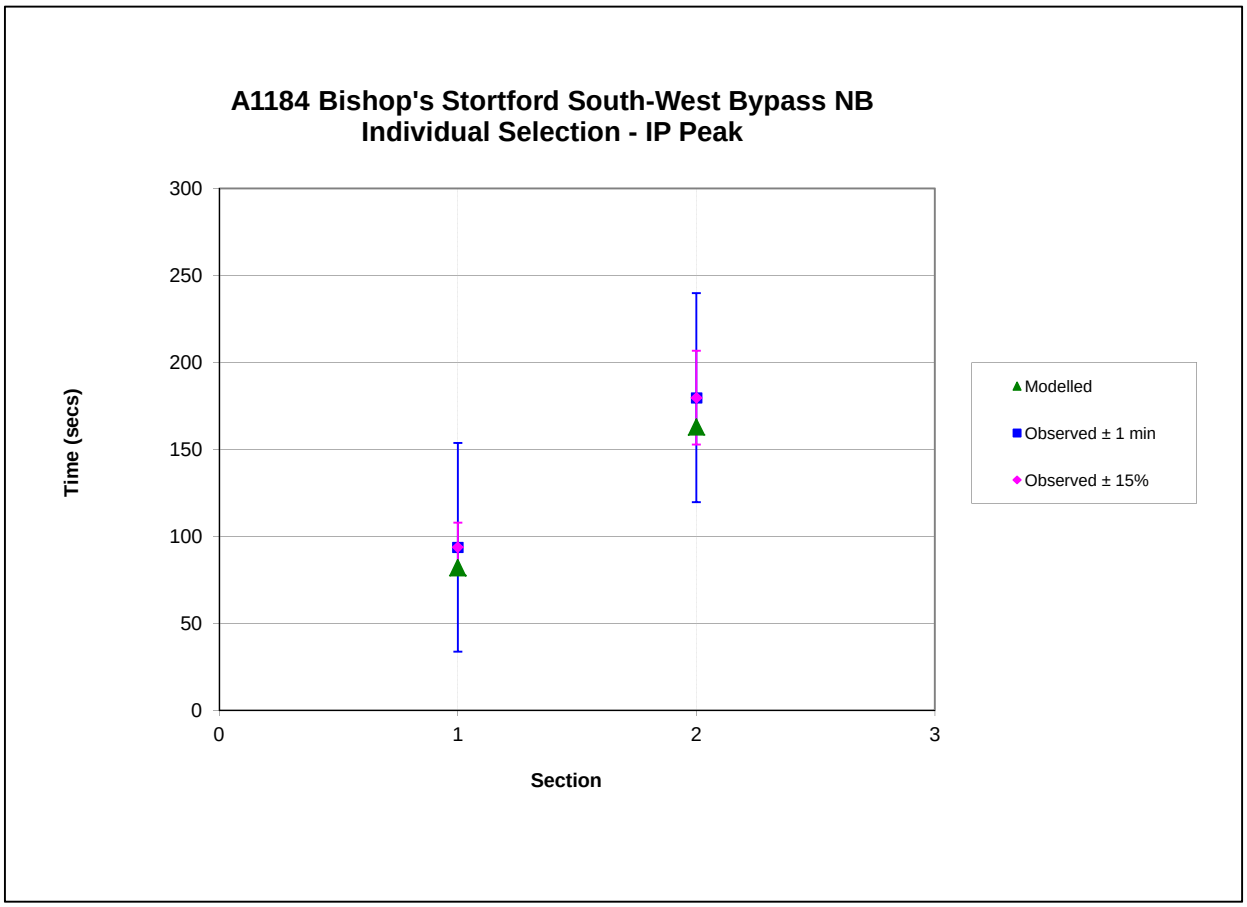

A1250 Bishop's Stortford WB
Cumulative Selection - PM Peak
Time (secs)
700
600
500
400
300
200
100
0
0.7
2.2
3.5
5.0
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

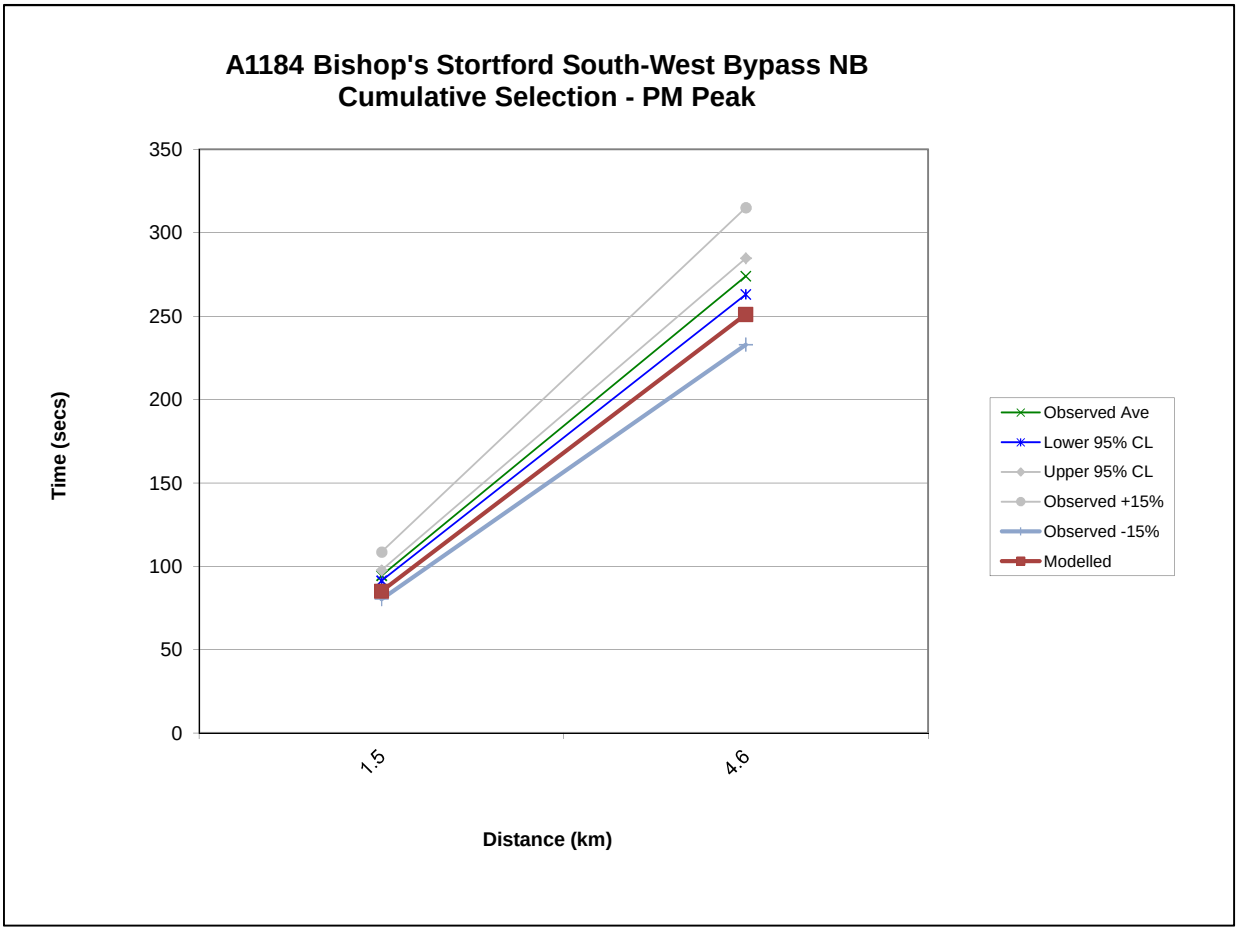

A1250 Bishop's Stortford WB
Individual Selection - PM Peak
Time (secs)
300
250
200
150
100
50
0
0
1
2
3
4
5
Section
Modelled
Observed ± 1 min
Observed ± 15%

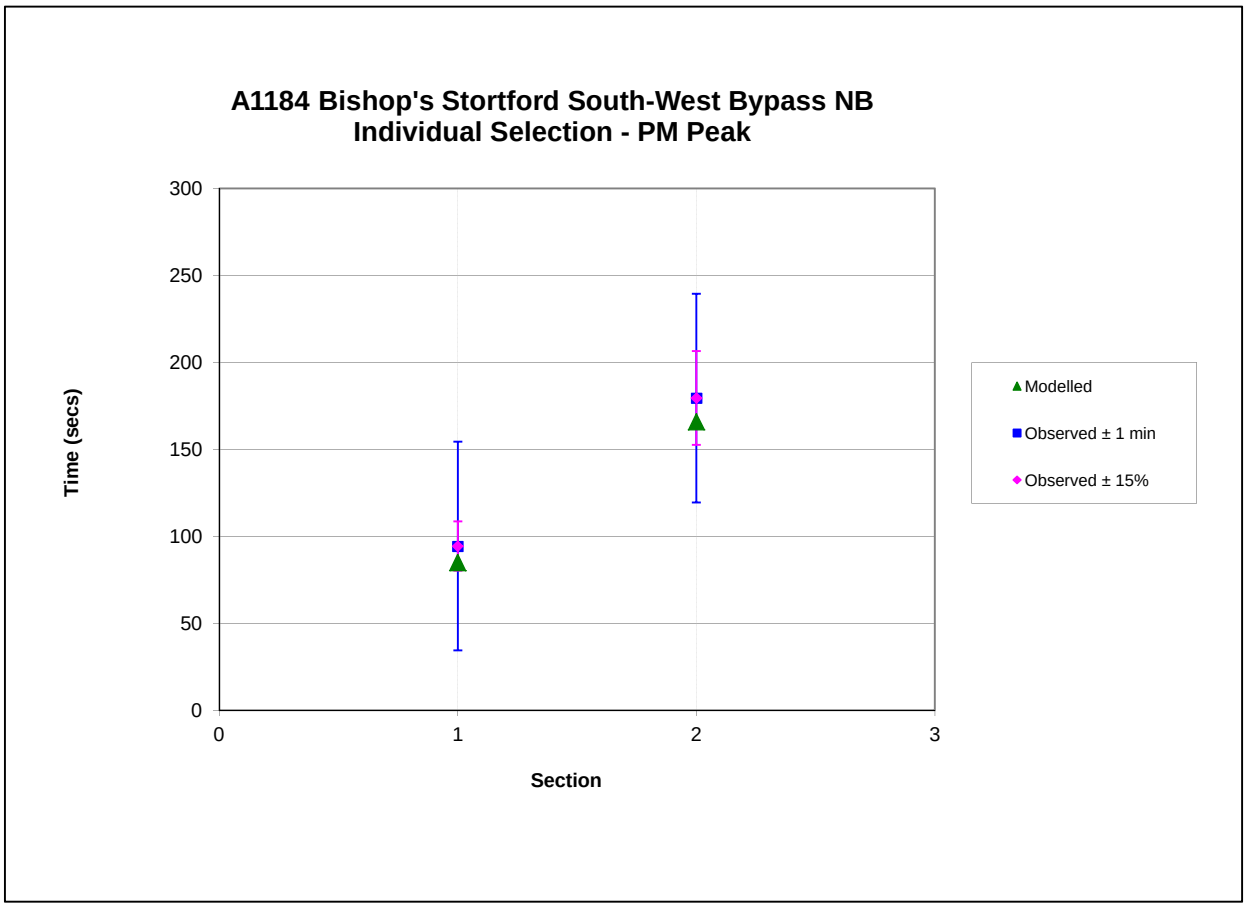

A1184 Bishop's Stortford South-West Bypass NB
Cumulative Selection - AM Peak
Time (secs)
350
300
250
200
150
100
50
0
1.5
4.6
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

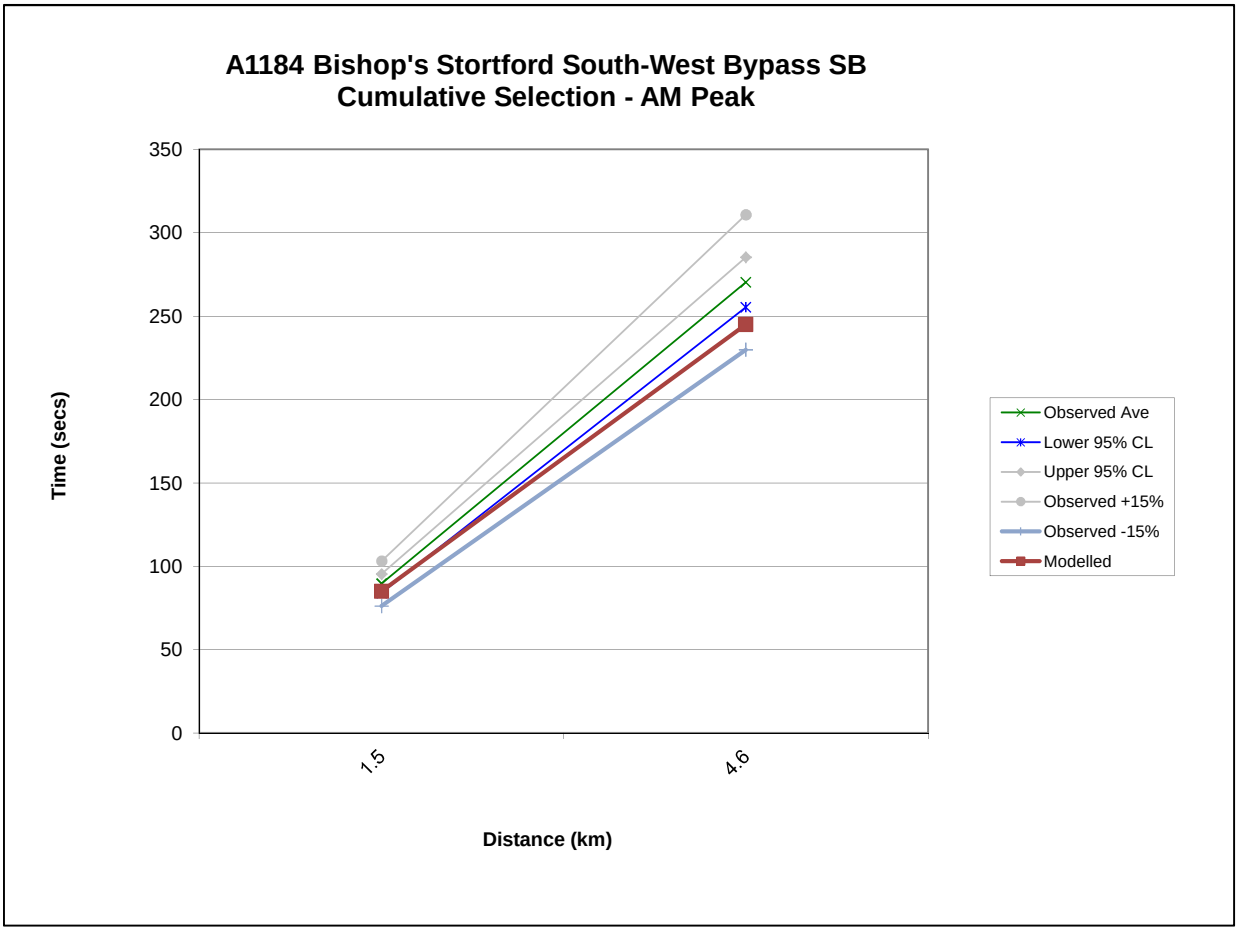

A1184 Bishop's Stortford South-West Bypass NB
Individual Selection - AM Peak
Time (secs)
300
250
200
150
100
50
0
0
1
2
3
Section
Modelled
Observed ± 1 min
Observed ± 15%

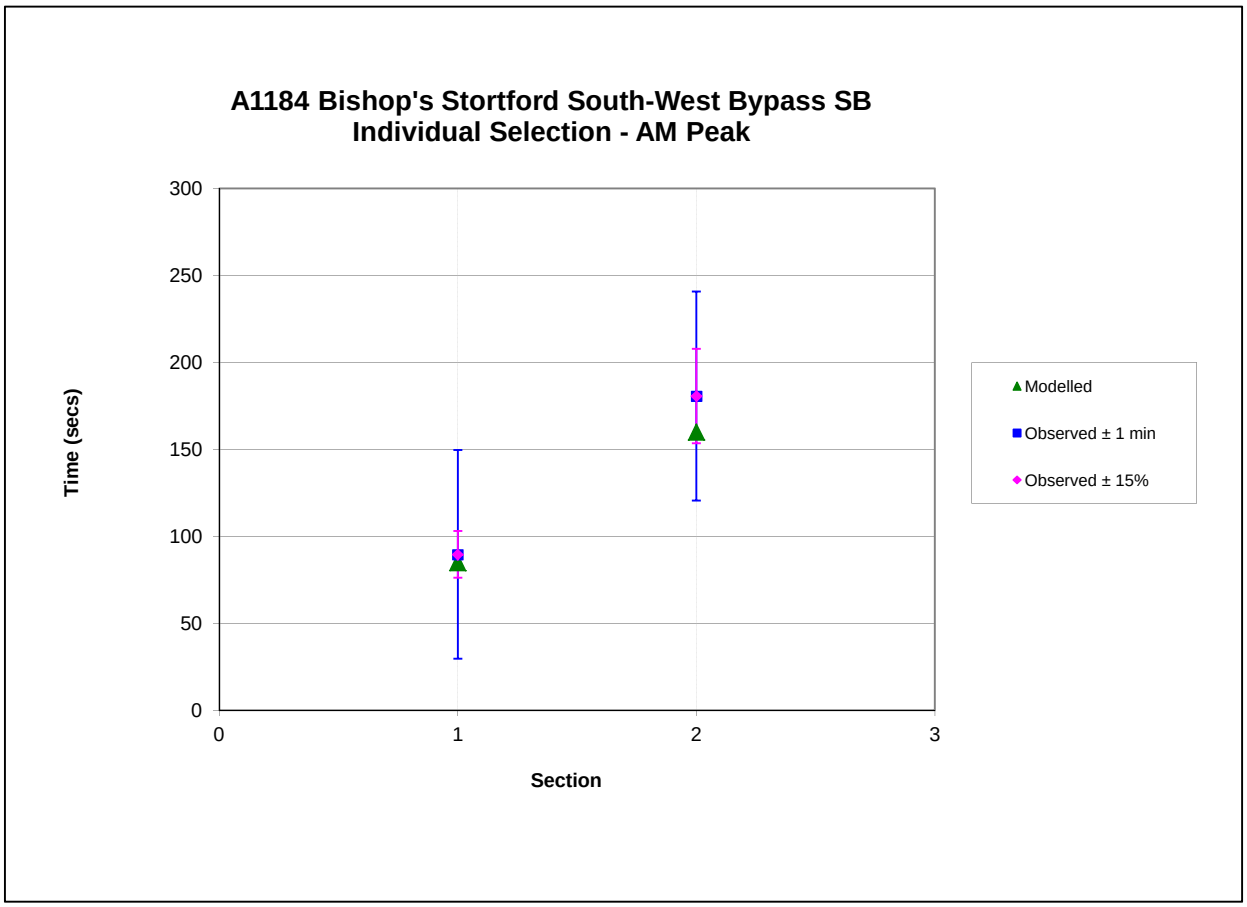

A1184 Bishop's Stortford South-West Bypass NB
Cumulative Selection - IP Peak
Time (secs)
350
300
250
200
150
100
50
0
1.5
4.6
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

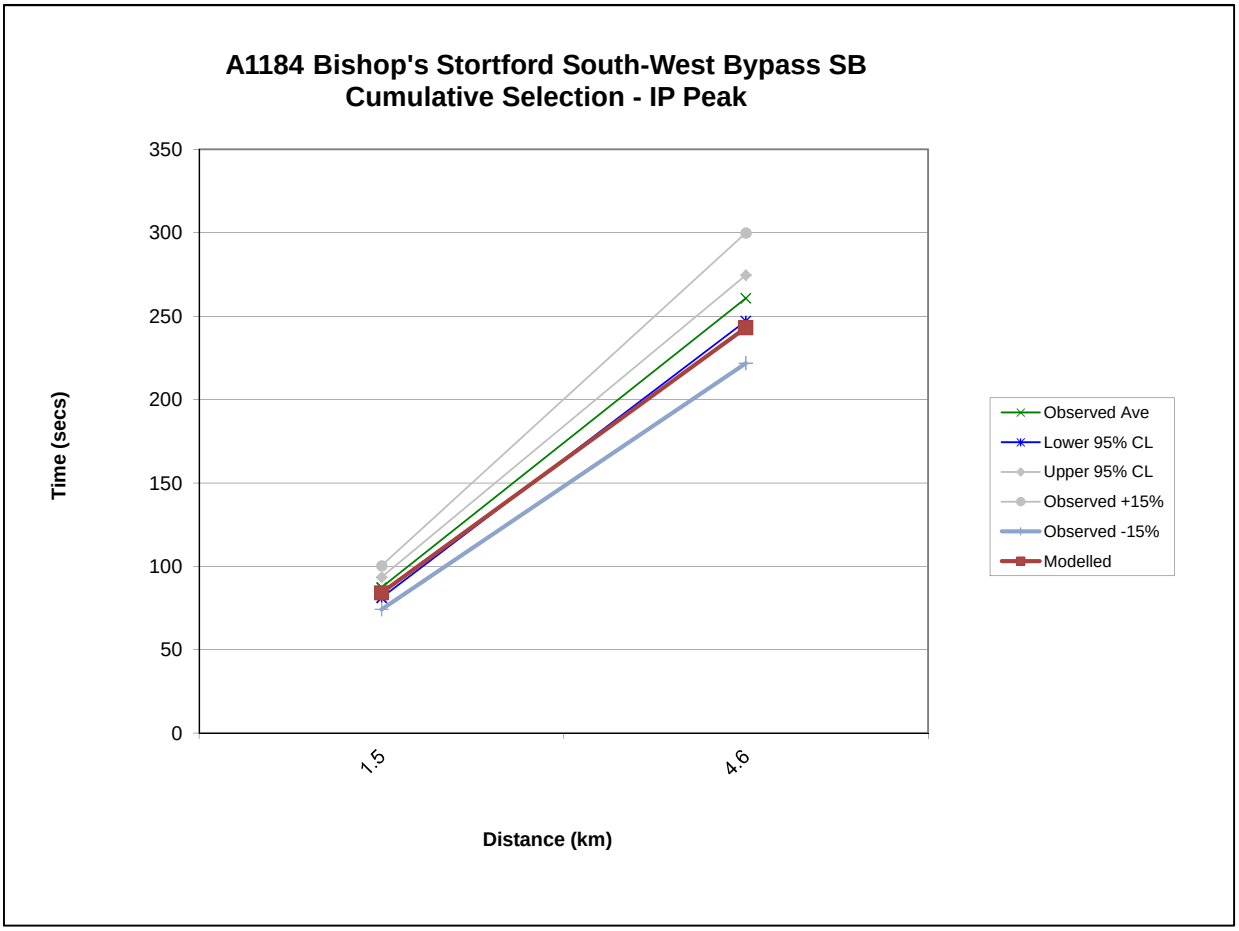

A1184 Bishop's Stortford South-West Bypass NB
Individual Selection - IP Peak
Time (secs)
300
250
200
150
100
50
0
0
1
2
3
Section
Modelled
Observed ± 1 min
Observed ± 15%

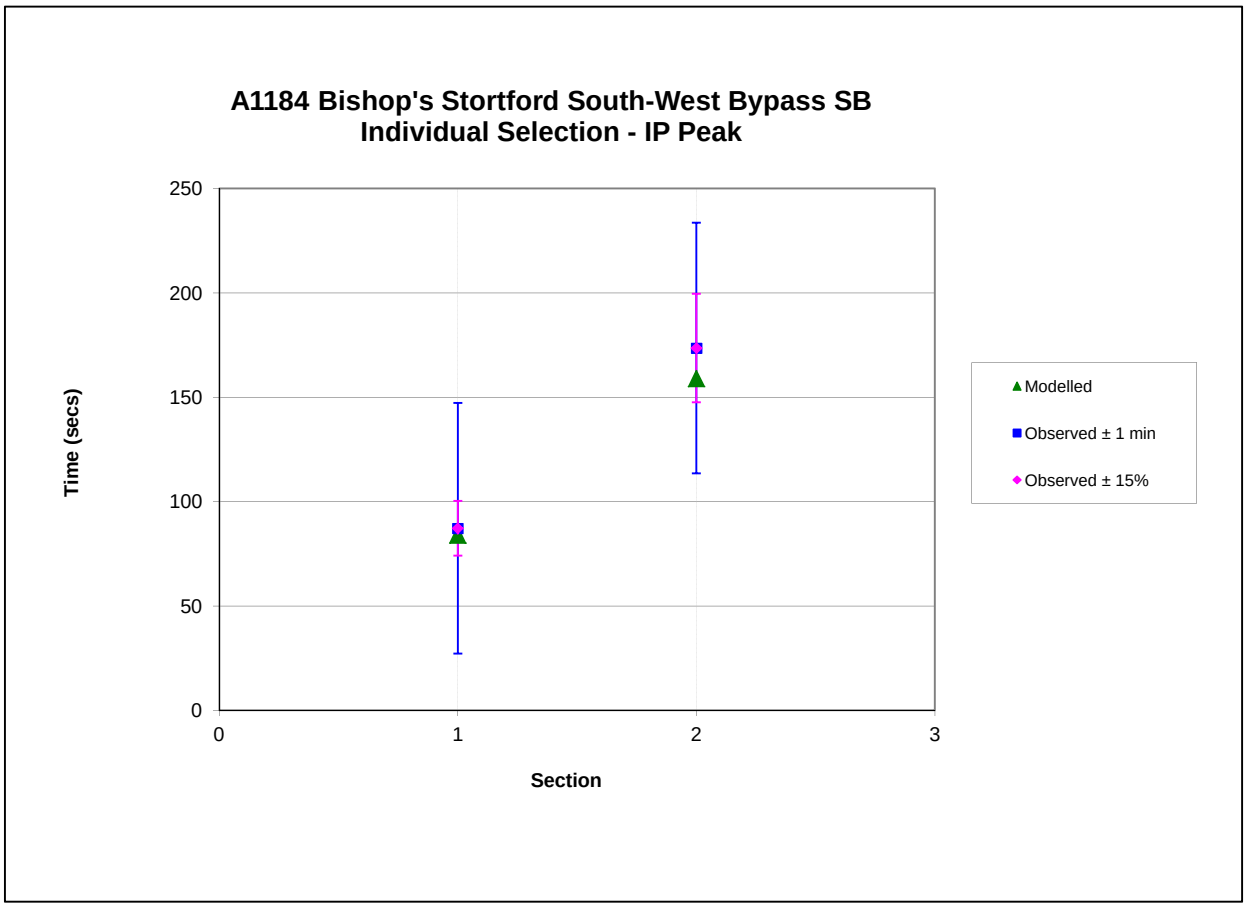

A1184 Bishop's Stortford South-West Bypass NB
Cumulative Selection - PM Peak
Time (secs)
350
300
250
200
150
100
50
0
1.5
4.6
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

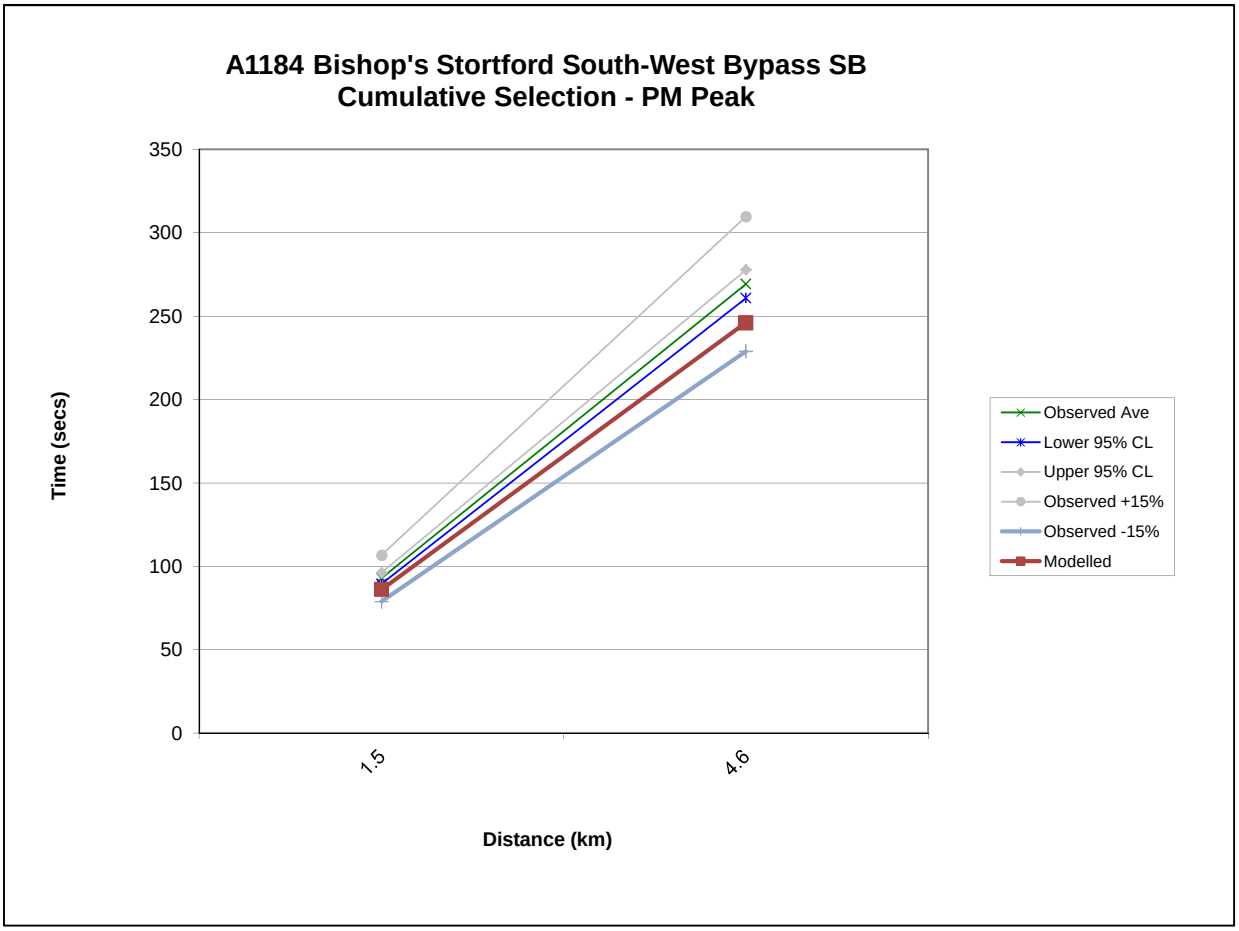

A1184 Bishop's Stortford South-West Bypass NB
Individual Selection - PM Peak
Time (secs)
300
250
200
150
100
50
0
0
1
2
3
Section
Modelled
Observed ± 1 min
Observed ± 15%

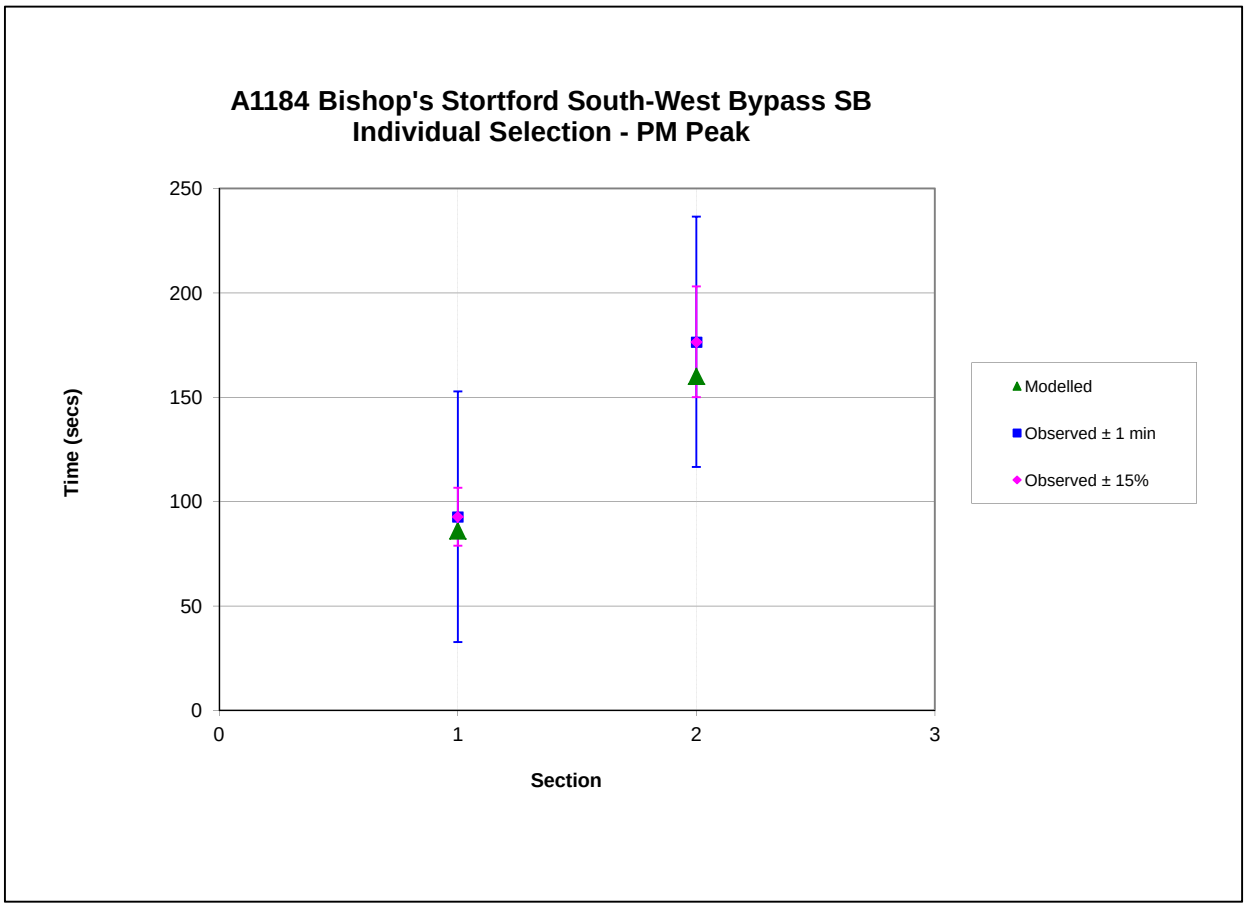

A1184 Bishop's Stortford South-West Bypass SB
Cumulative Selection - AM Peak
Time (secs)
350
300
250
200
150
100
50
0
1.5
4.6
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

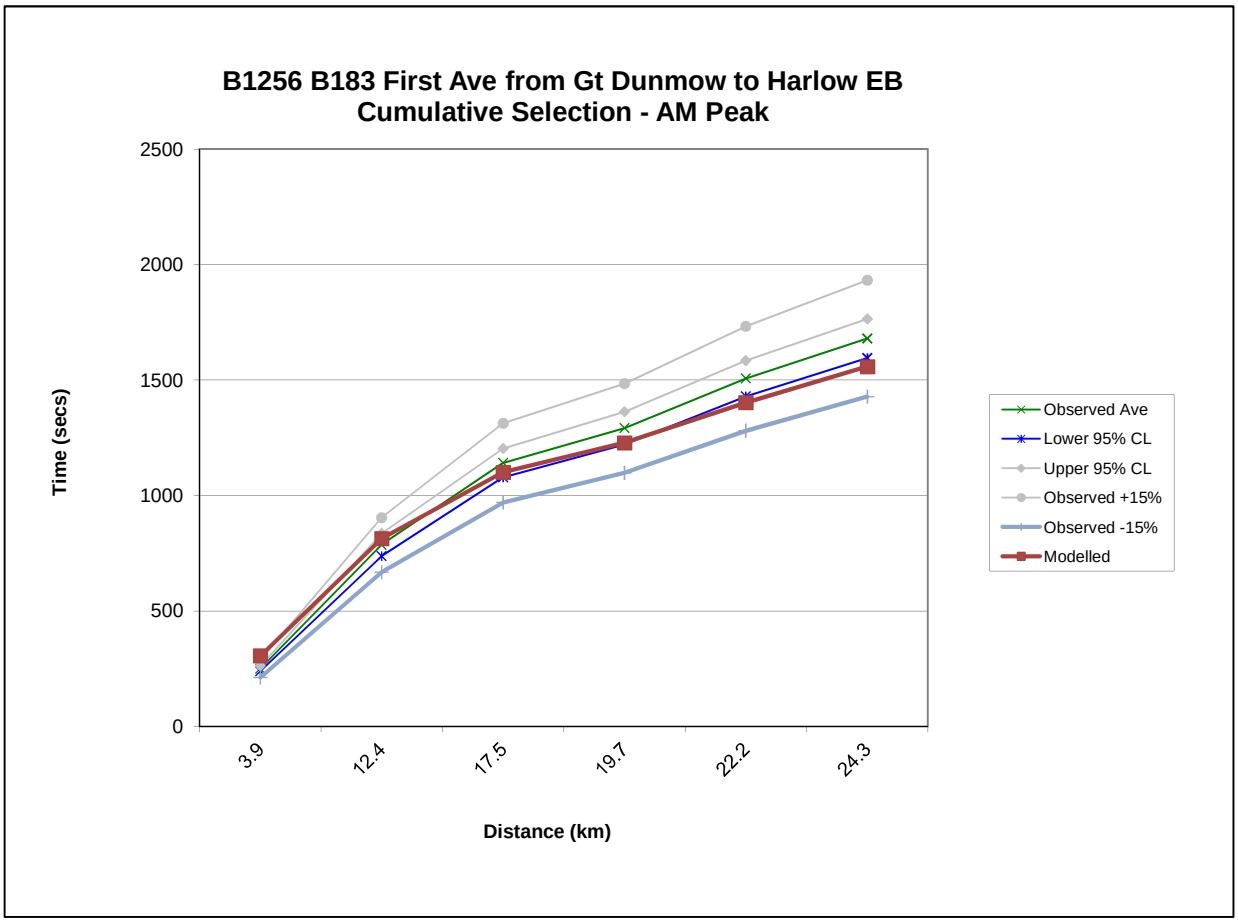

A1184 Bishop's Stortford South-West Bypass SB
Individual Selection - AM Peak
Time (secs)
300
250
200
150
100
50
0
0
1
2
3
Section
Modelled
Observed ± 1 min
Observed ± 15%

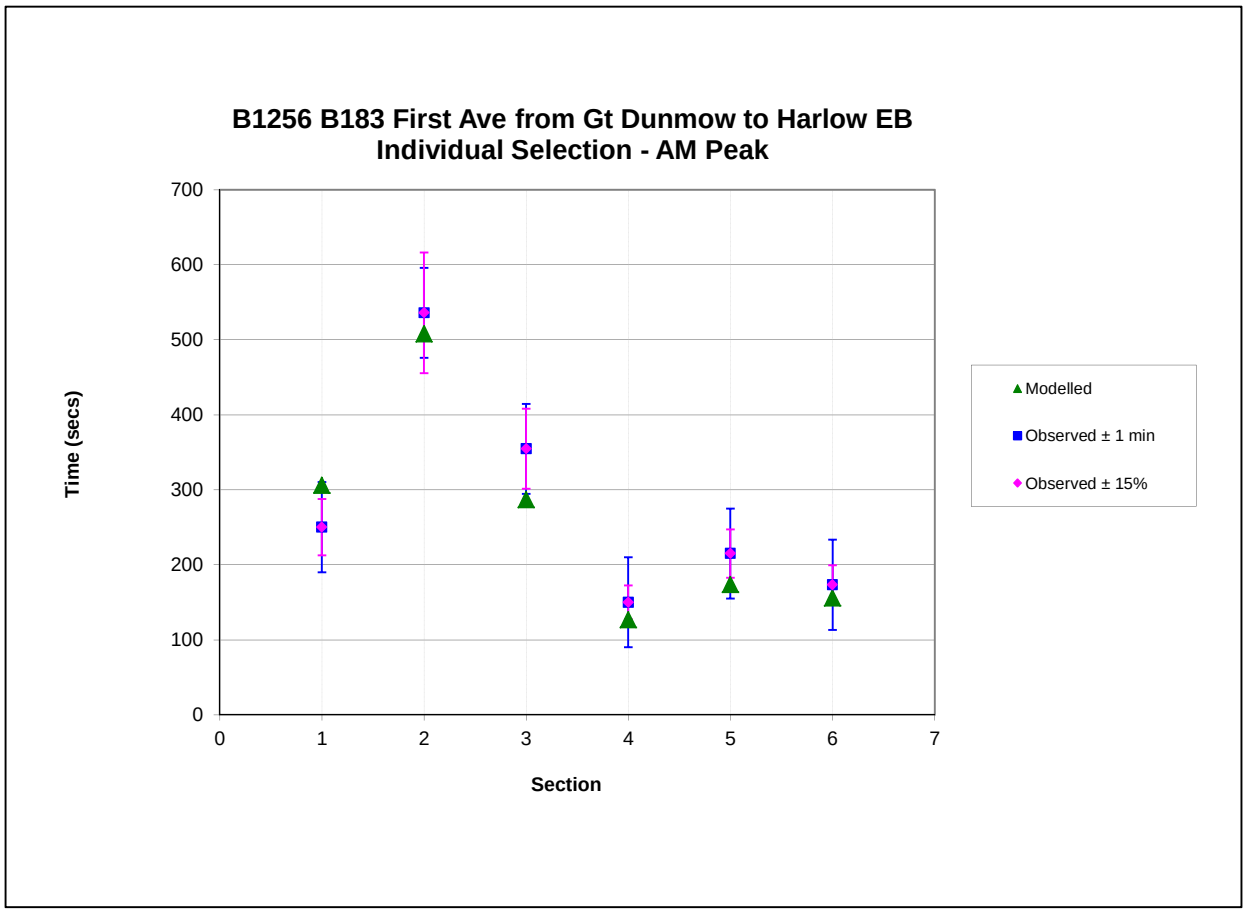

A1184 Bishop's Stortford South-West Bypass SB
Cumulative Selection - IP Peak
Time (secs)
350
300
250
200
150
100
50
0
1.5
4.6
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

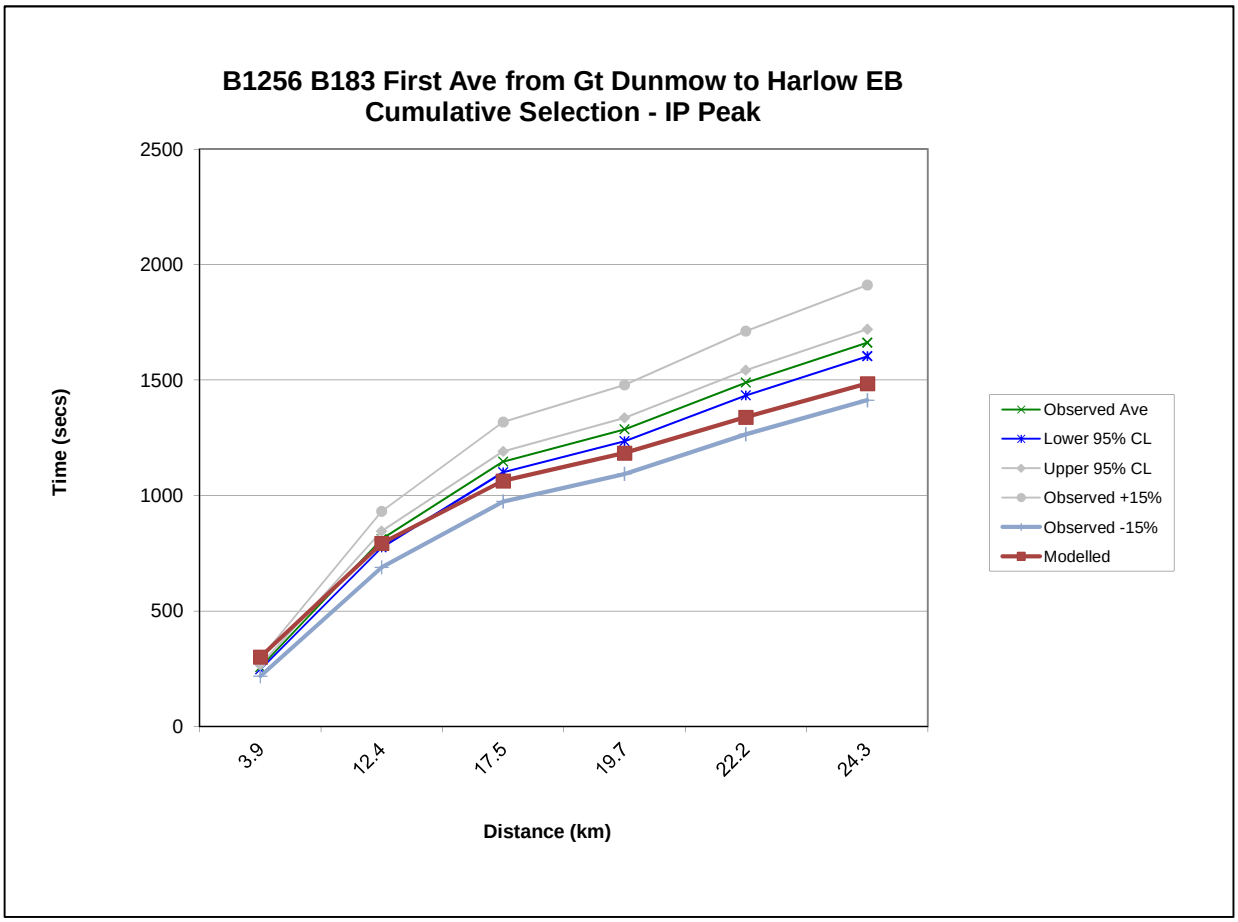

A1184 Bishop's Stortford South-West Bypass SB
Individual Selection - IP Peak
Time (secs)
250
200
150
100
50
0
0
1
2
3
Section
Modelled
Observed ± 1 min
Observed ± 15%

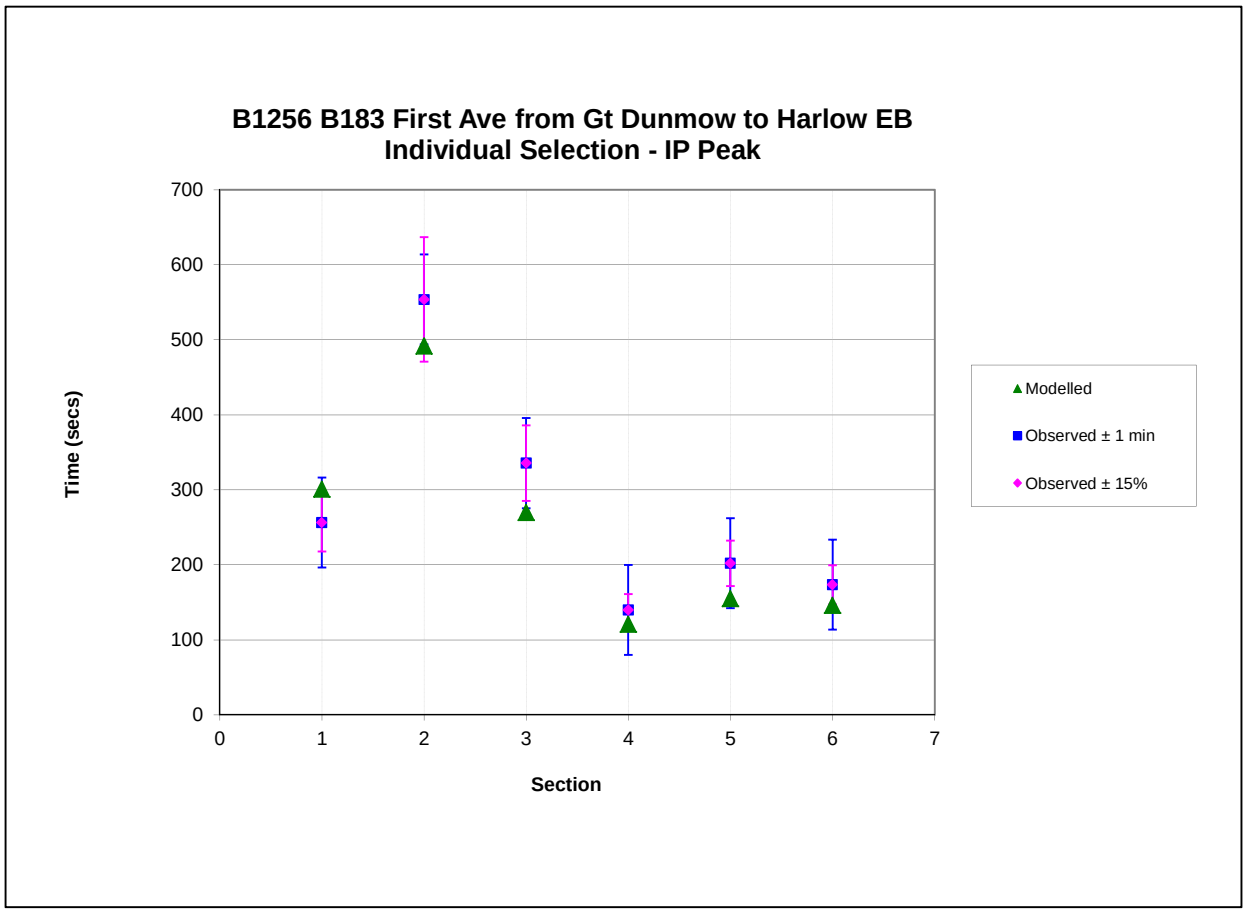

A1184 Bishop's Stortford South-West Bypass SB
Cumulative Selection - PM Peak
Time (secs)
350
300
250
200
150
100
50
0
1.5
4.6
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

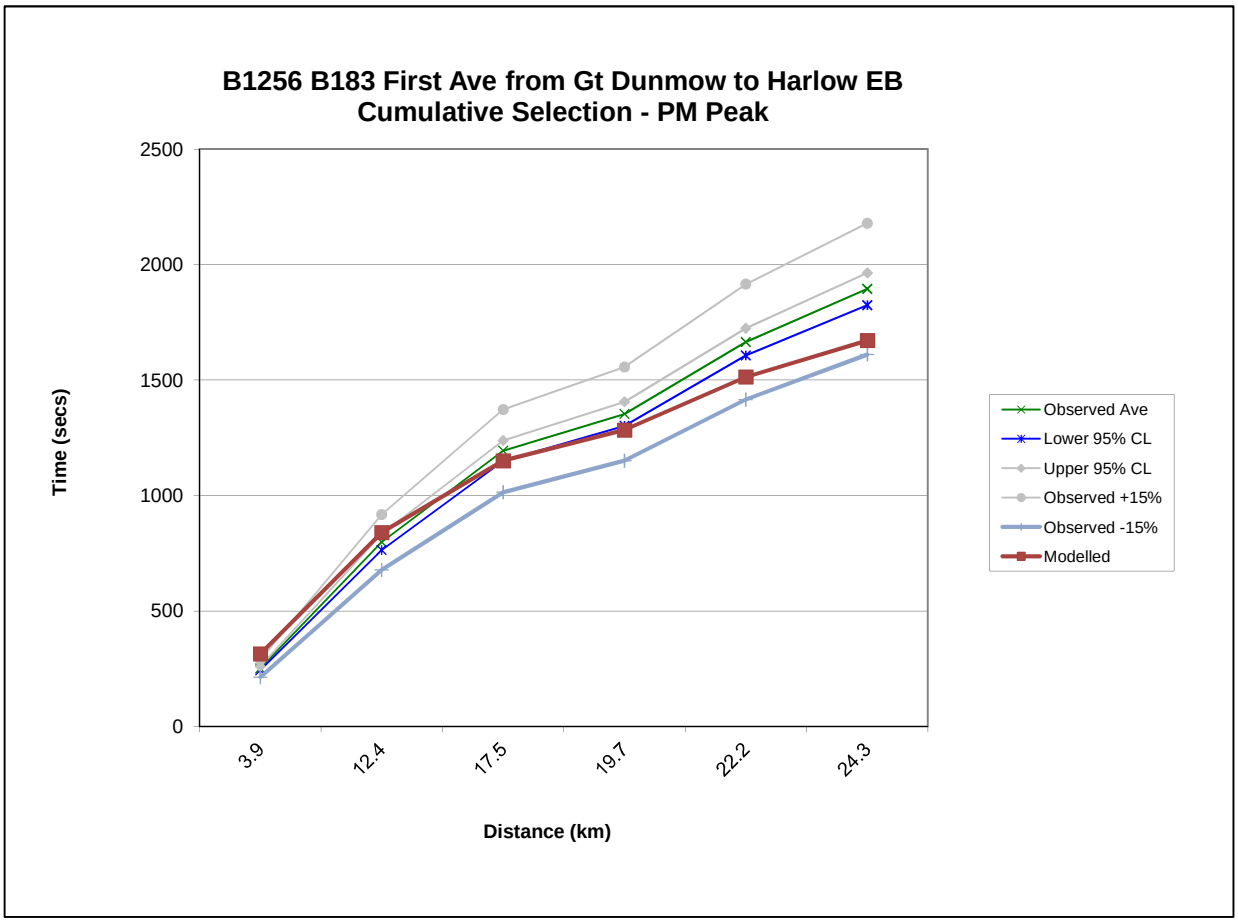

A1184 Bishop's Stortford South-West Bypass SB
Individual Selection - PM Peak
Time (secs)
250
200
150
100
50
0
0
1
2
3
Section
Modelled
Observed ± 1 min
Observed ± 15%

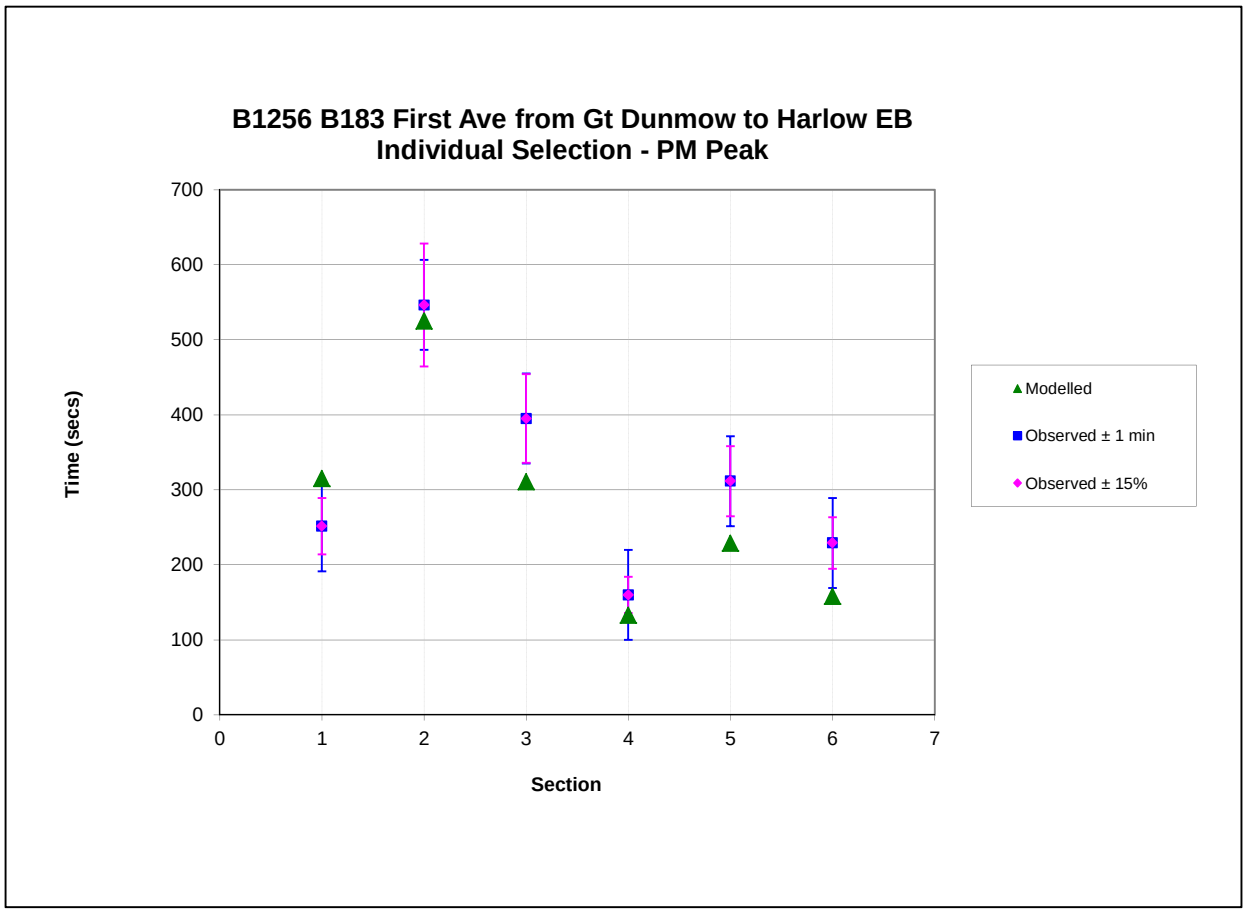

B1256 B183 First Ave from Gt Dunmow to Harlow EB
Cumulative Selection - AM Peak
Time (secs)
2500
2000
1500
1000
500
0
3.9
12.4
17.5
19.7
22.2
24.3
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

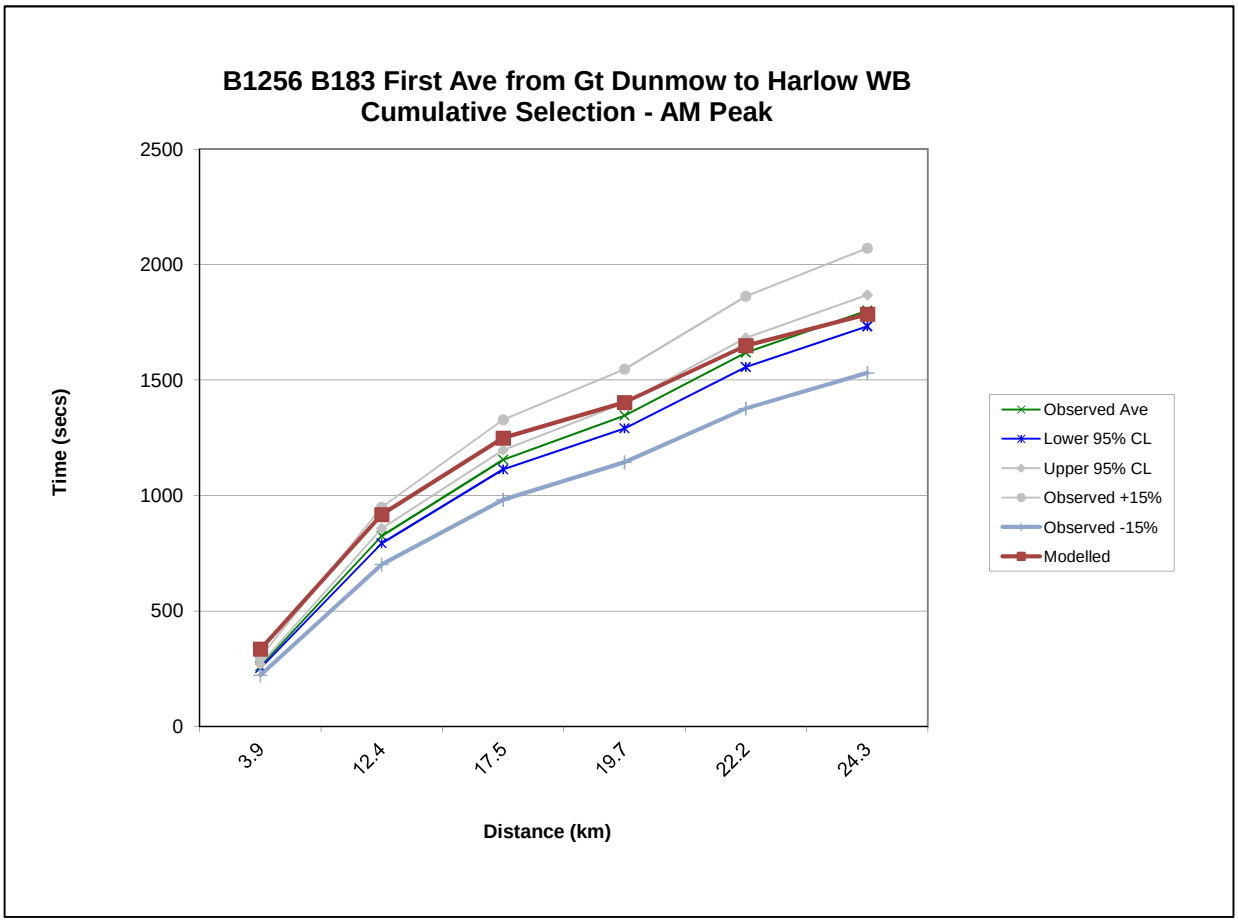

B1256 B183 First Ave from Gt Dunmow to Harlow EB
Individual Selection - AM Peak
Time (secs)
700
600
500
400
300
200
100
0
0
1
2
3
4
5
6
7
Section
Modelled
Observed ± 1 min
Observed ± 15%

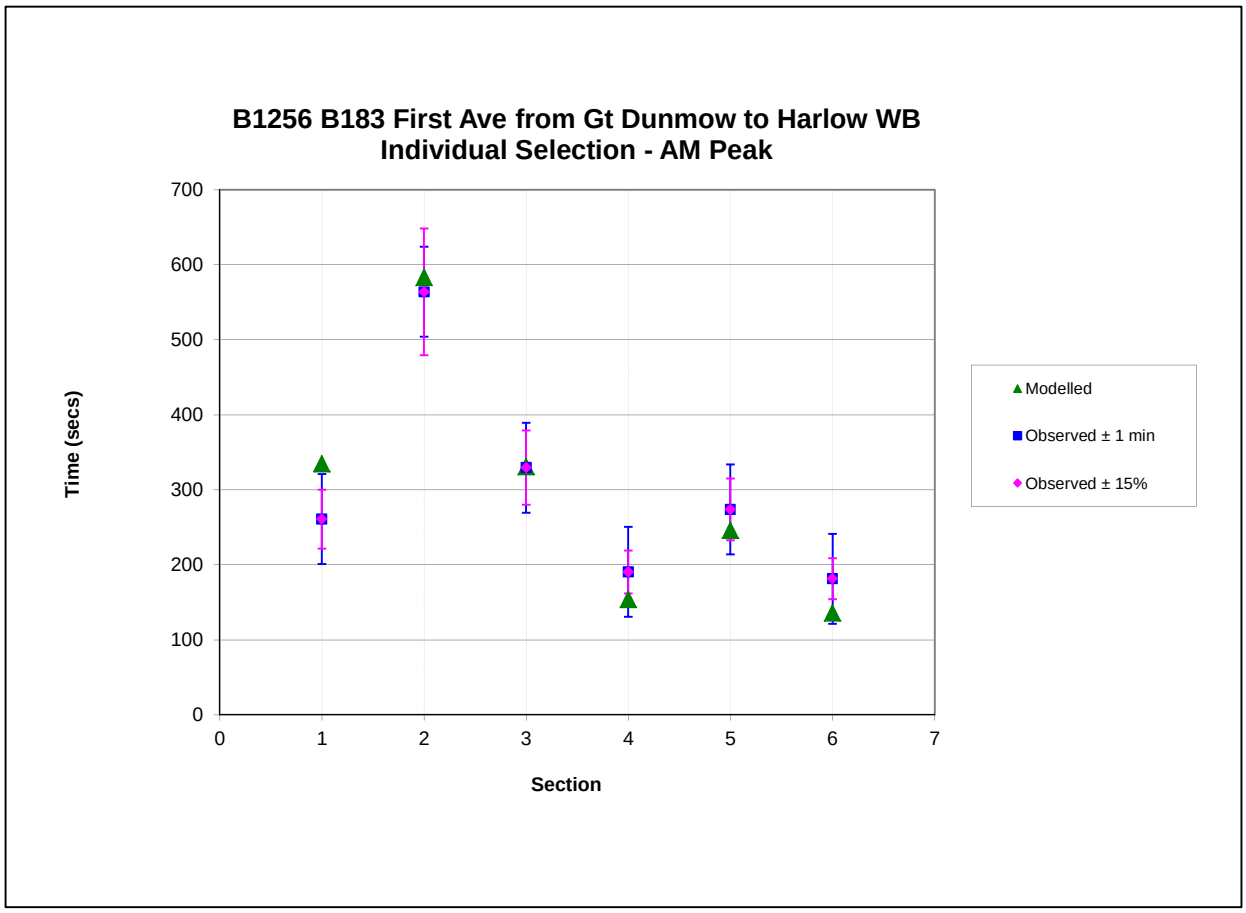

B1256 B183 First Ave from Gt Dunmow to Harlow EB
Cumulative Selection - IP Peak
Time (secs)
2500
2000
1500
1000
500
0
3.9
12.4
17.5
19.7
22.2
24.3
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

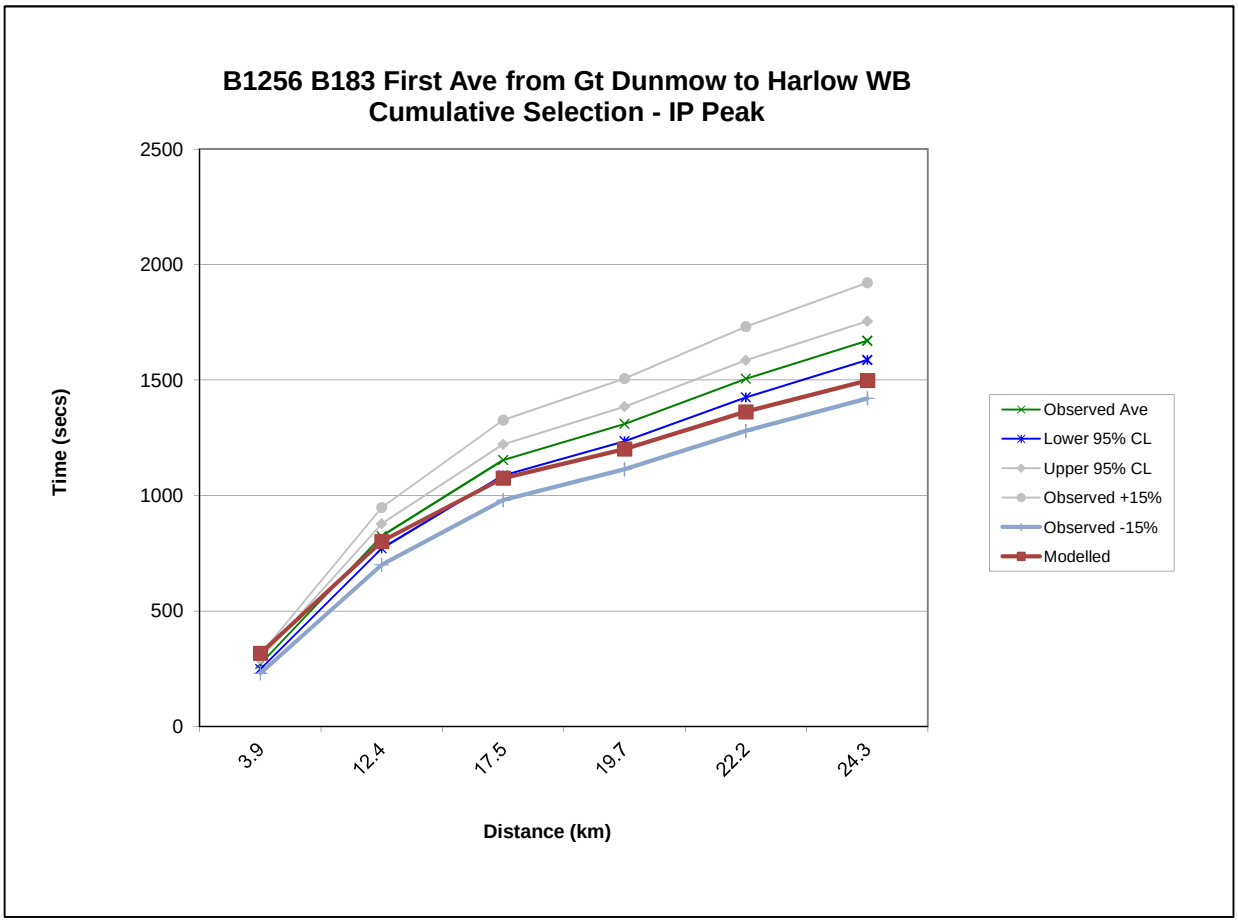

B1256 B183 First Ave from Gt Dunmow to Harlow EB
Individual Selection - IP Peak
Time (secs)
700
600
500
400
300
200
100
0
0
1
2
3
4
5
6
7
Section
Modelled
Observed ± 1 min
Observed ± 15%

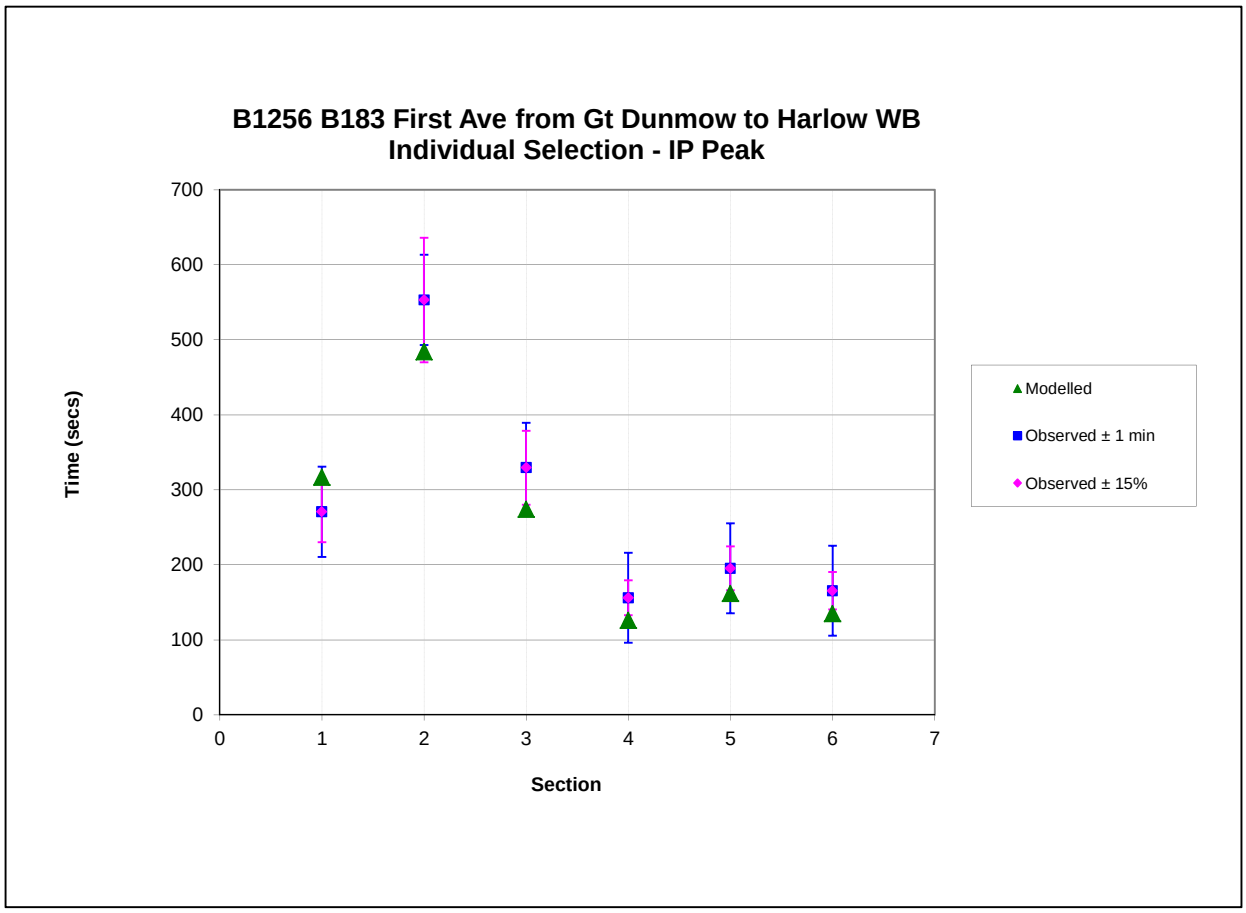

B1256 B183 First Ave from Gt Dunmow to Harlow EB
Cumulative Selection - PM Peak
Time (secs)
2500
2000
1500
1000
500
0
3.9
12.4
17.5
19.7
22.2
24.3
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

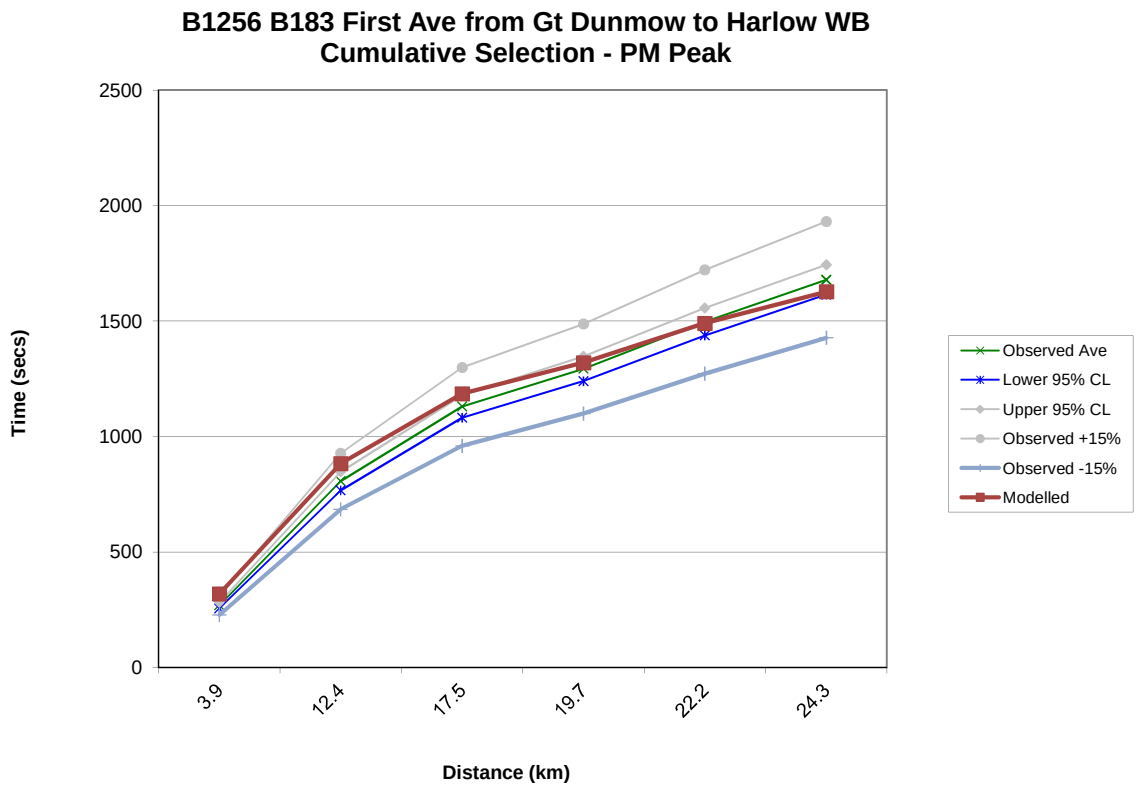

B1256 B183 First Ave from Gt Dunmow to Harlow EB
Individual Selection - PM Peak
Time (secs)
700
600
500
400
300
200
100
0
0
1
2
3
4
5
6
7
Section
Modelled
Observed ± 1 min
Observed ± 15%

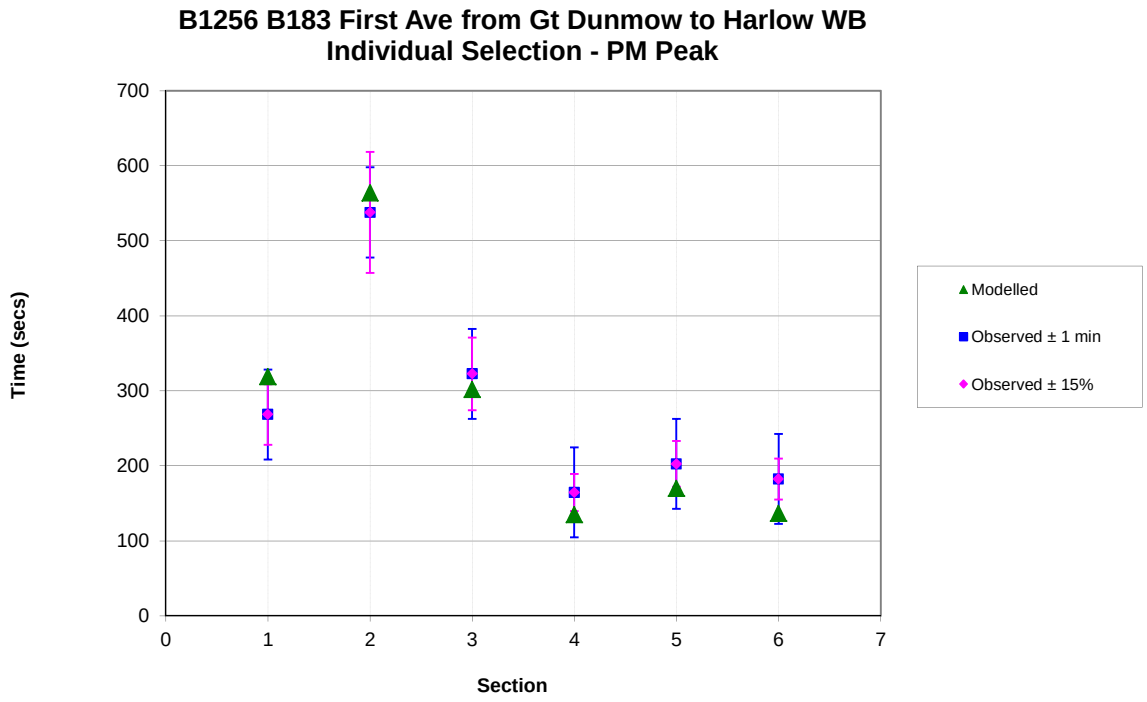

B1256 B183 First Ave from Gt Dunmow to Harlow WB
Cumulative Selection - AM Peak
Time (secs)
2500
2000
1500
1000
500
0
3.9
12.4
17.5
19.7
22.2
24.3
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

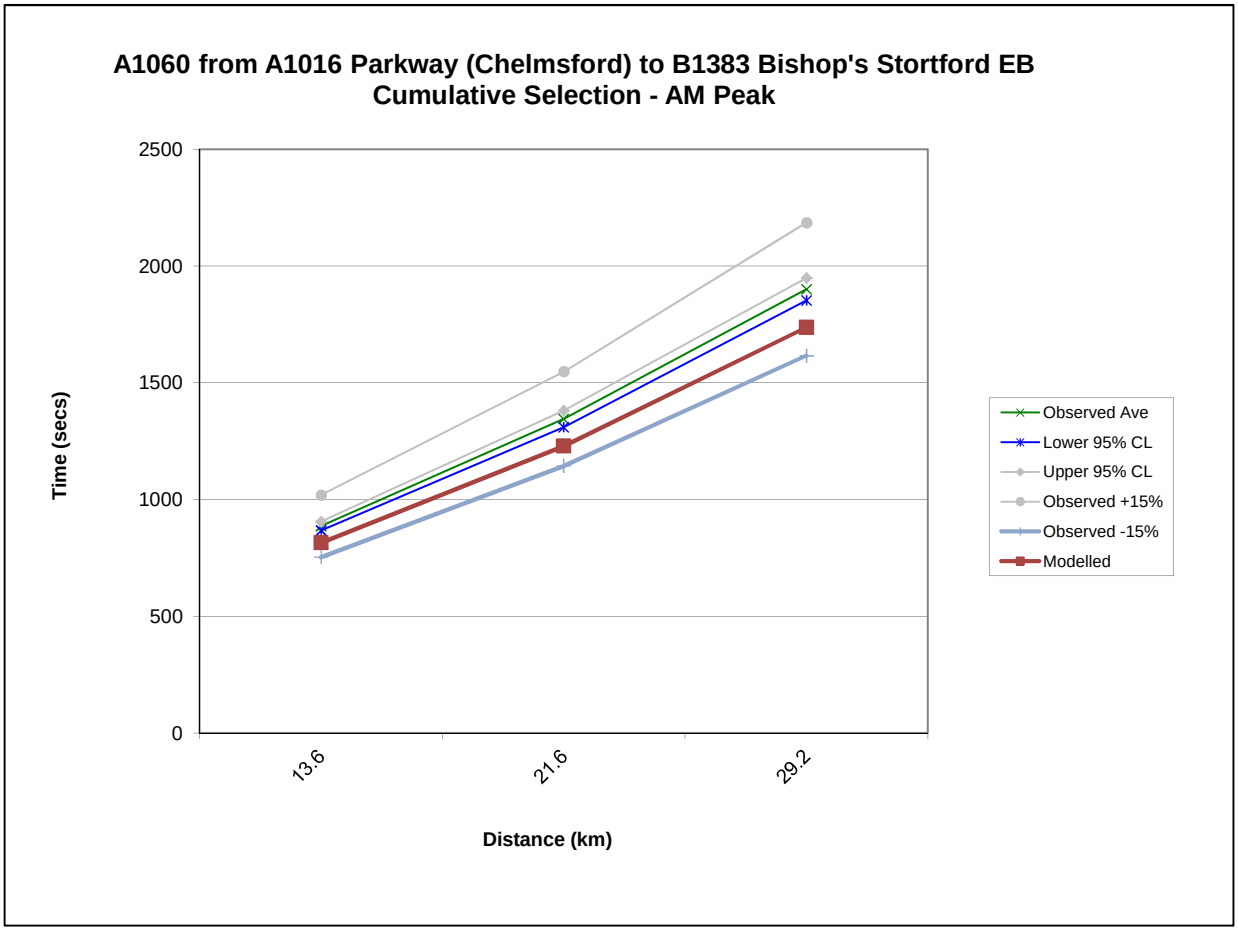

B1256 B183 First Ave from Gt Dunmow to Harlow WB
Individual Selection - AM Peak
Time (secs)
700
600
500
400
300
200
100
0
0
1
2
3
4
5
6
7
Section
Modelled
Observed ± 1 min
Observed ± 15%

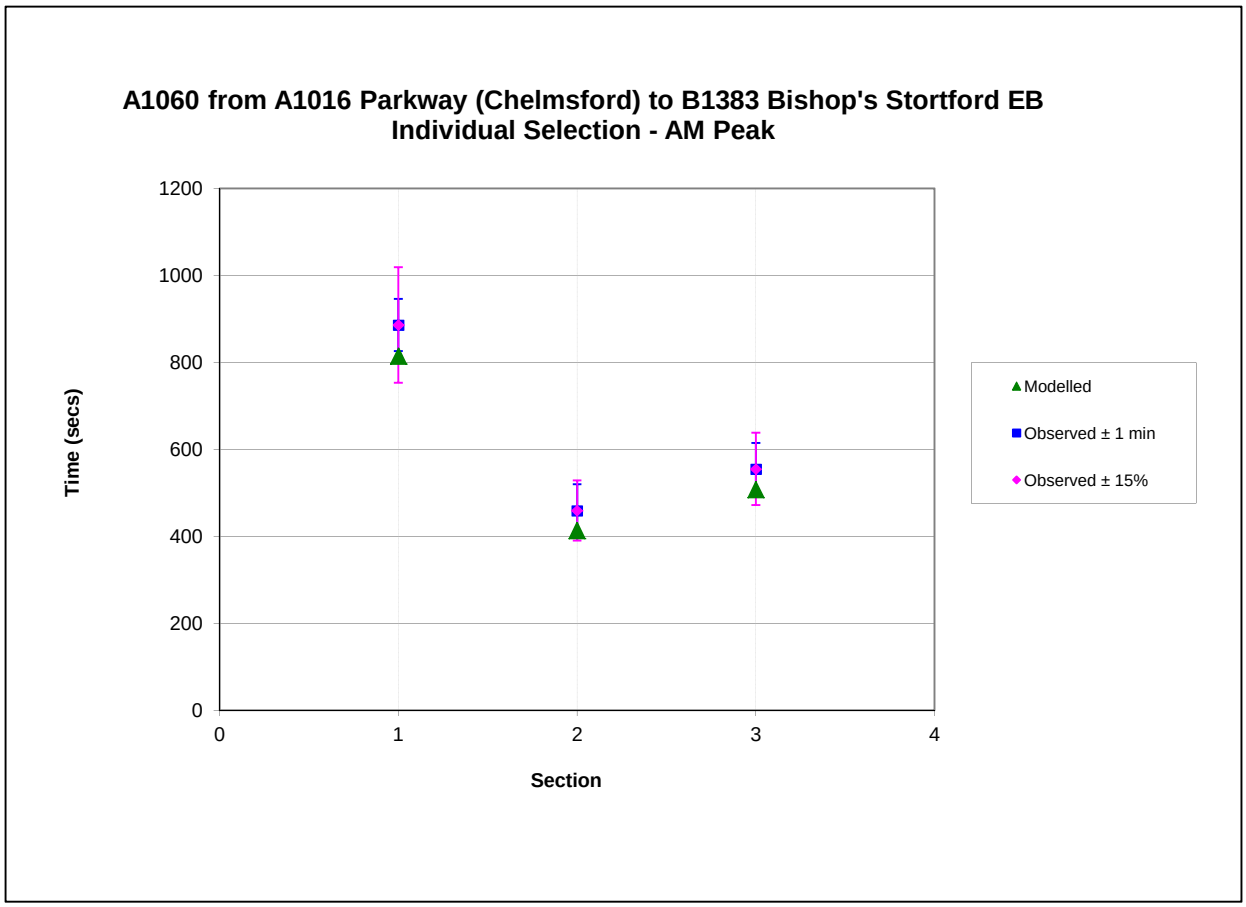

B1256 B183 First Ave from Gt Dunmow to Harlow WB
Cumulative Selection - IP Peak
Time (secs)
2500
2000
1500
1000
500
0
3.9
12.4
17.5
19.7
22.2
24.3
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

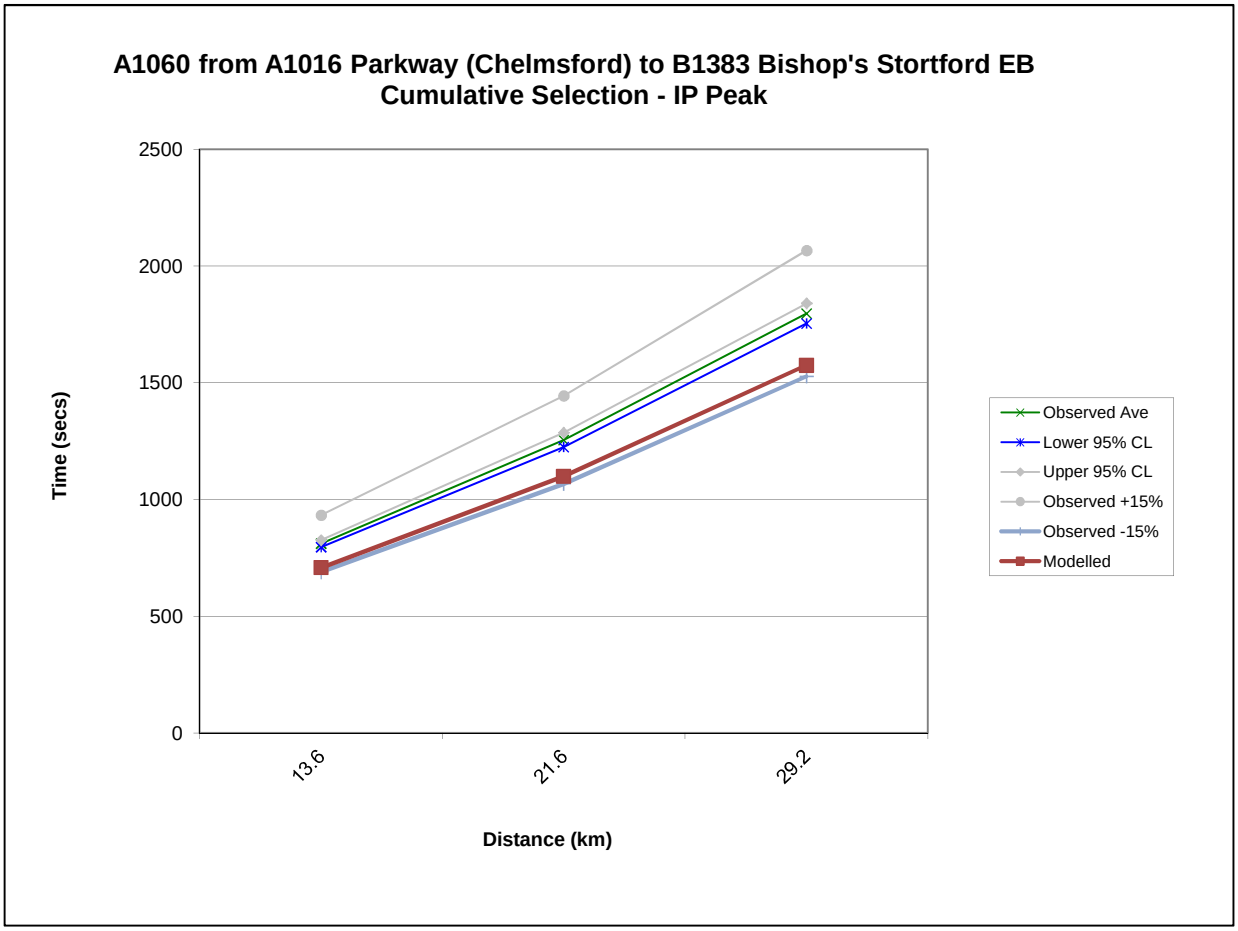

B1256 B183 First Ave from Gt Dunmow to Harlow WB
Individual Selection - IP Peak
Time (secs)
700
600
500
400
300
200
100
0
0
1
2
3
4
5
6
7
Section
Modelled
Observed ± 1 min
Observed ± 15%

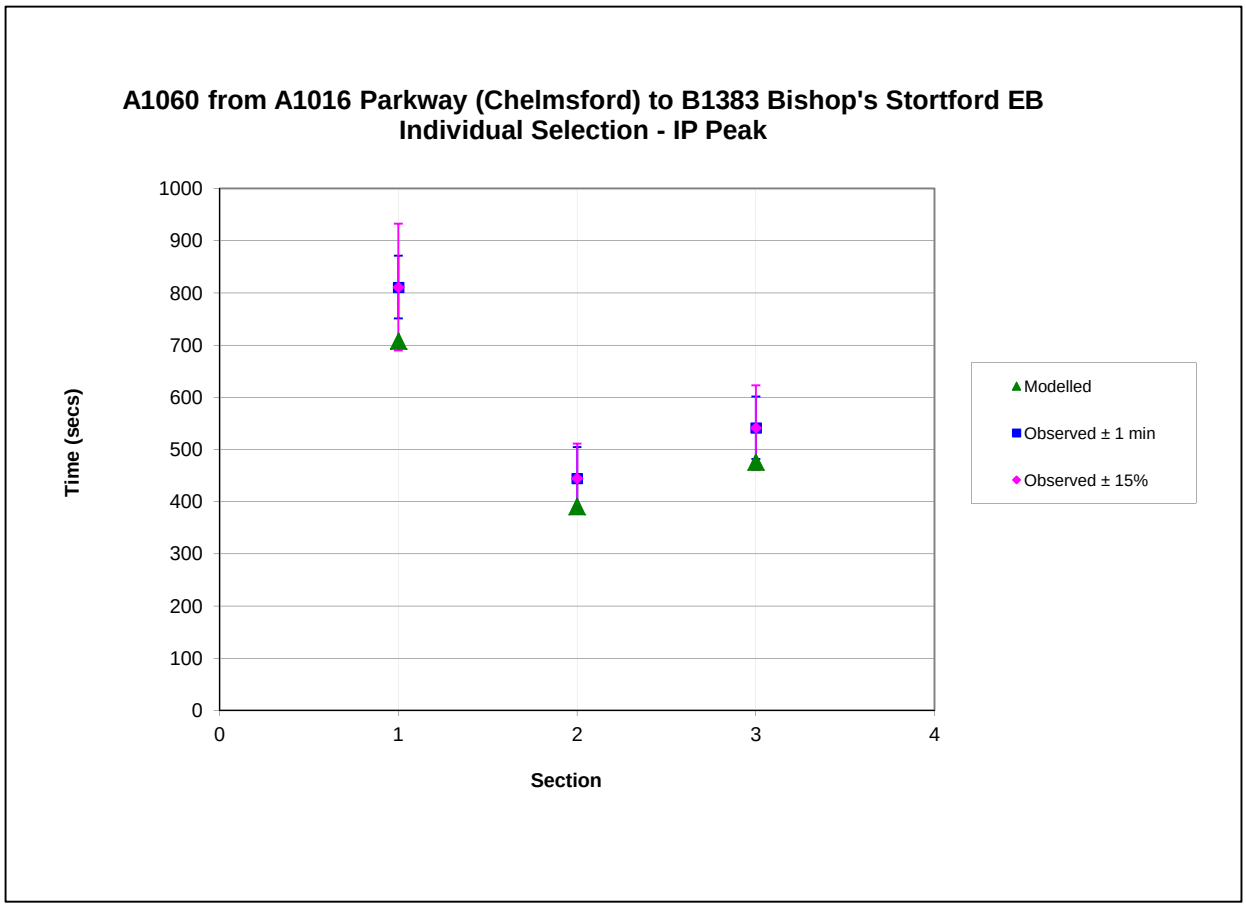

B1256 B183 First Ave from Gt Dunmow to Harlow WB
Cumulative Selection - PM Peak
Time (secs)
2500
2000
1500
1000
500
0
3.9
12.4
17.5
19.7
22.2
24.3
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

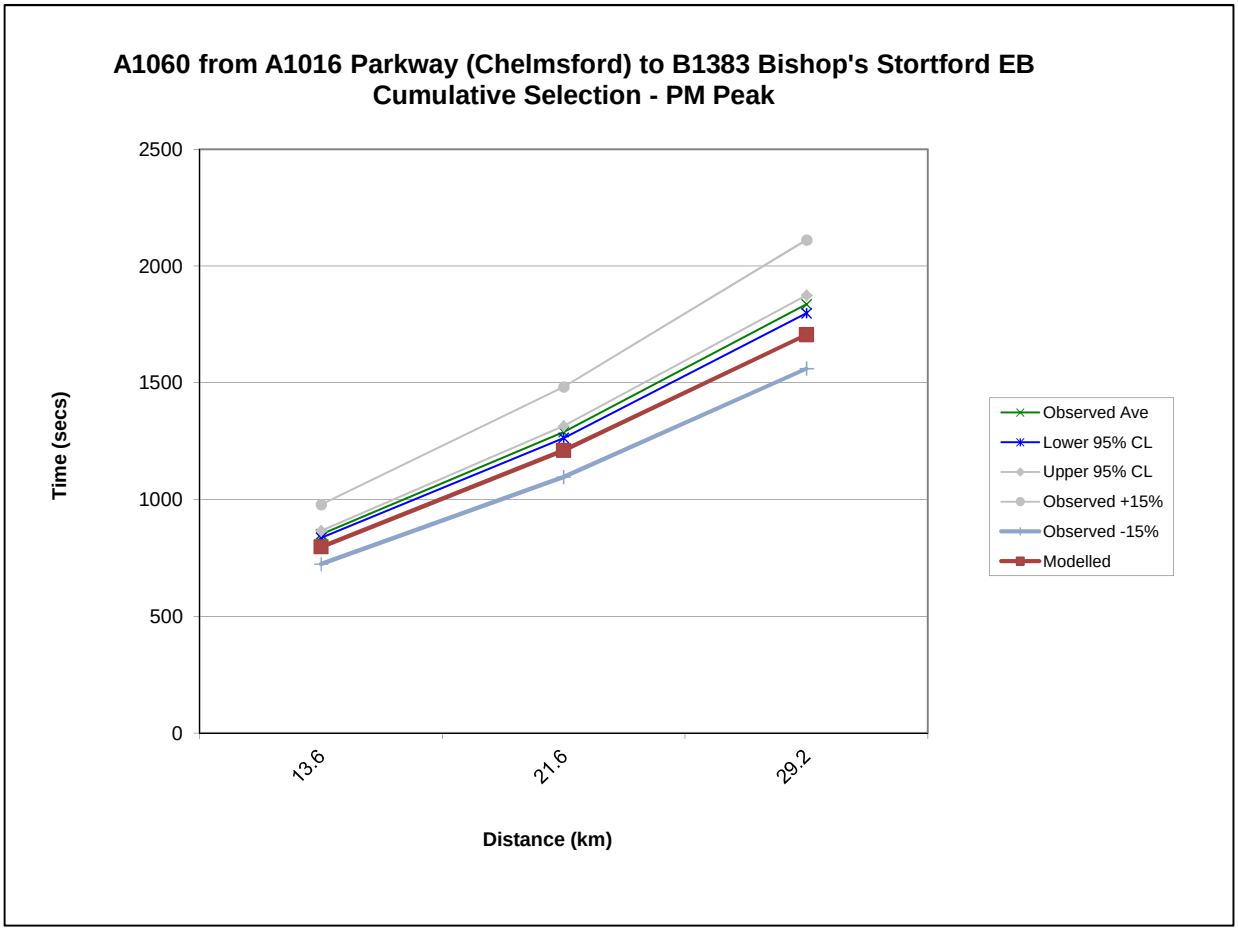

B1256 B183 First Ave from Gt Dunmow to Harlow WB
Individual Selection - PM Peak
Time (secs)
700
600
500
400
300
200
100
0
0
1
2
3
4
5
6
7
Section
Modelled
Observed ± 1 min
Observed ± 15%

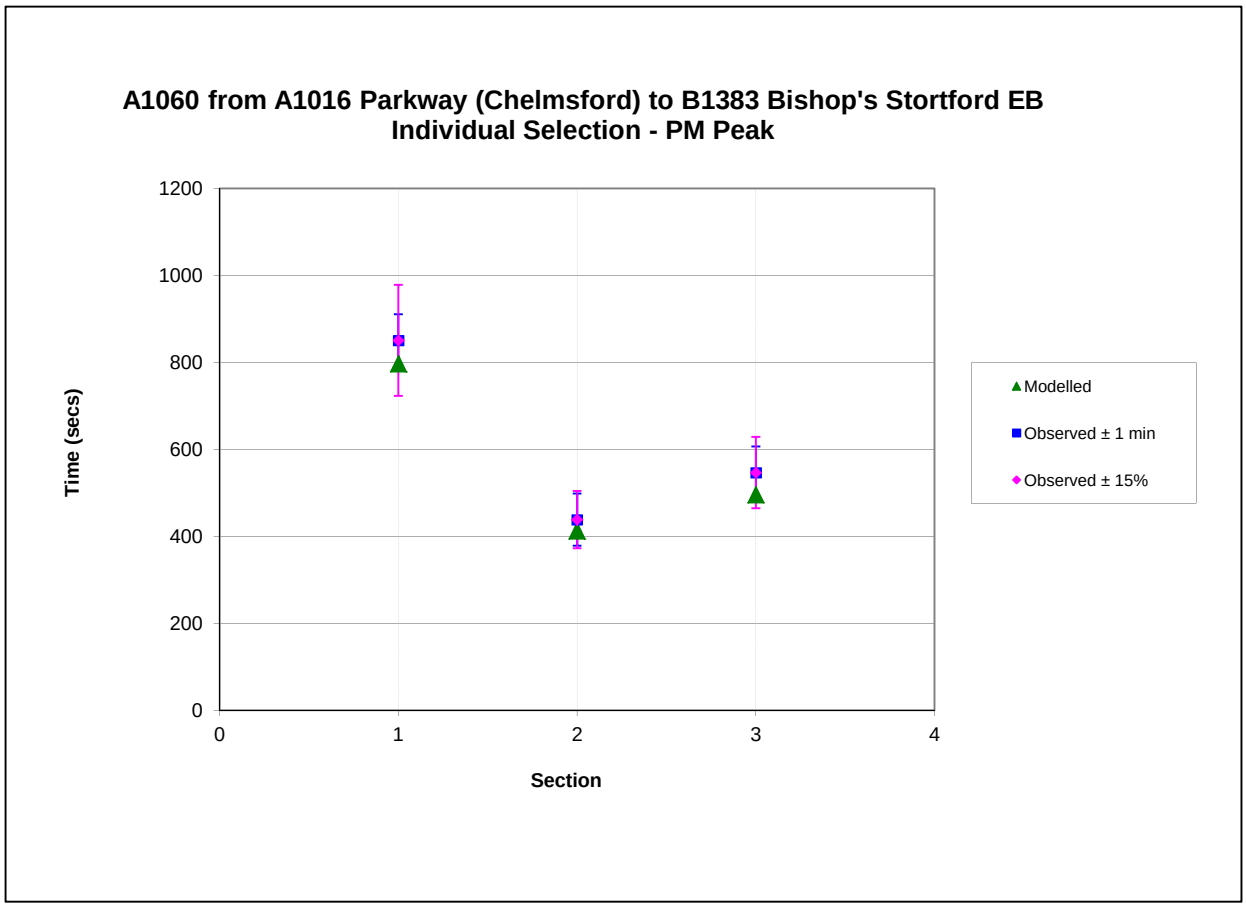

A1060 from A1016 Parkway (Chelmsford) to B1383 Bishop's Stortford EB
Cumulative Selection - AM Peak
Time (secs)
2500
2000
1500
1000
500
0
13.6
21.6
29.2
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

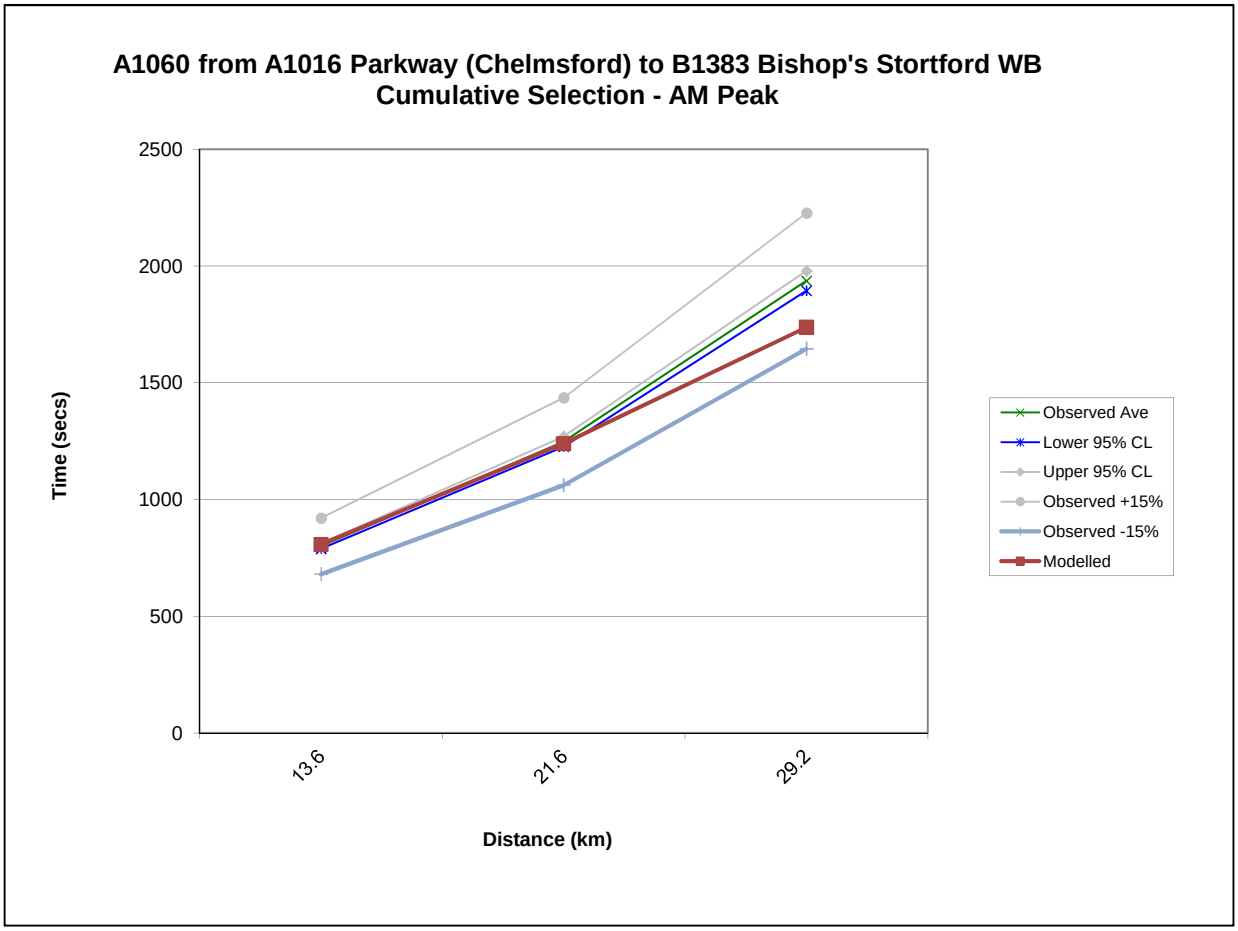

A1060 from A1016 Parkway (Chelmsford) to B1383 Bishop's Stortford EB
Individual Selection - AM Peak
Time (secs)
1200
1000
800
600
400
200
0
0
1
2
3
4
Section
Modelled
Observed ± 1 min
Observed ± 15%

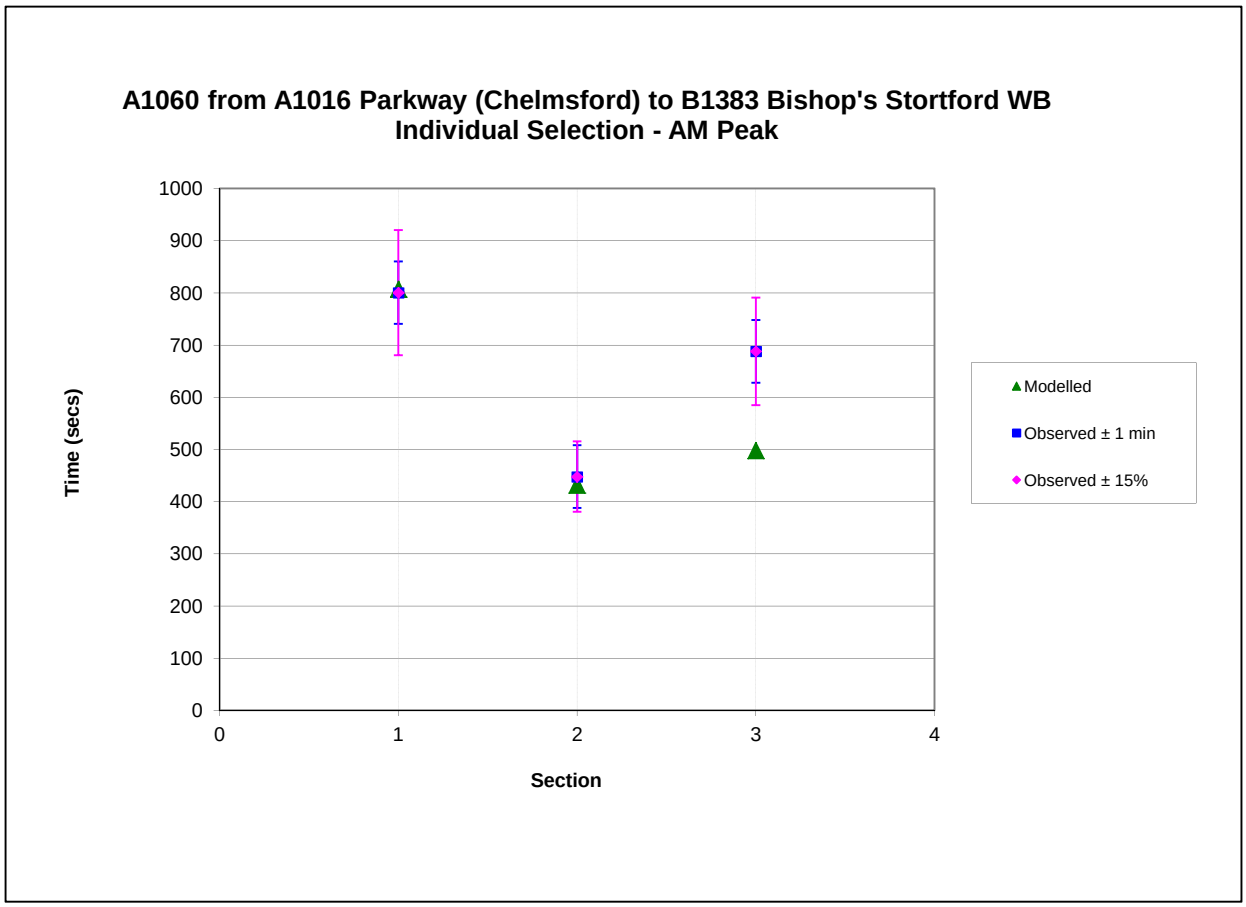

A1060 from A1016 Parkway (Chelmsford) to B1383 Bishop's Stortford EB
Cumulative Selection - IP Peak
Time (secs)
2500
2000
1500
1000
500
0
13.6
21.6
29.2
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

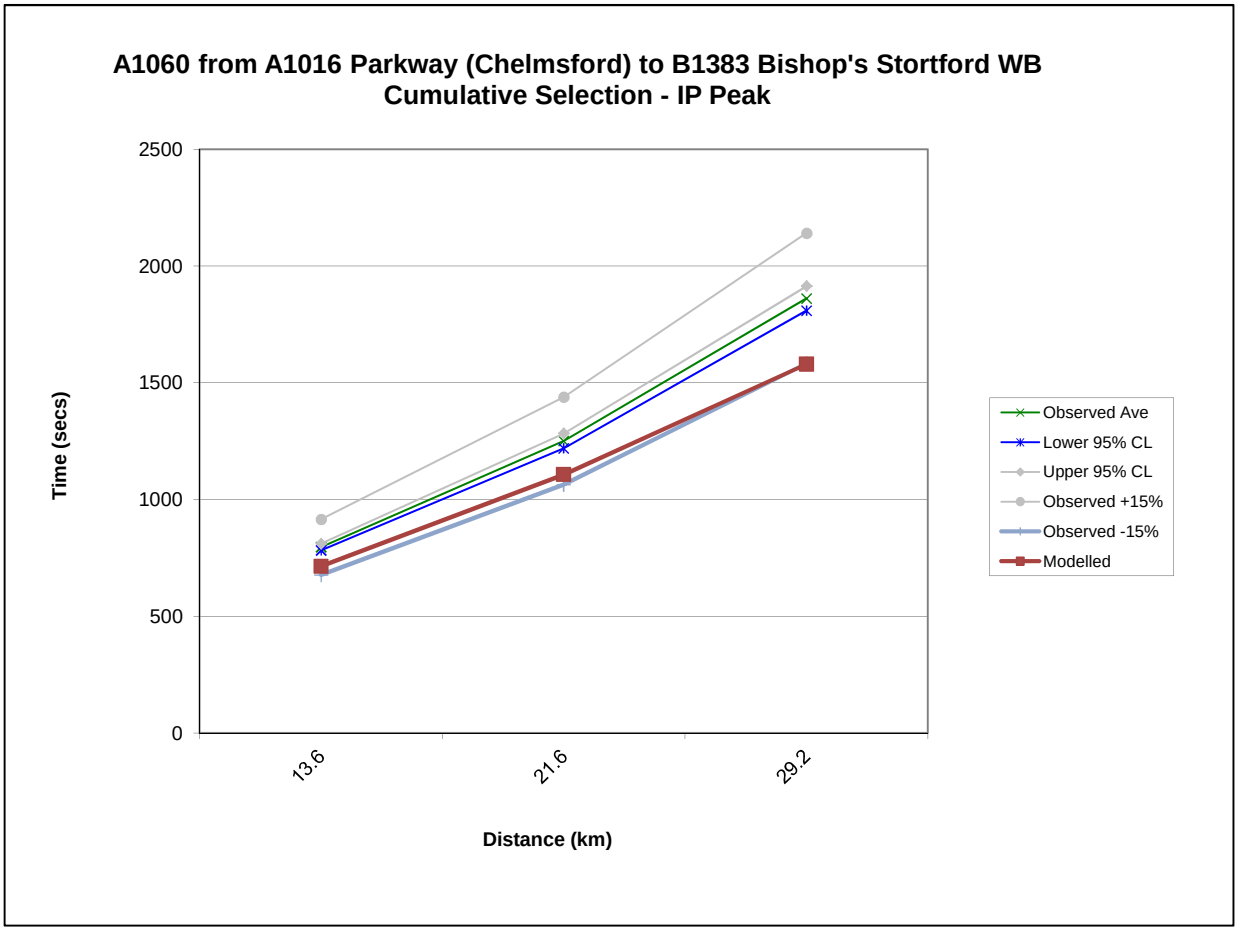

A1060 from A1016 Parkway (Chelmsford) to B1383 Bishop's Stortford EB
Individual Selection - IP Peak
Time (secs)
1000
900
800
700
600
500
400
300
200
100
0
0
1
2
3
4
Section
Modelled
Observed ± 1 min
Observed ± 15%

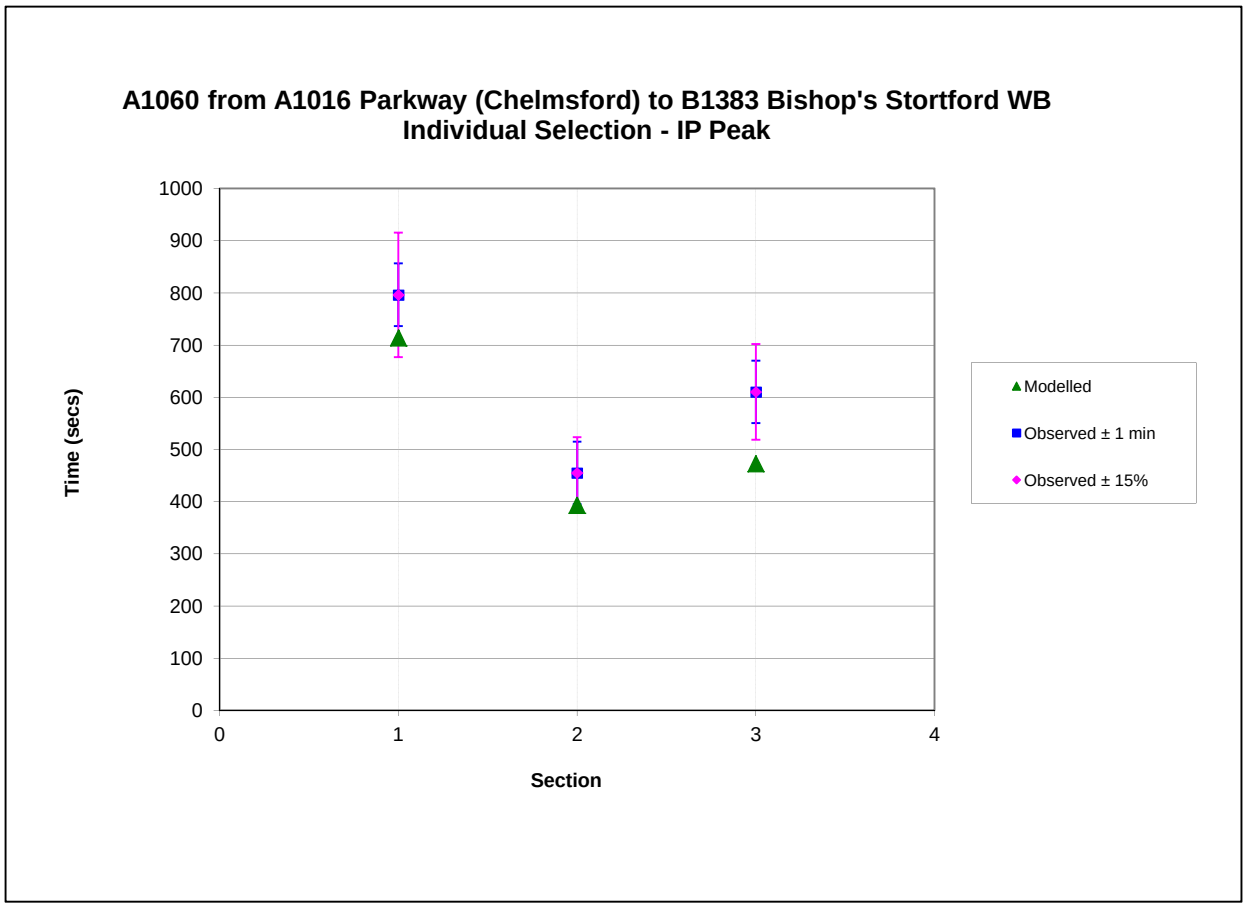

A1060 from A1016 Parkway (Chelmsford) to B1383 Bishop's Stortford EB
Cumulative Selection - PM Peak
Time (secs)
2500
2000
1500
1000
500
0
13.6
21.6
29.2
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

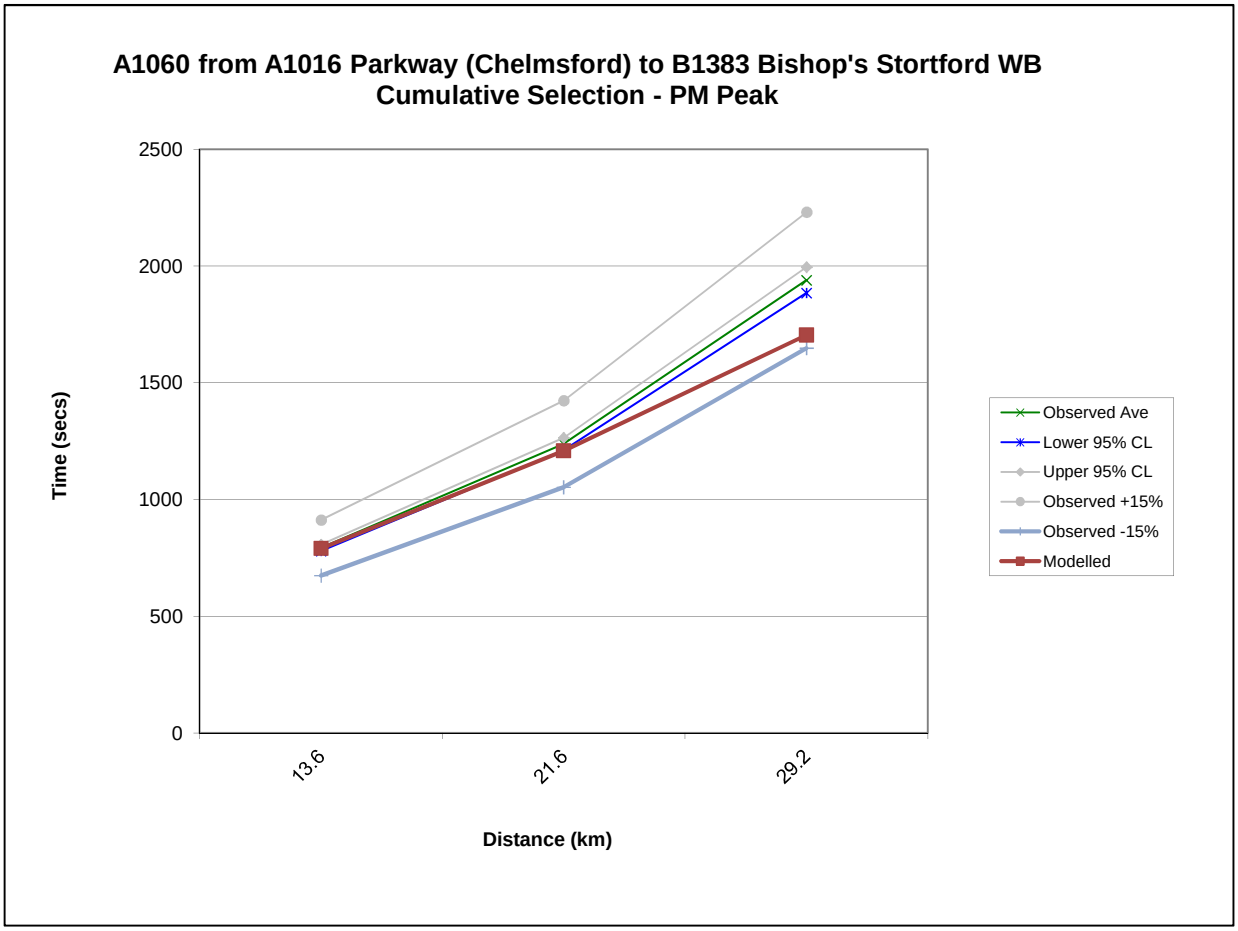

A1060 from A1016 Parkway (Chelmsford) to B1383 Bishop's Stortford EB
Individual Selection - PM Peak
Time (secs)
1200
1000
800
600
400
200
0
0
1
2
3
4
Section
Modelled
Observed ± 1 min
Observed ± 15%

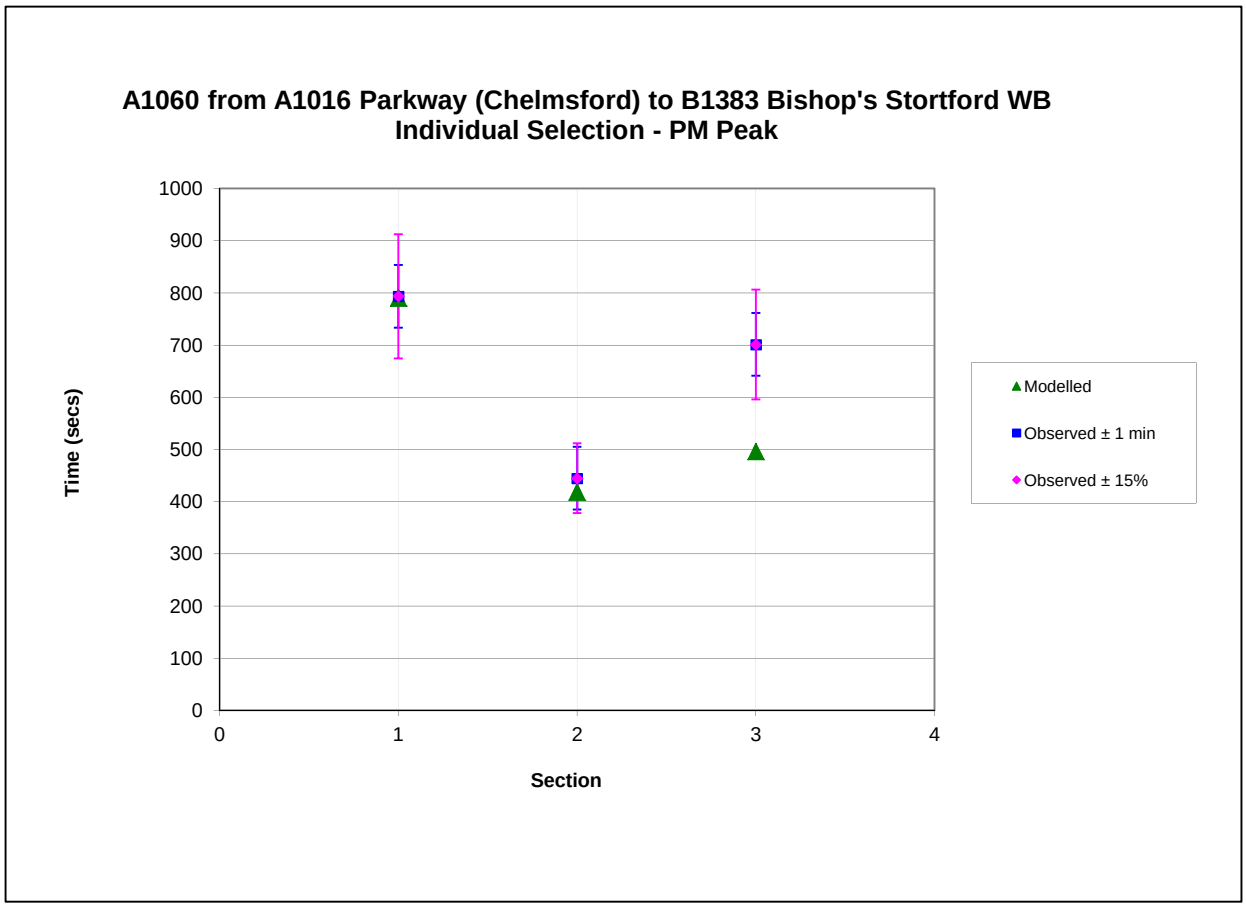

A1060 from A1016 Parkway (Chelmsford) to B1383 Bishop's Stortford WB
Cumulative Selection - AM Peak
Time (secs)
2500
2000
1500
1000
500
0
13.6
21.6
29.2
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

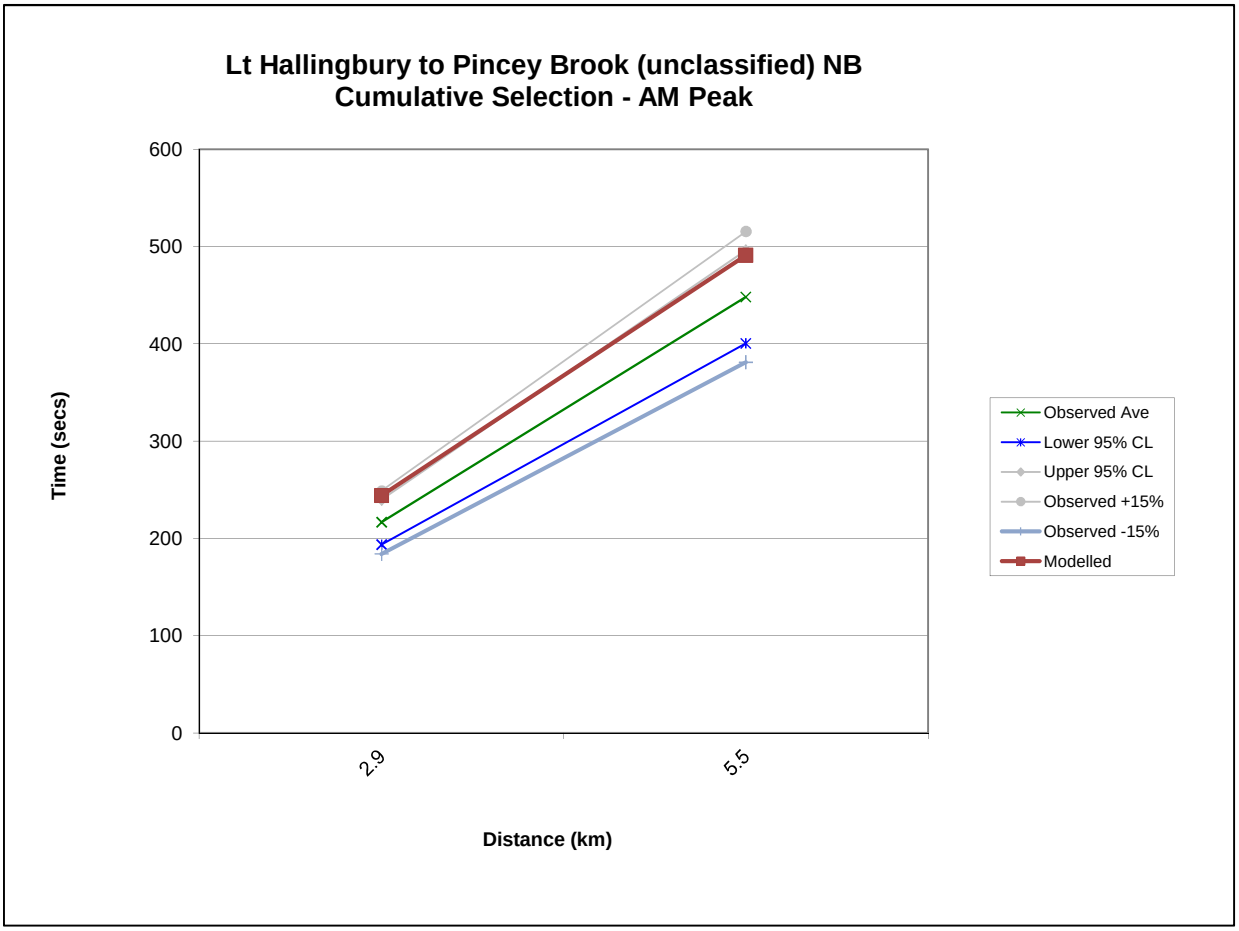

A1060 from A1016 Parkway (Chelmsford) to B1383 Bishop's Stortford WB
Individual Selection - AM Peak
Time (secs)
1000
900
800
700
600
500
400
300
200
100
0
0
1
2
3
4
Section
Modelled
Observed ± 1 min
Observed ± 15%

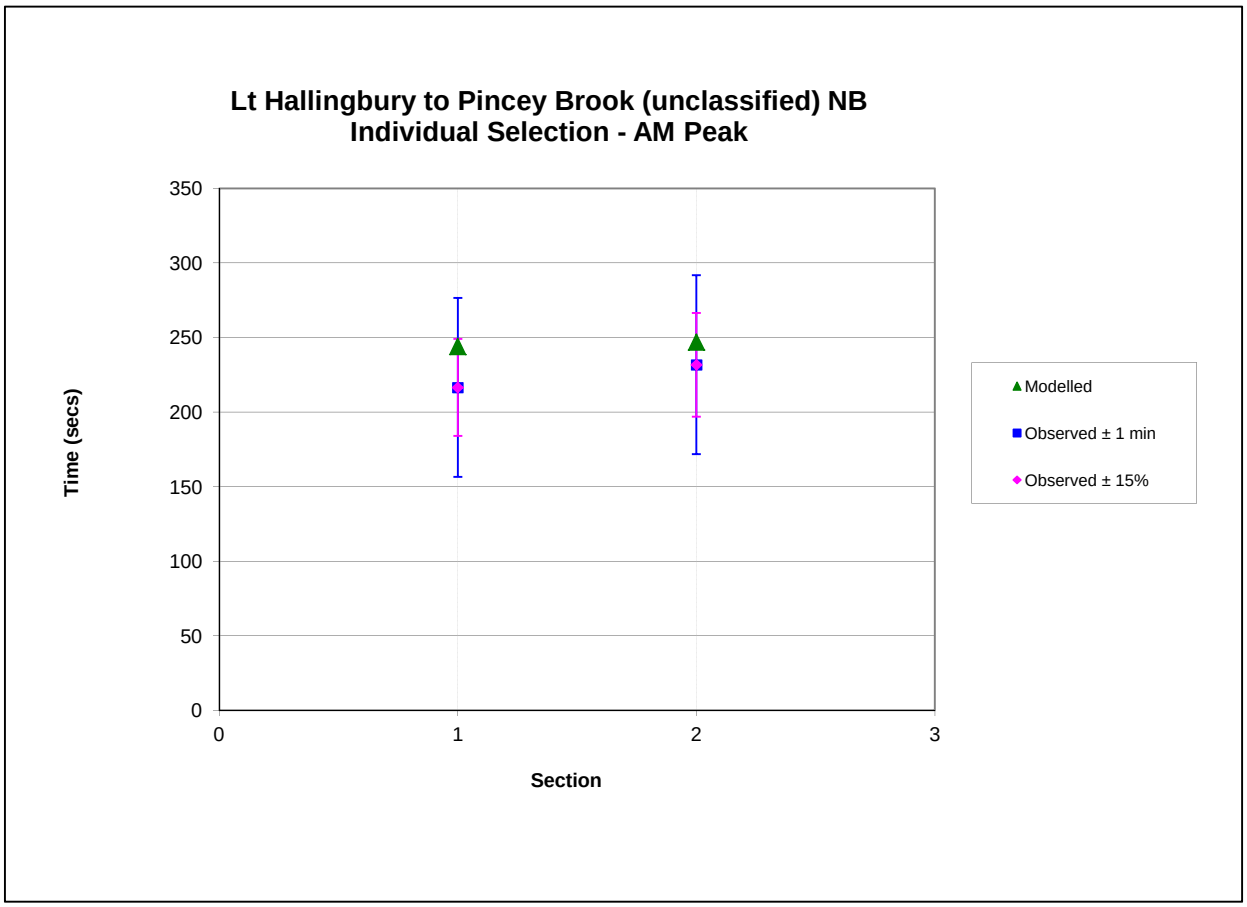

A1060 from A1016 Parkway (Chelmsford) to B1383 Bishop's Stortford WB
Cumulative Selection - IP Peak
Time (secs)
2500
2000
1500
1000
500
0
13.6
21.6
29.2
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

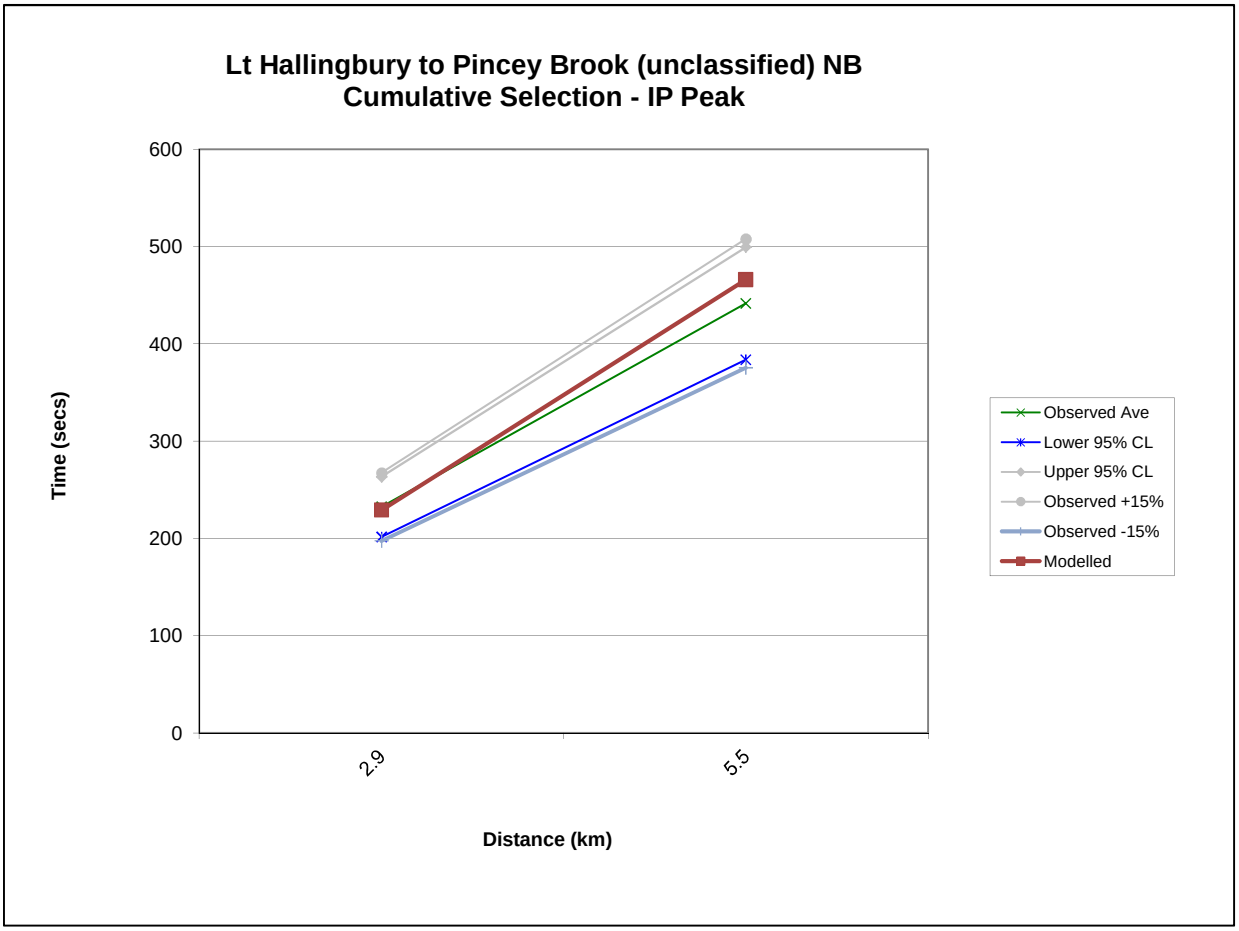

A1060 from A1016 Parkway (Chelmsford) to B1383 Bishop's Stortford WB
Individual Selection - IP Peak
Time (secs)
1000
900
800
700
600
500
400
300
200
100
0
0
1
2
3
4
Section
Modelled
Observed ± 1 min
Observed ± 15%

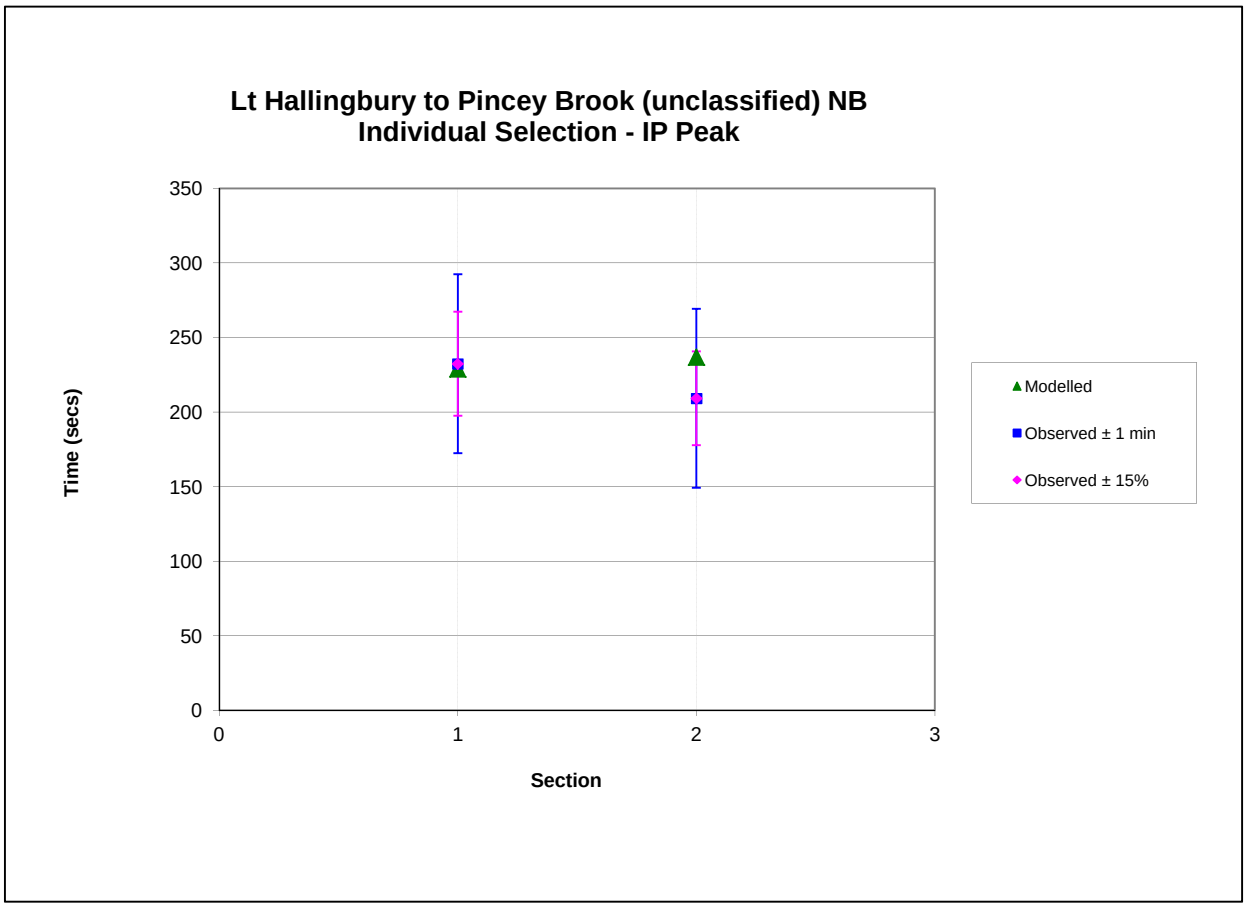

A1060 from A1016 Parkway (Chelmsford) to B1383 Bishop's Stortford WB
Cumulative Selection - PM Peak
Time (secs)
2500
2000
1500
1000
500
0
13.6
21.6
29.2
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

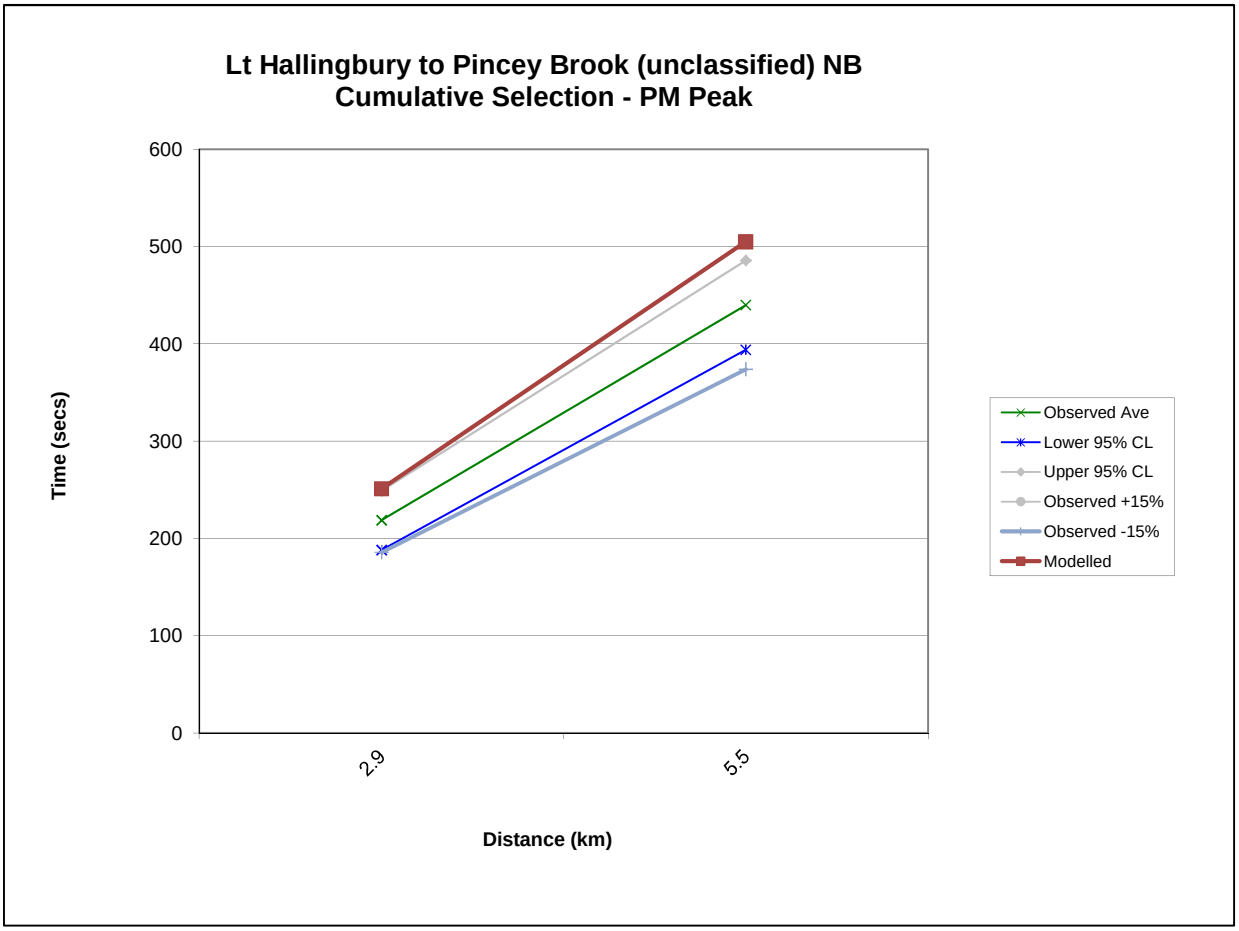

A1060 from A1016 Parkway (Chelmsford) to B1383 Bishop's Stortford WB
Individual Selection - PM Peak
Time (secs)
1000
900
800
700
600
500
400
300
200
100
0
0
1
2
3
4
Section
Modelled
Observed ± 1 min
Observed ± 15%

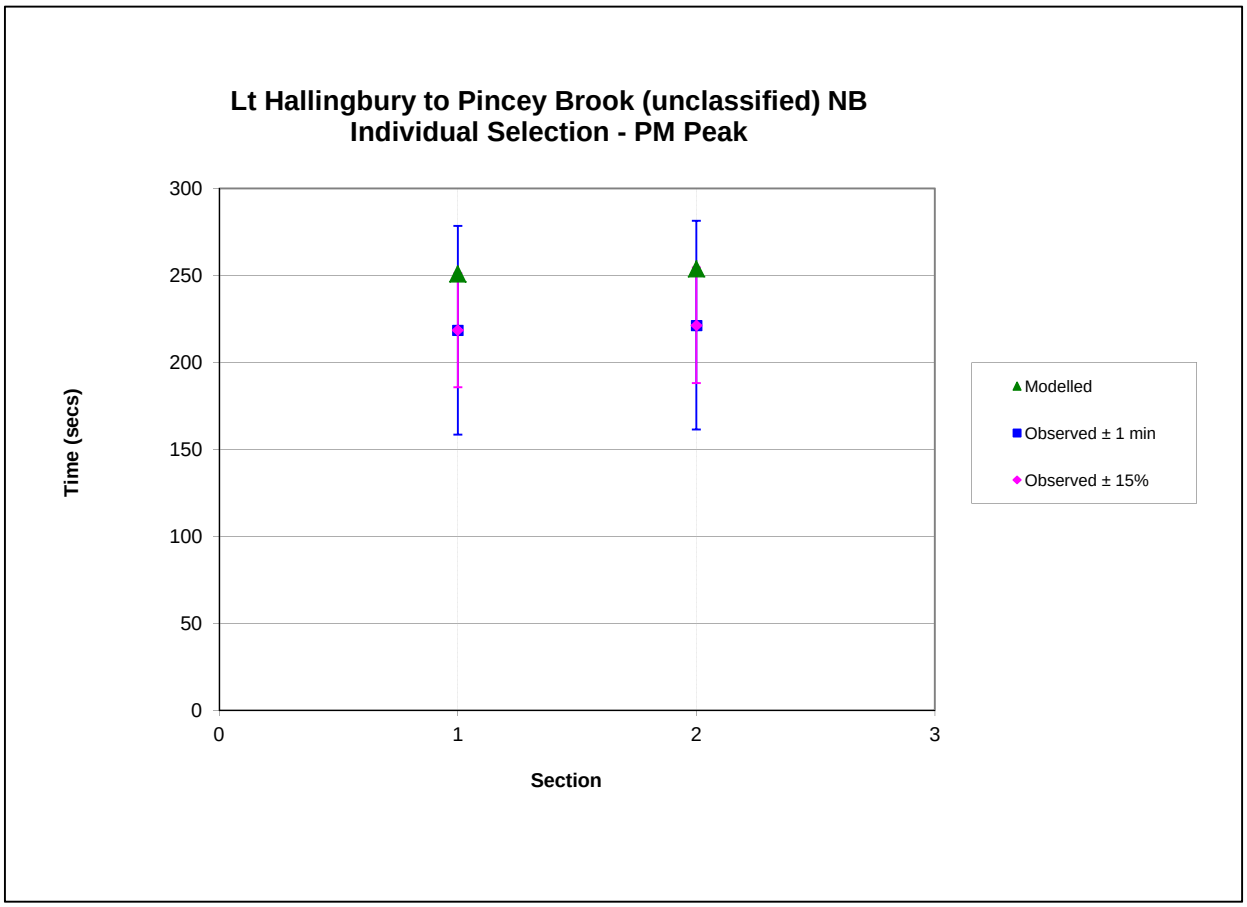

Lt Hallingbury to Pincey Brook (unclassified) NB
Cumulative Selection - AM Peak
Time (secs)
600
500
400
300
200
100
0
2.9
5.5
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

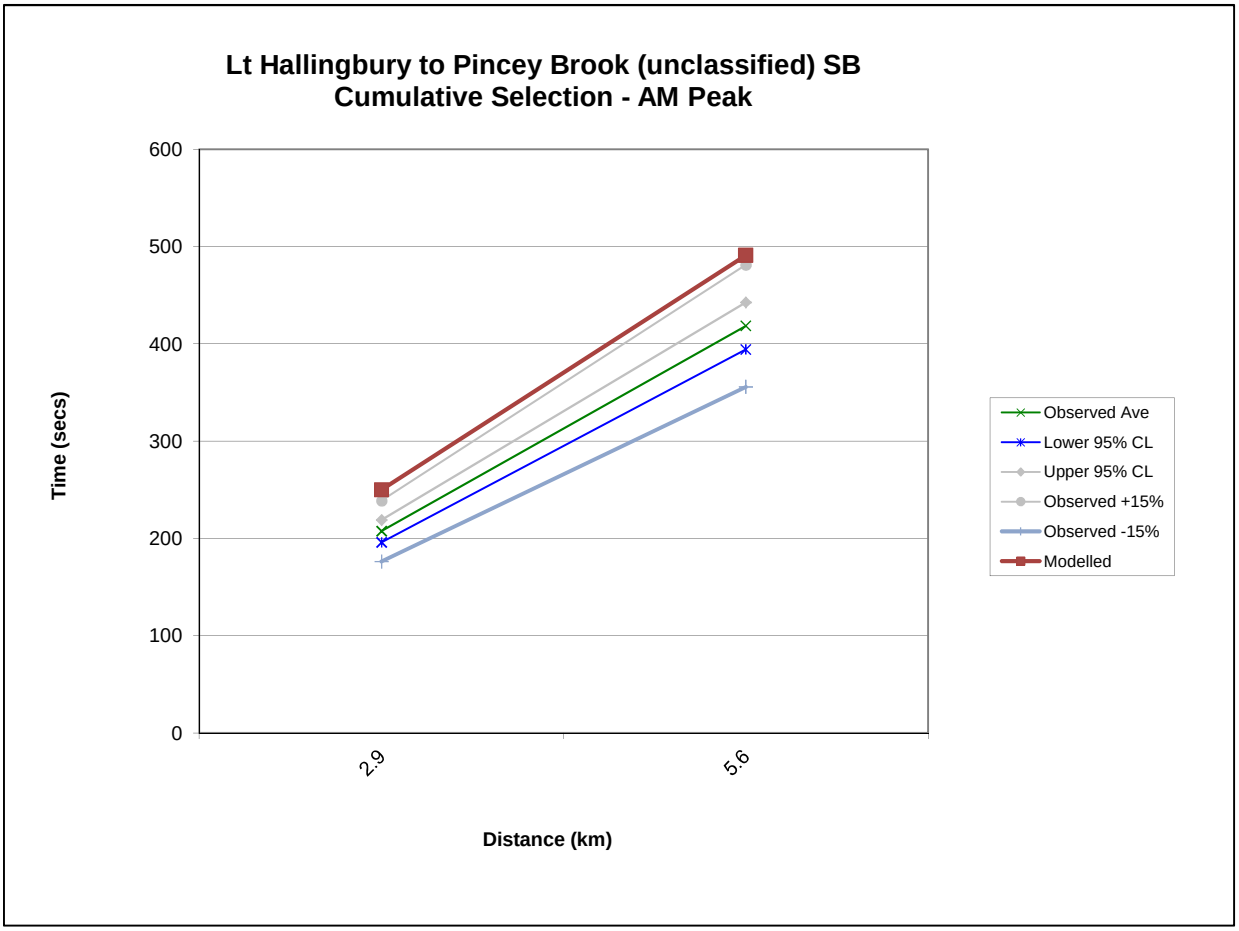

Lt Hallingbury to Pincey Brook (unclassified) NB
Individual Selection - AM Peak
Time (secs)
350
300
250
200
150
100
50
0
0
1
2
3
Section
Modelled
Observed ± 1 min
Observed ± 15%

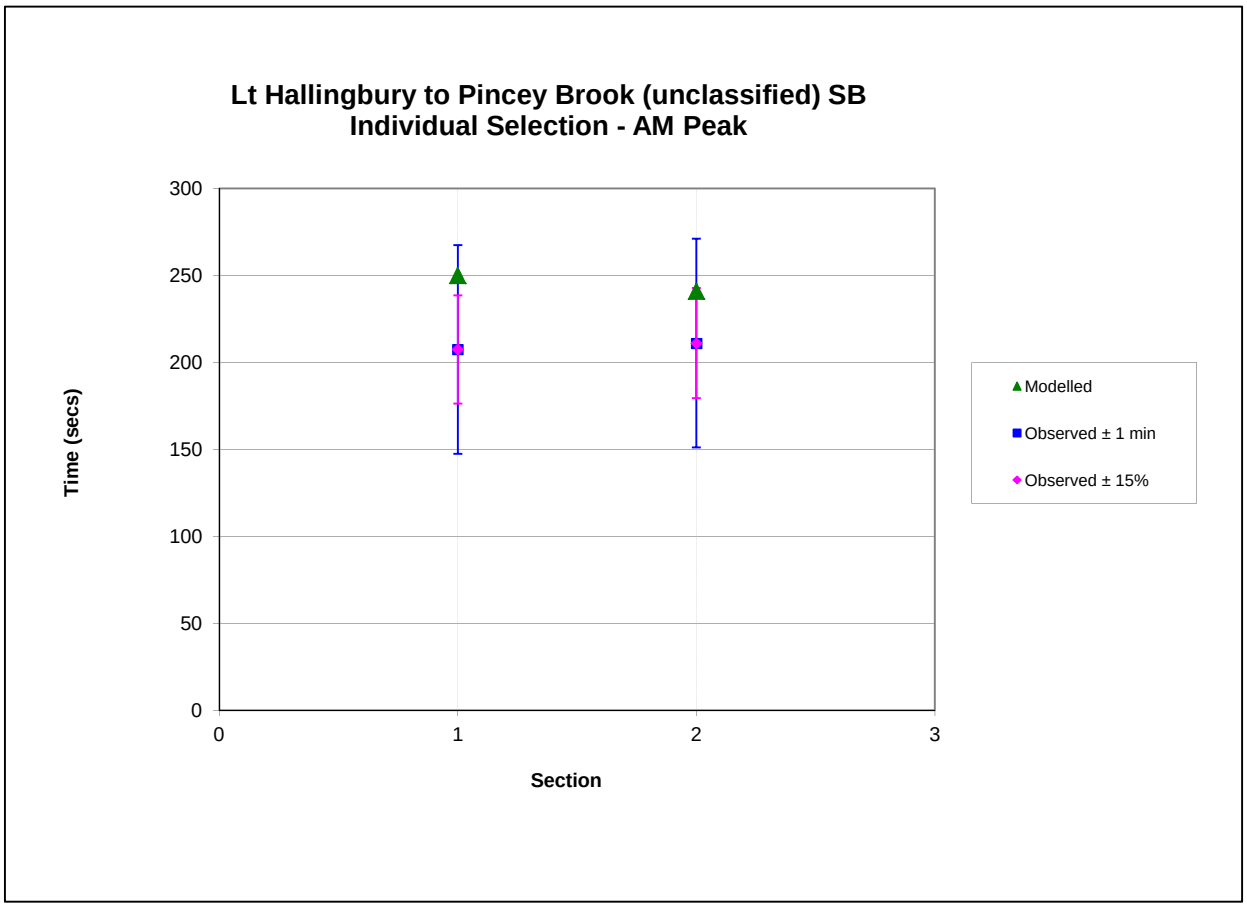

Lt Hallingbury to Pincey Brook (unclassified) NB
Cumulative Selection - IP Peak
Time (secs)
600
500
400
300
200
100
0
2.9
5.5
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

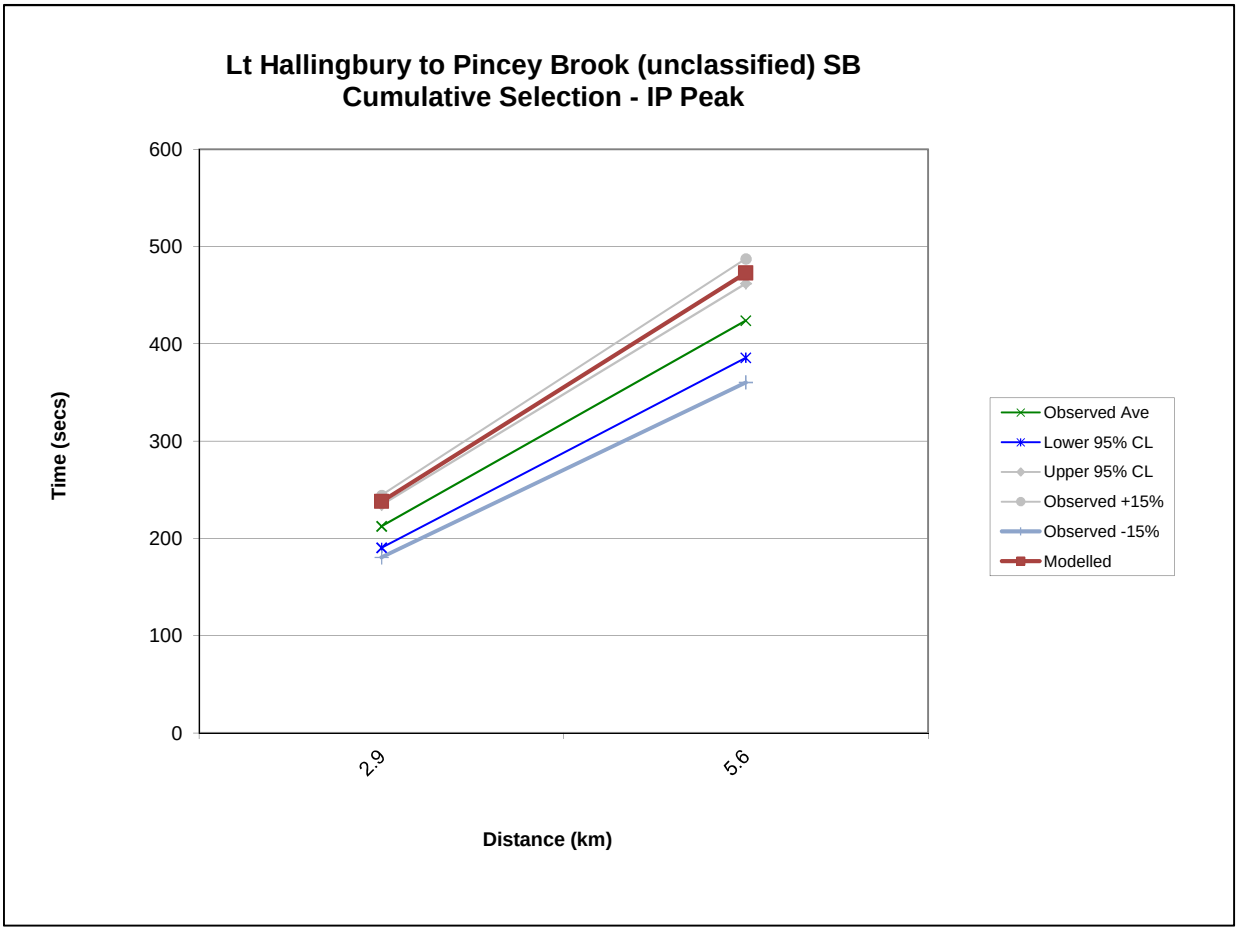

Lt Hallingbury to Pincey Brook (unclassified) NB
Individual Selection - IP Peak
Time (secs)
350
300
250
200
150
100
50
0
0
1
2
3
Section
Modelled
Observed ± 1 min
Observed ± 15%

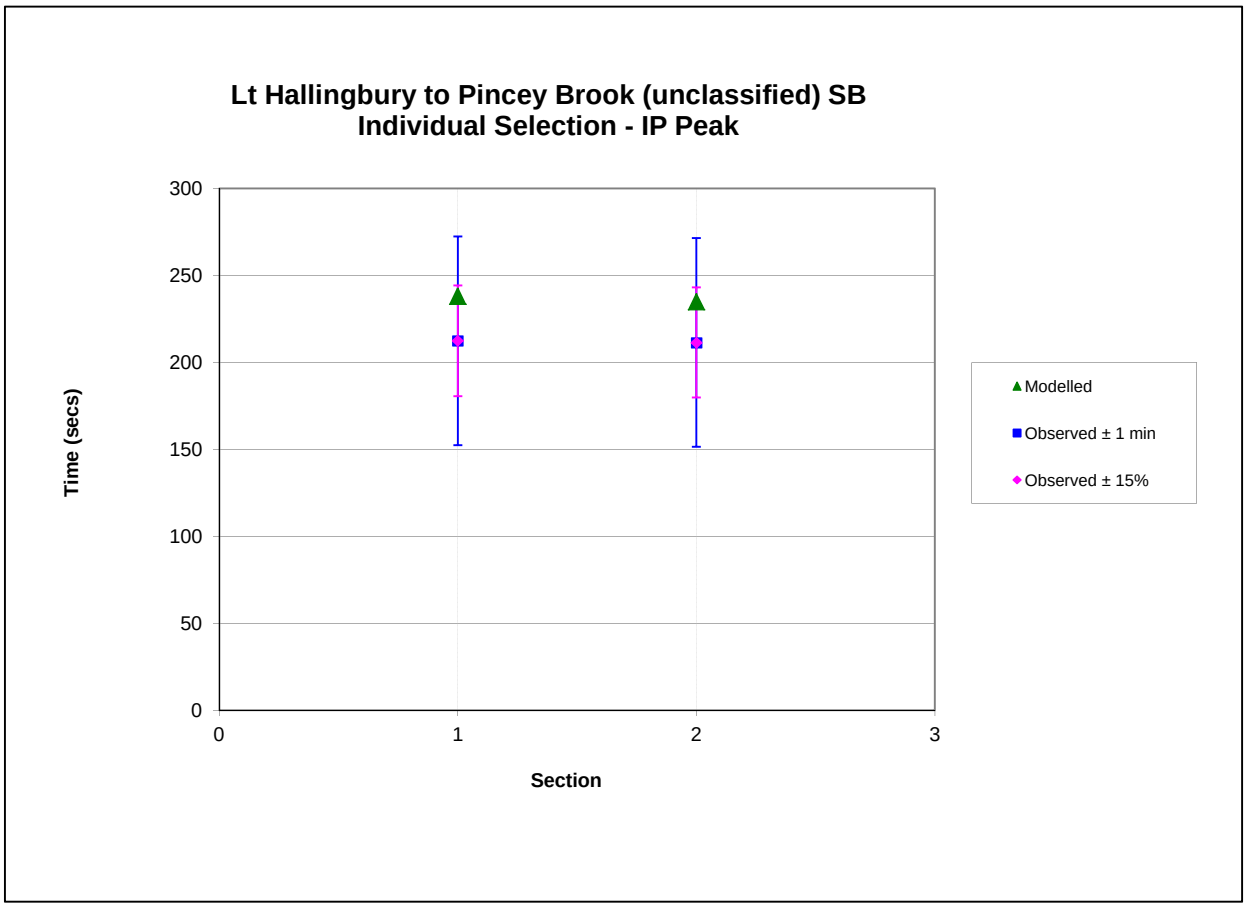

Lt Hallingbury to Pincey Brook (unclassified) NB
Cumulative Selection - PM Peak
Time (secs)
600
500
400
300
200
100
0
2.9
5.5
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

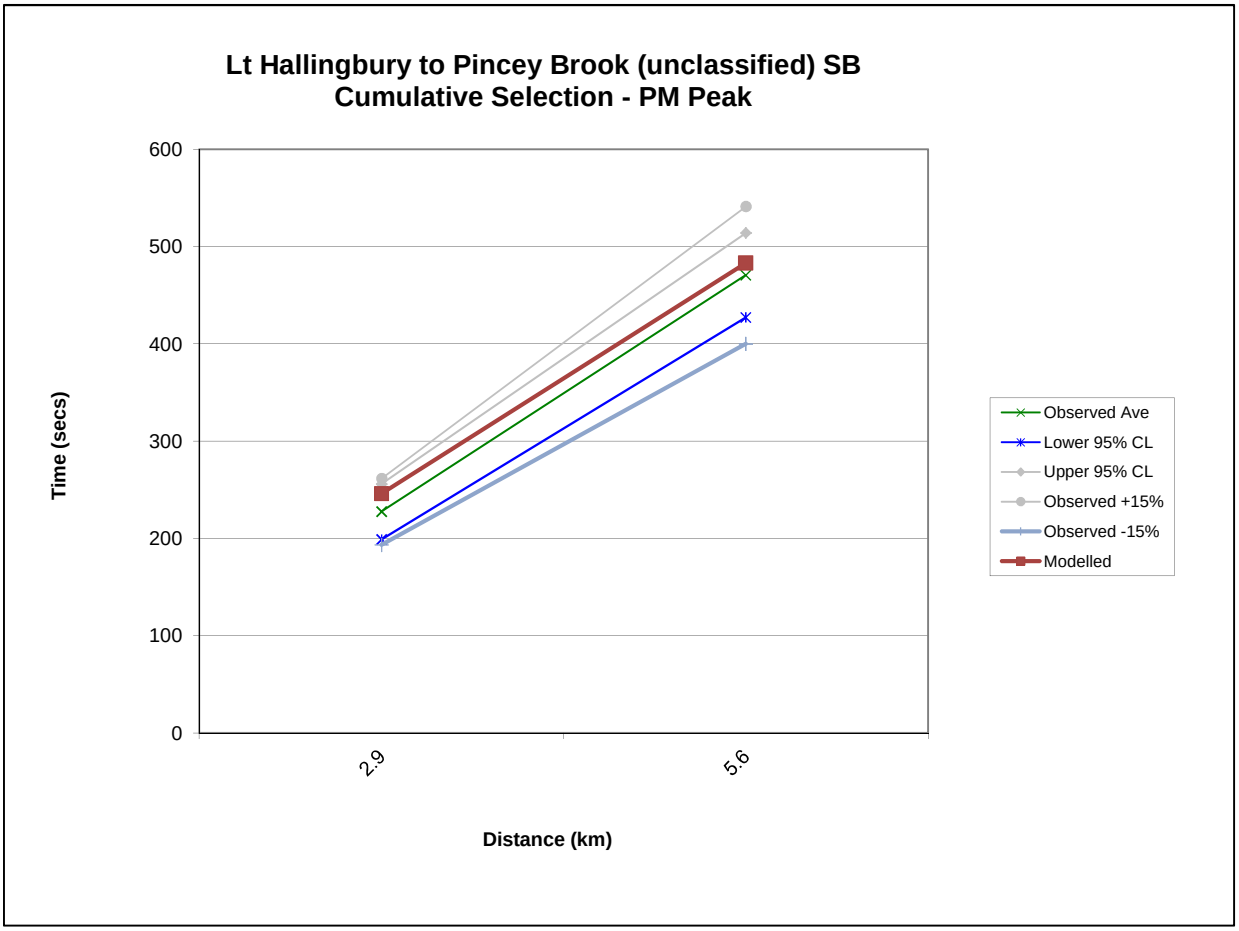

Lt Hallingbury to Pincey Brook (unclassified) NB
Individual Selection - PM Peak
Time (secs)
300
250
200
150
100
50
0
0
1
2
3
Section
Modelled
Observed ± 1 min
Observed ± 15%

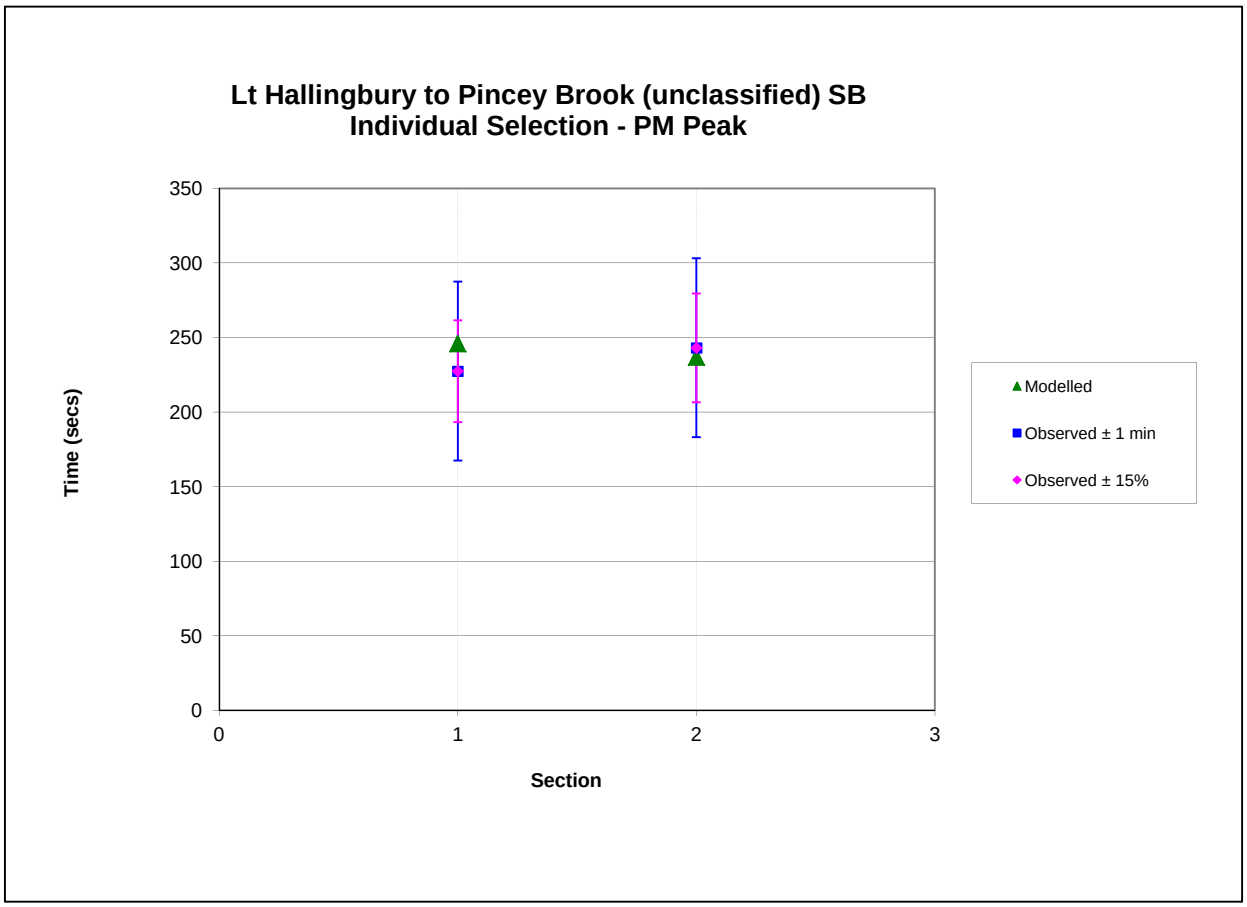

Lt Hallingbury to Pincey Brook (unclassified) SB
Cumulative Selection - AM Peak
Time (secs)
600
500
400
300
200
100
0
2.9
5.6
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

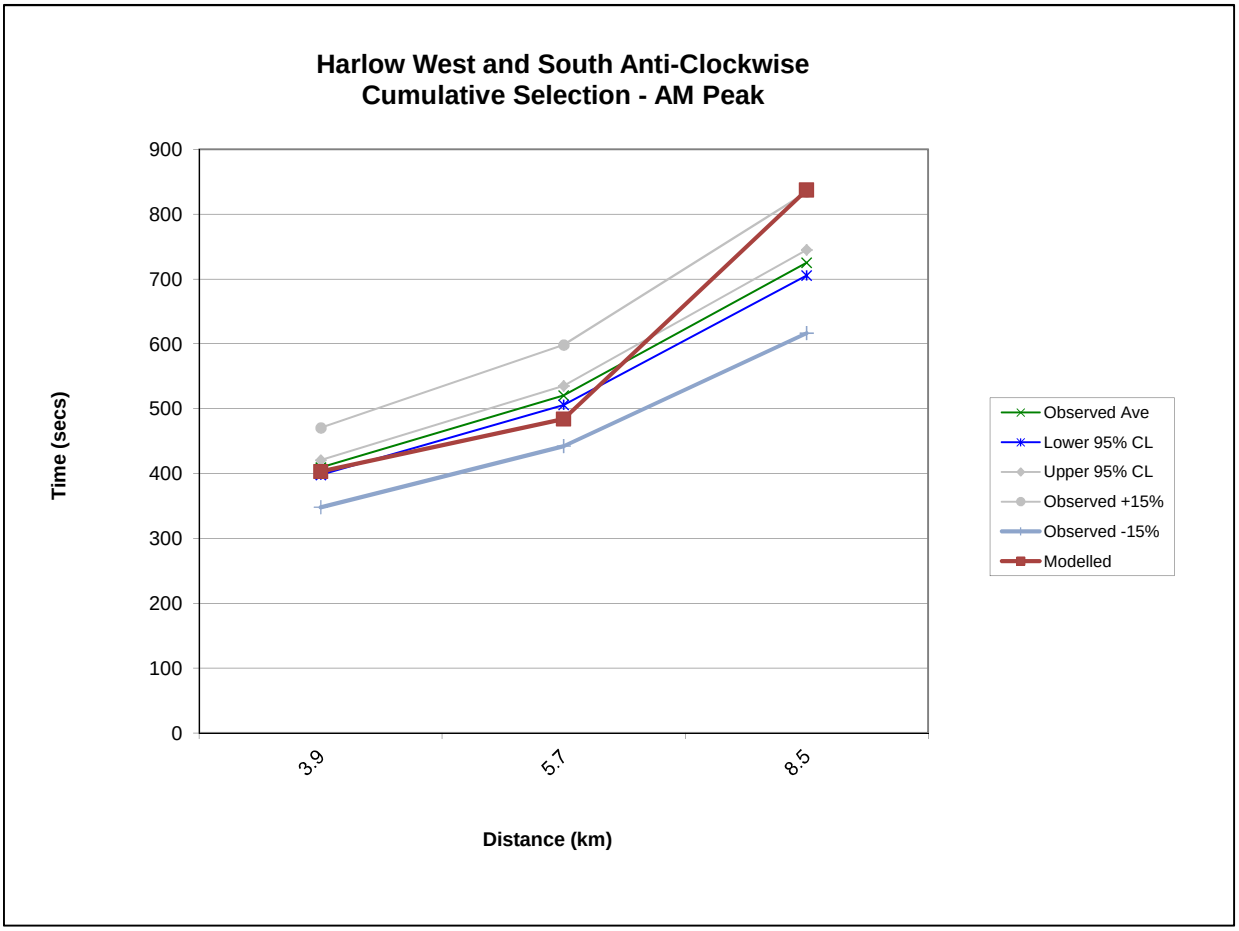

Lt Hallingbury to Pincey Brook (unclassified) SB
Individual Selection - AM Peak
Time (secs)
300
250
200
150
100
50
0
0
1
2
3
Section
Modelled
Observed ± 1 min
Observed ± 15%

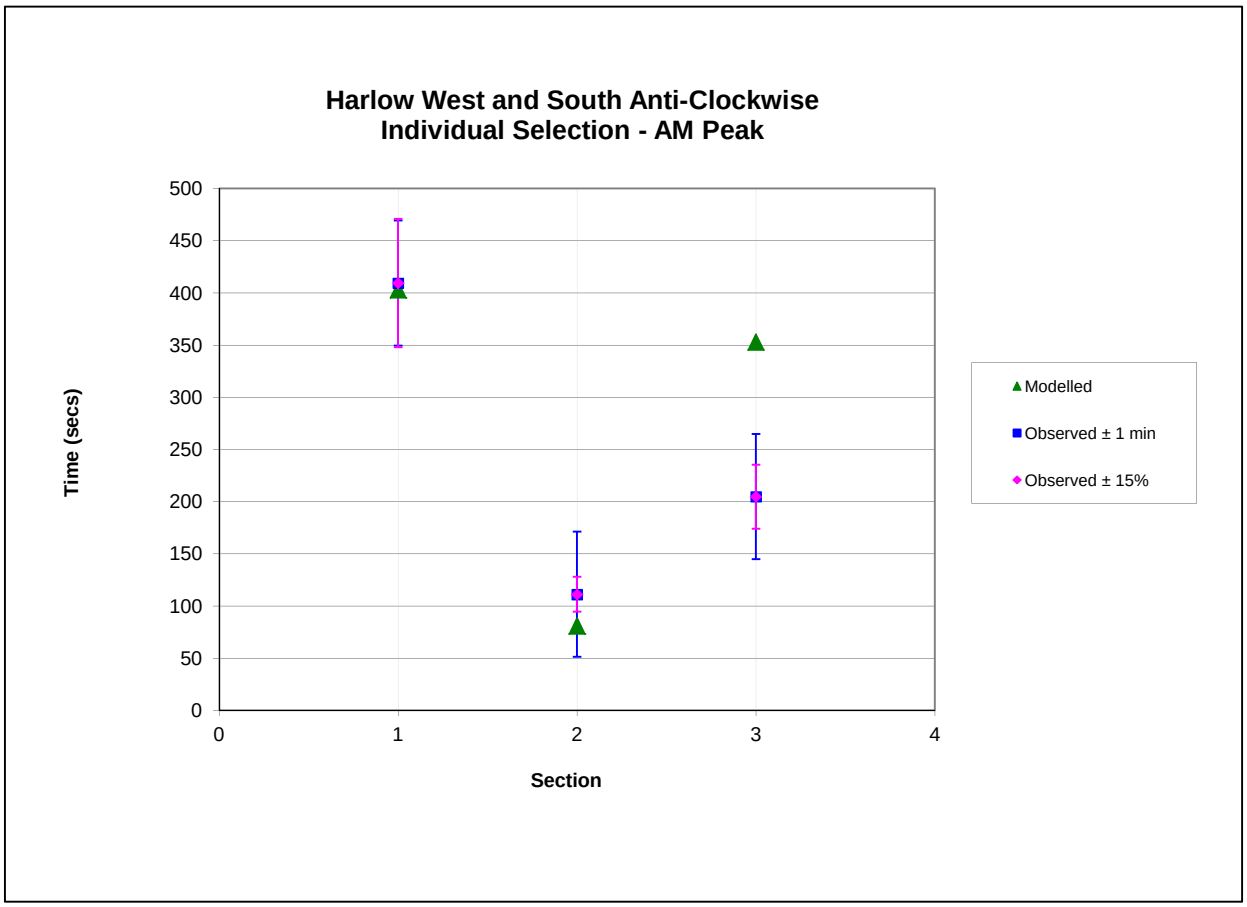

Lt Hallingbury to Pincey Brook (unclassified) SB
Cumulative Selection - IP Peak
Time (secs)
600
500
400
300
200
100
0
2.9
5.6
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

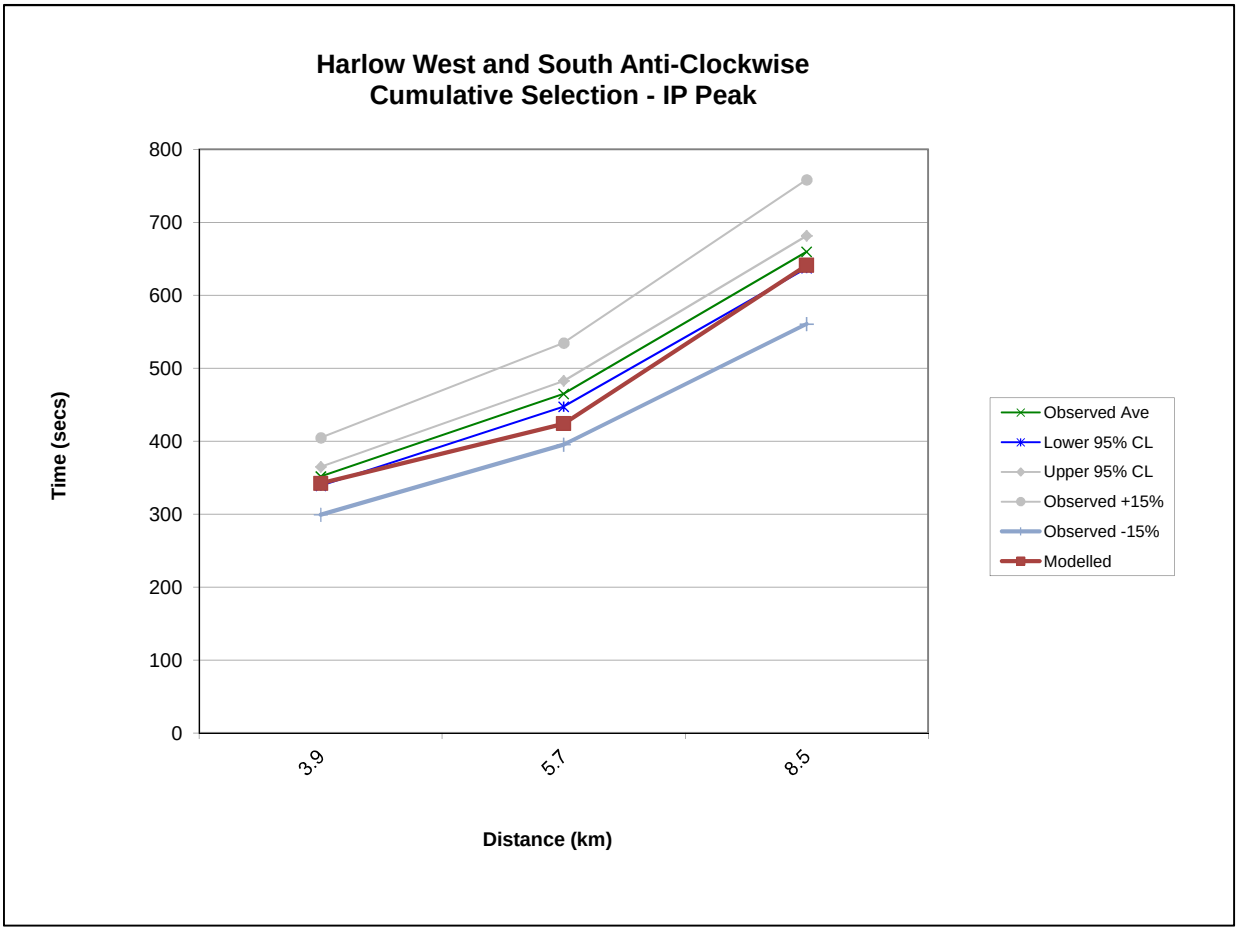

Lt Hallingbury to Pincey Brook (unclassified) SB
Individual Selection - IP Peak
Time (secs)
300
250
200
150
100
50
0
0
1
2
3
Section
Modelled
Observed ± 1 min
Observed ± 15%

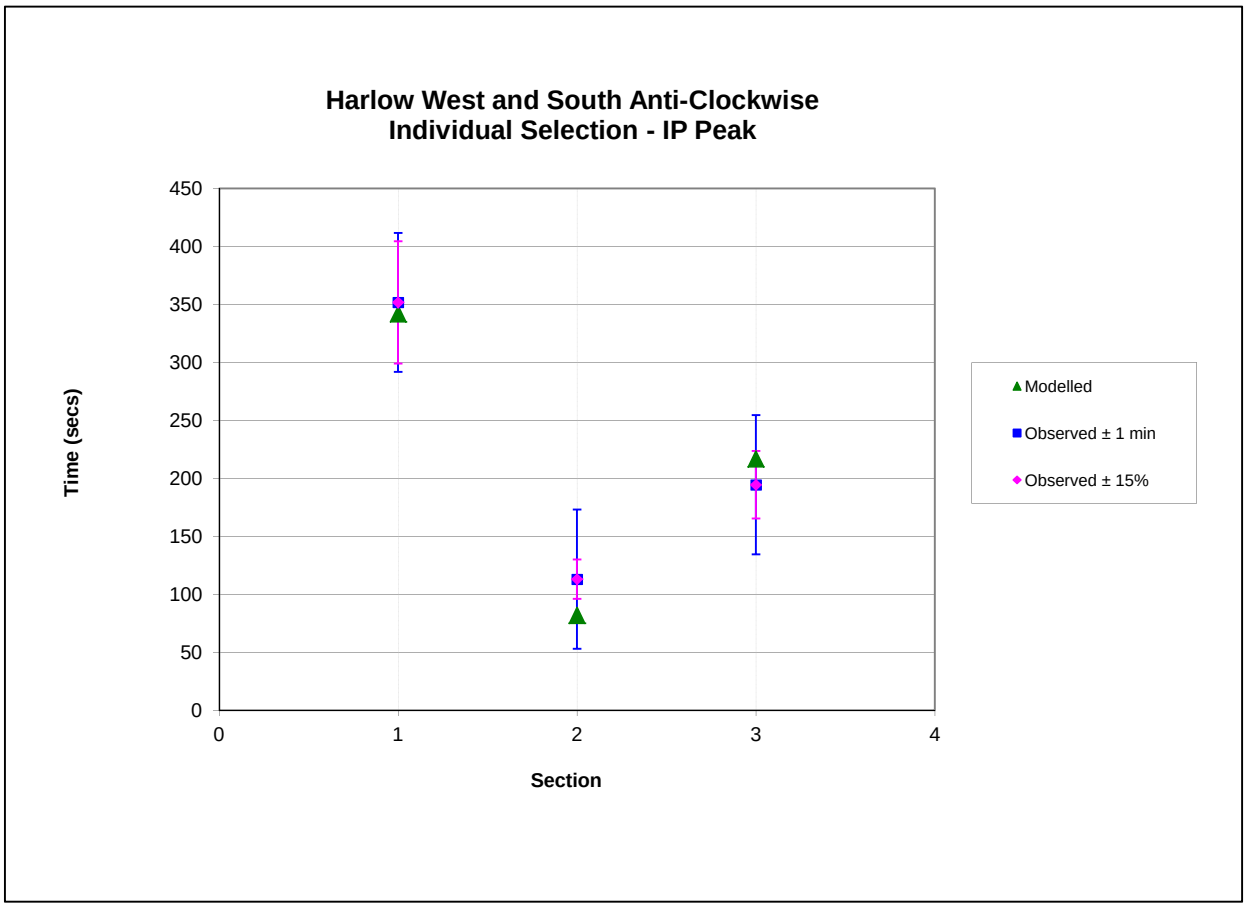

Lt Hallingbury to Pincey Brook (unclassified) SB
Cumulative Selection - PM Peak
Time (secs)
600
500
400
300
200
100
0
2.9
5.6
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

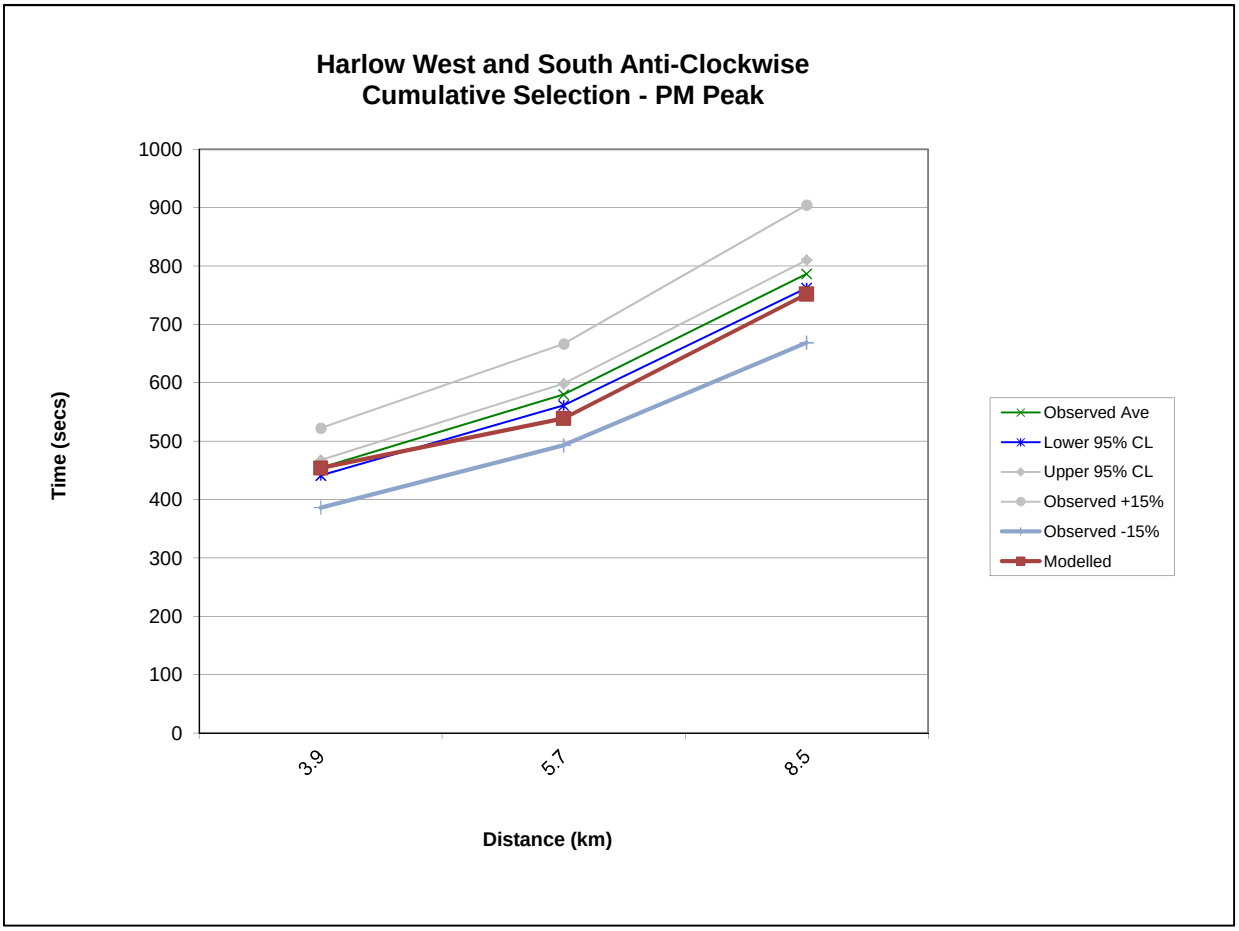

Lt Hallingbury to Pincey Brook (unclassified) SB
Individual Selection - PM Peak
Time (secs)
350
300
250
200
150
100
50
0
0
1
2
3
Section
Modelled
Observed ± 1 min
Observed ± 15%

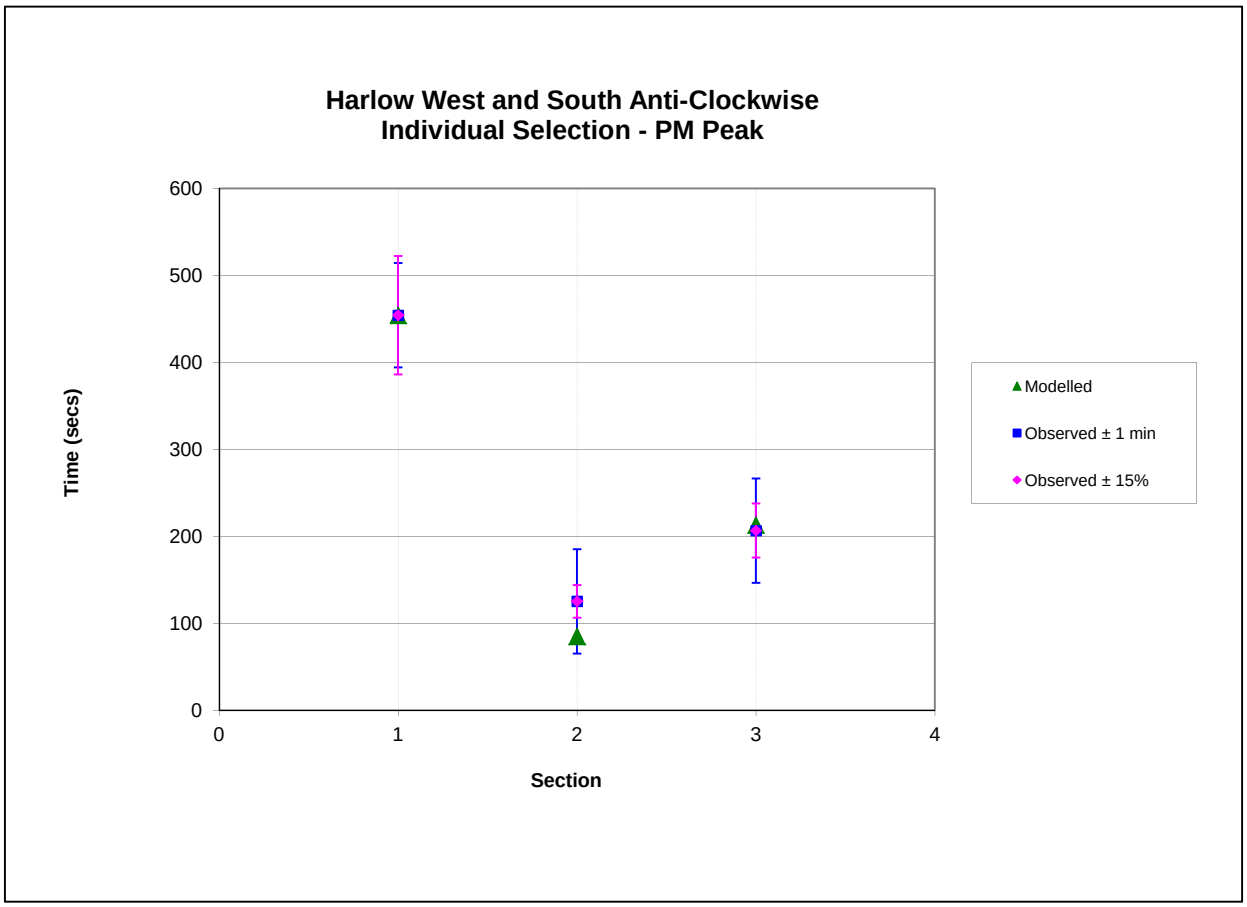

Harlow West and South Anti-Clockwise
Cumulative Selection - AM Peak
Time (secs)
900
800
700
600
500
400
300
200
100
0
3.9
5.7
8.5
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

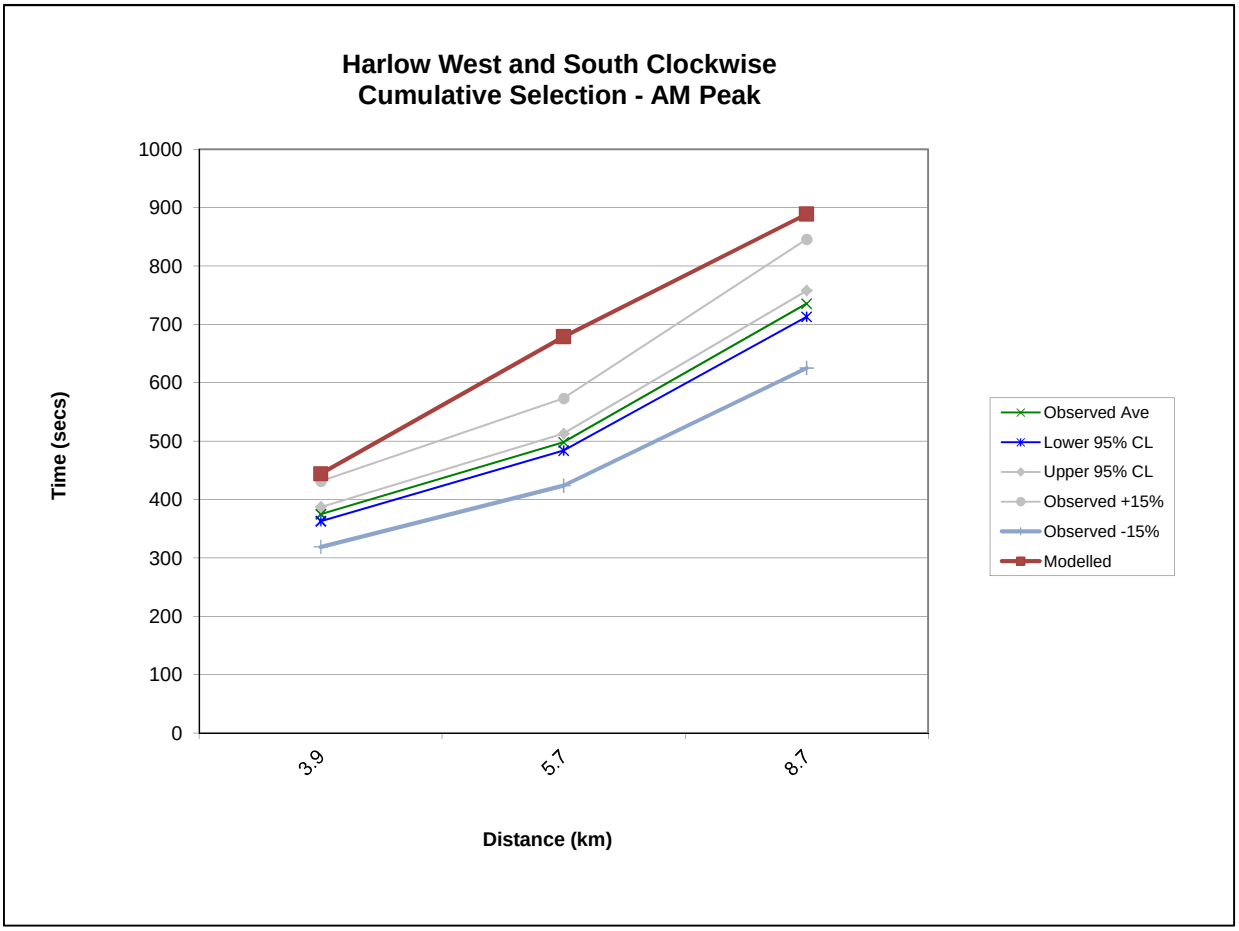

Harlow West and South Anti-Clockwise
Individual Selection - AM Peak
Time (secs)
500
450
400
350
300
250
200
150
100
50
0
0
1
2
3
4
Section
Modelled
Observed ± 1 min
Observed ± 15%

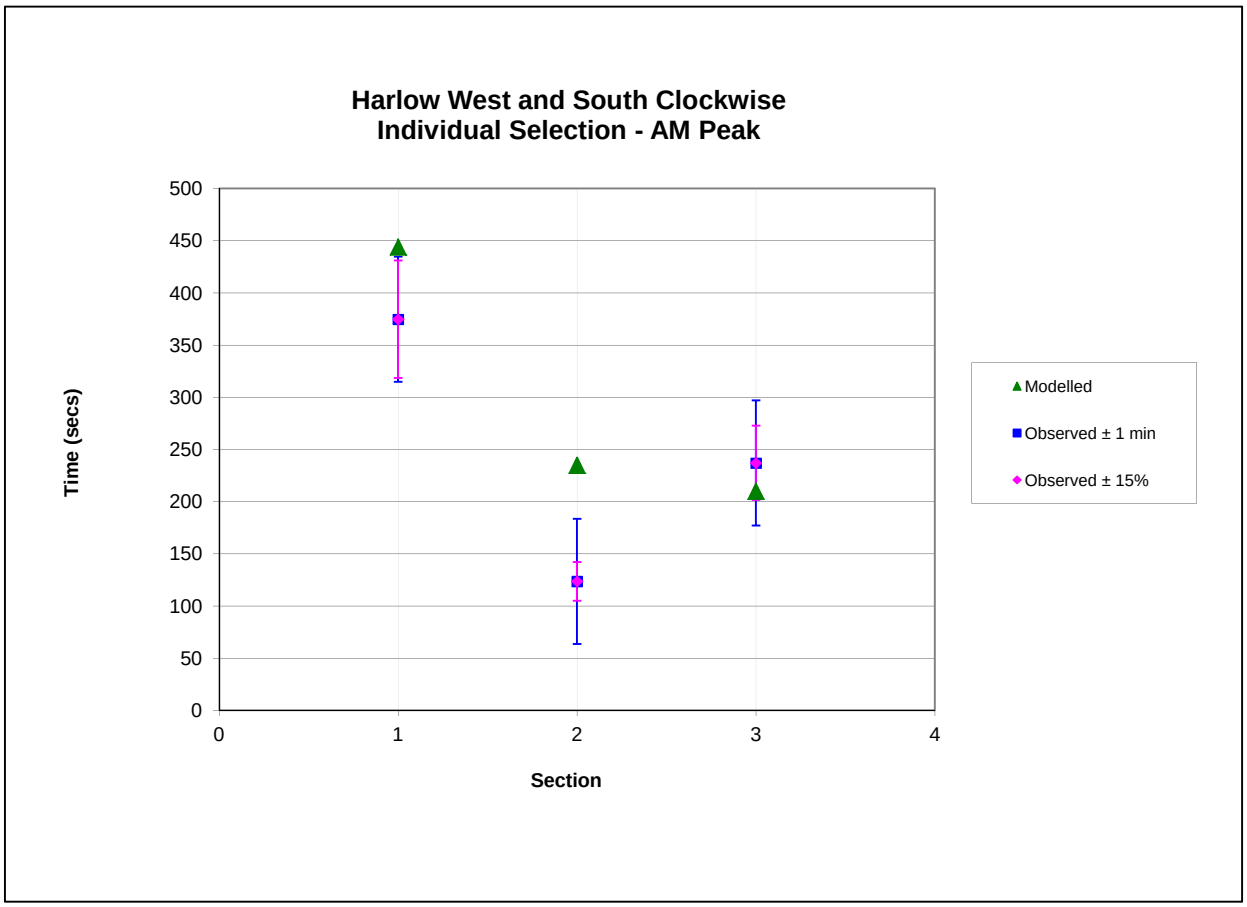

Harlow West and South Anti-Clockwise
Cumulative Selection - IP Peak
Time (secs)
800
700
600
500
400
300
200
100
0
3.9
5.7
8.5
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

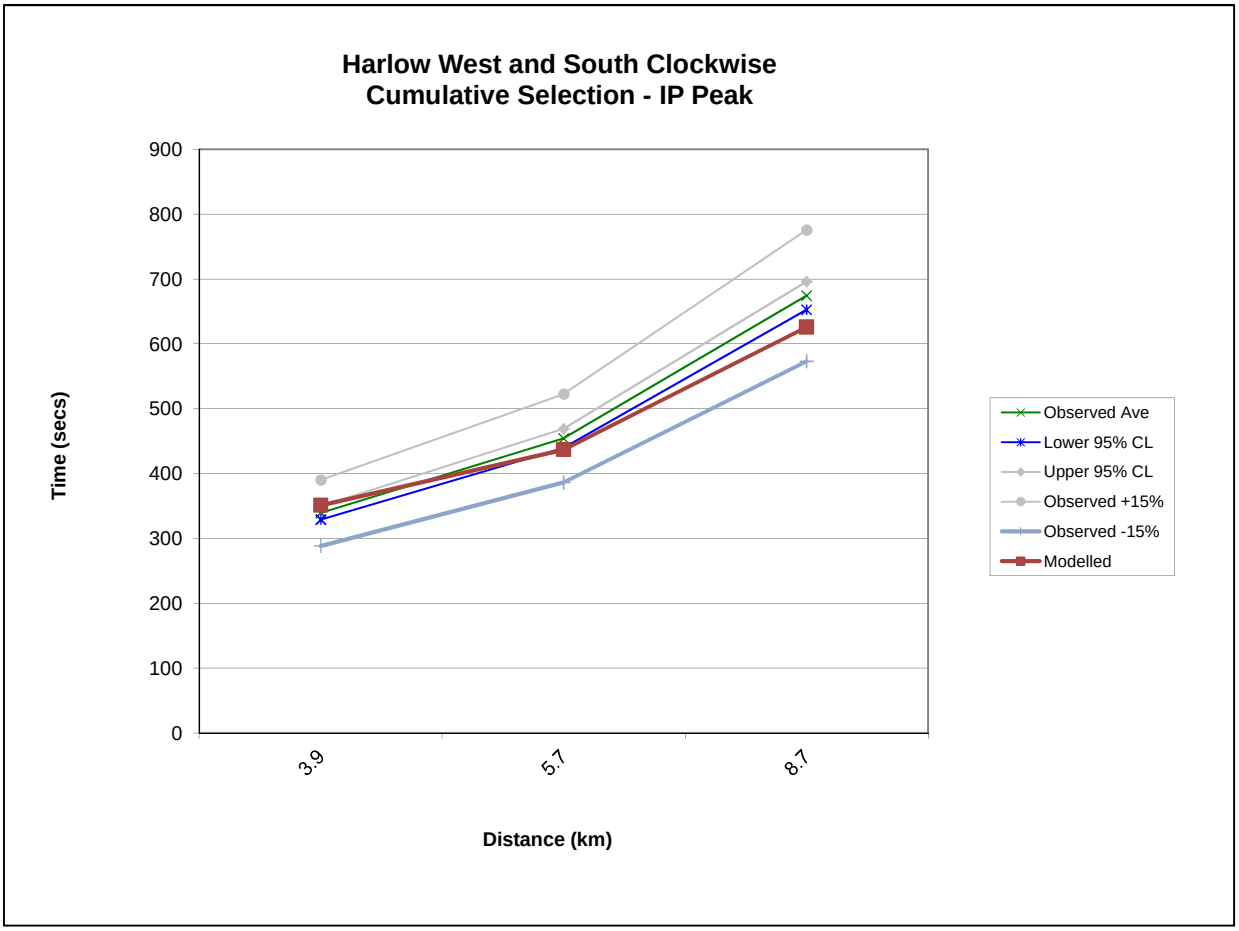

Harlow West and South Anti-Clockwise
Individual Selection - IP Peak
Time (secs)
450
400
350
300
250
200
150
100
50
0
0
1
2
3
4
Section
Modelled
Observed ± 1 min
Observed ± 15%

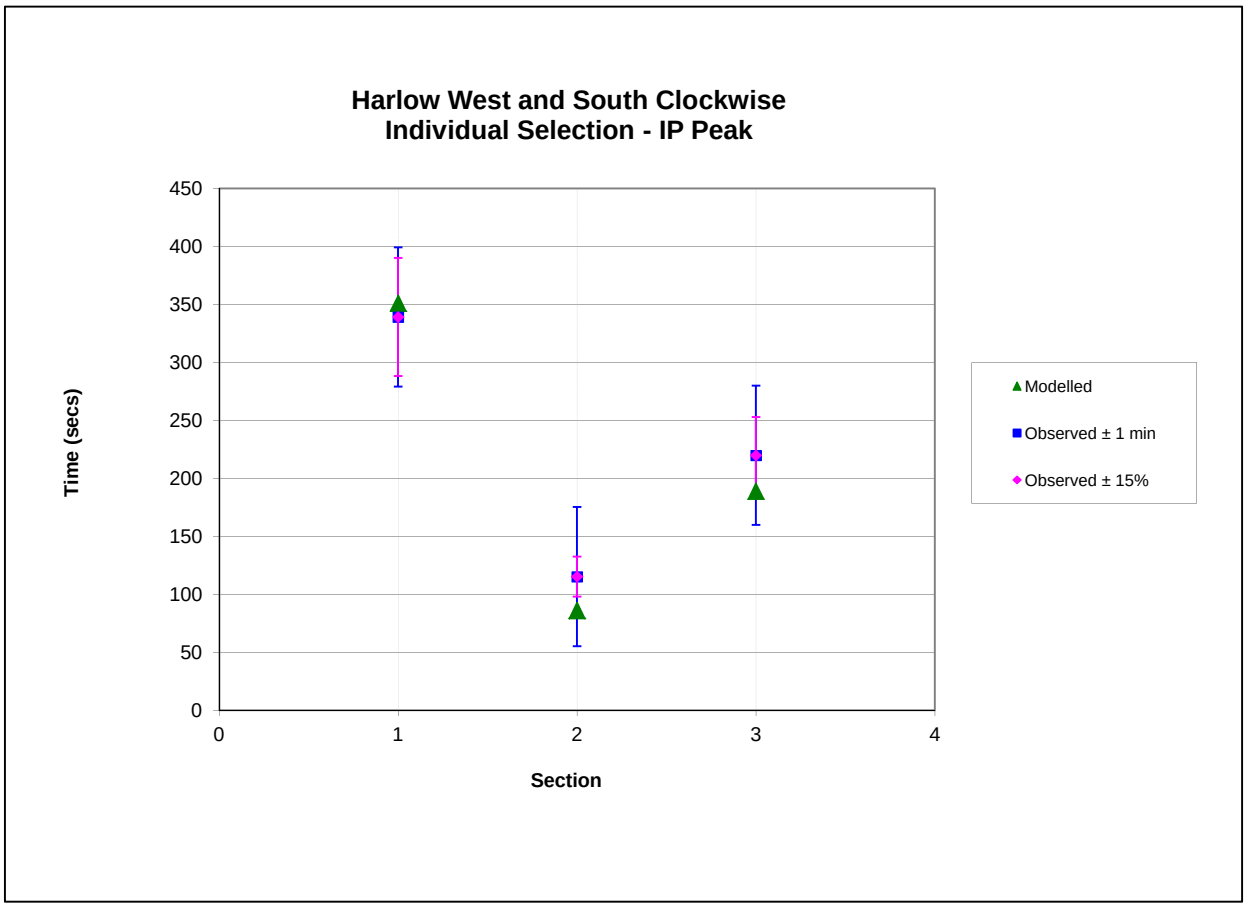

Harlow West and South Anti-Clockwise
Cumulative Selection - PM Peak
Time (secs)
1000
900
800
700
600
500
400
300
200
100
0
3.9
5.7
8.5
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

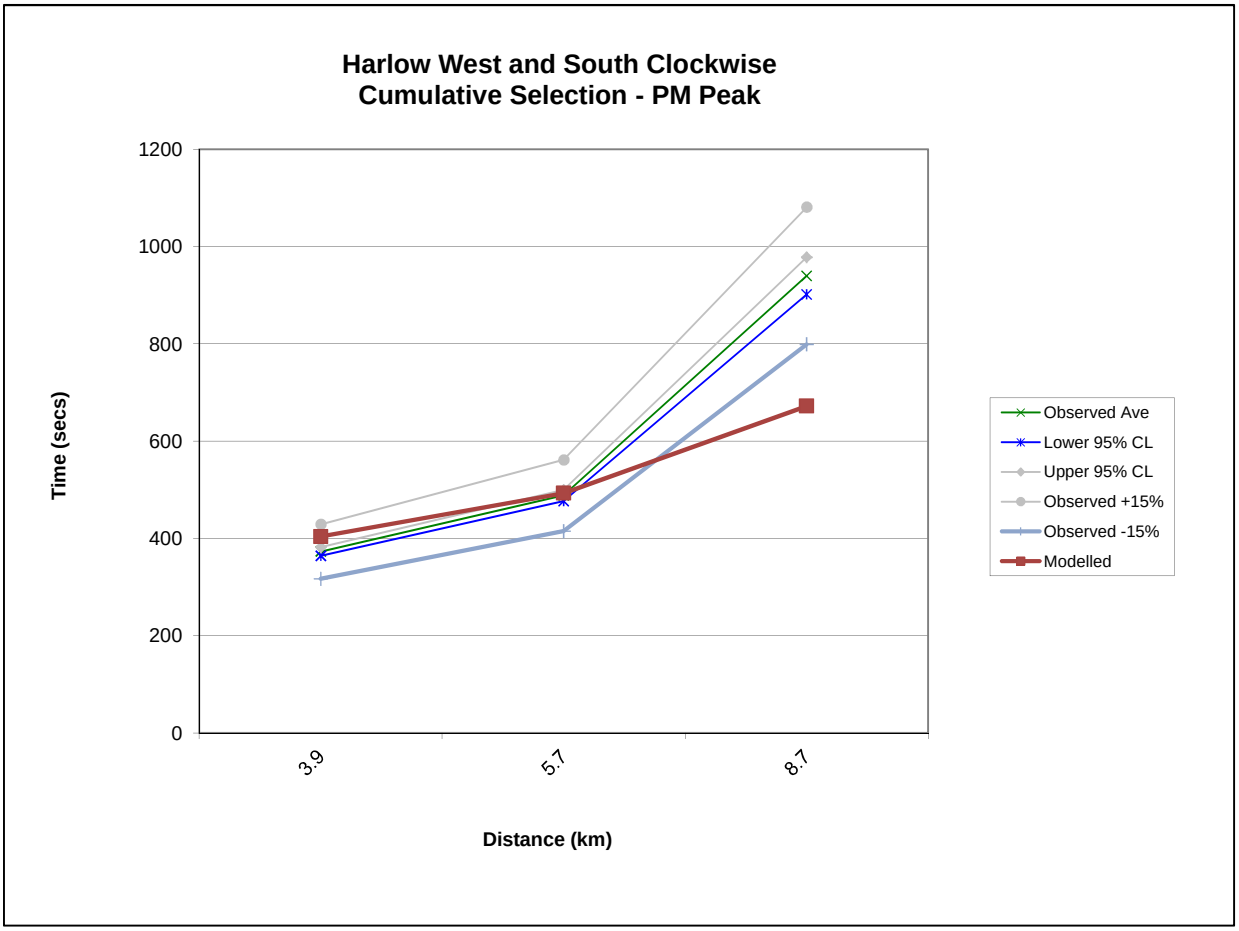

Harlow West and South Anti-Clockwise
Individual Selection - PM Peak
Time (secs)
600
500
400
300
200
100
0
0
1
2
3
4
Section
Modelled
Observed ± 1 min
Observed ± 15%

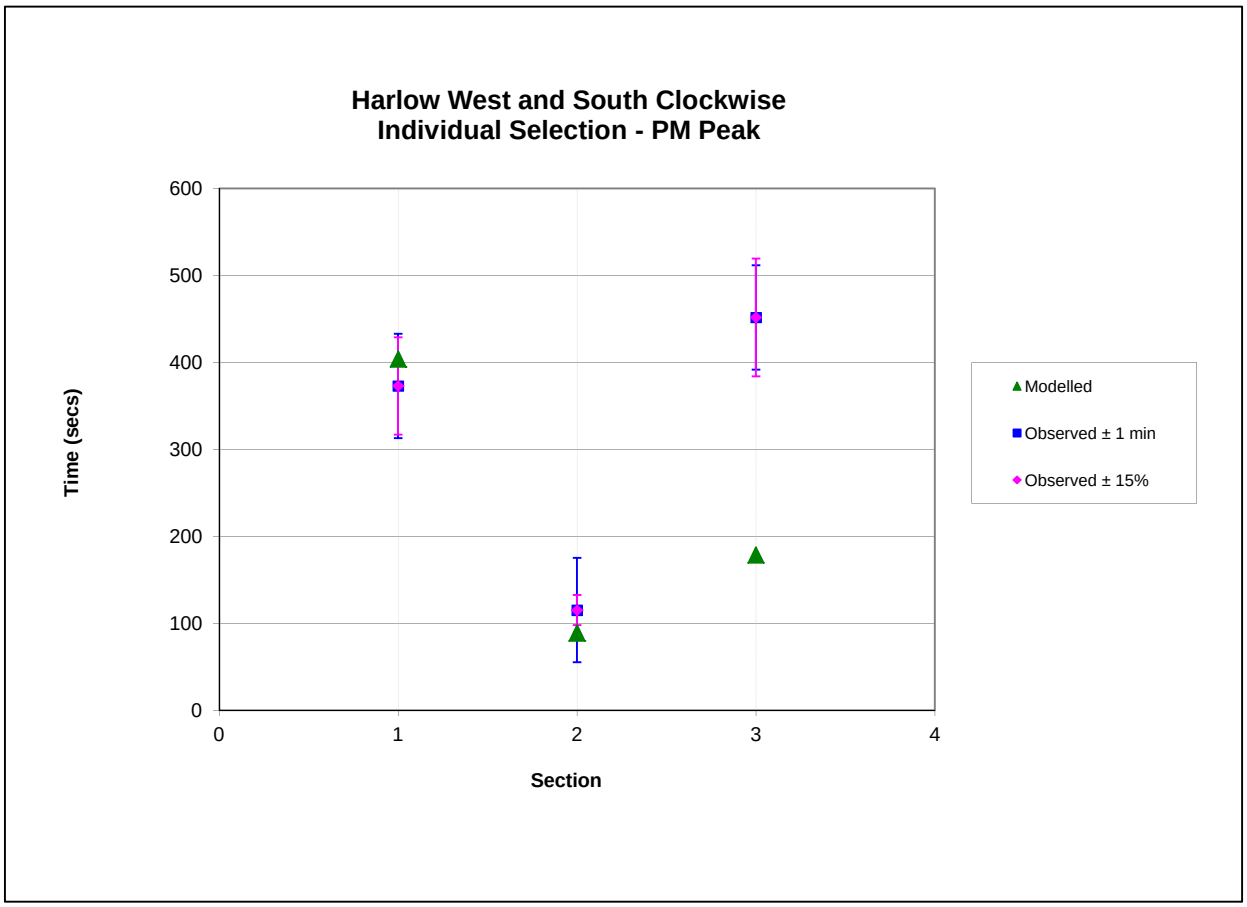

Harlow West and South Clockwise
Cumulative Selection - AM Peak
Time (secs)
1000
900
800
700
600
500
400
300
200
100
0
3.9
5.7
8.7
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

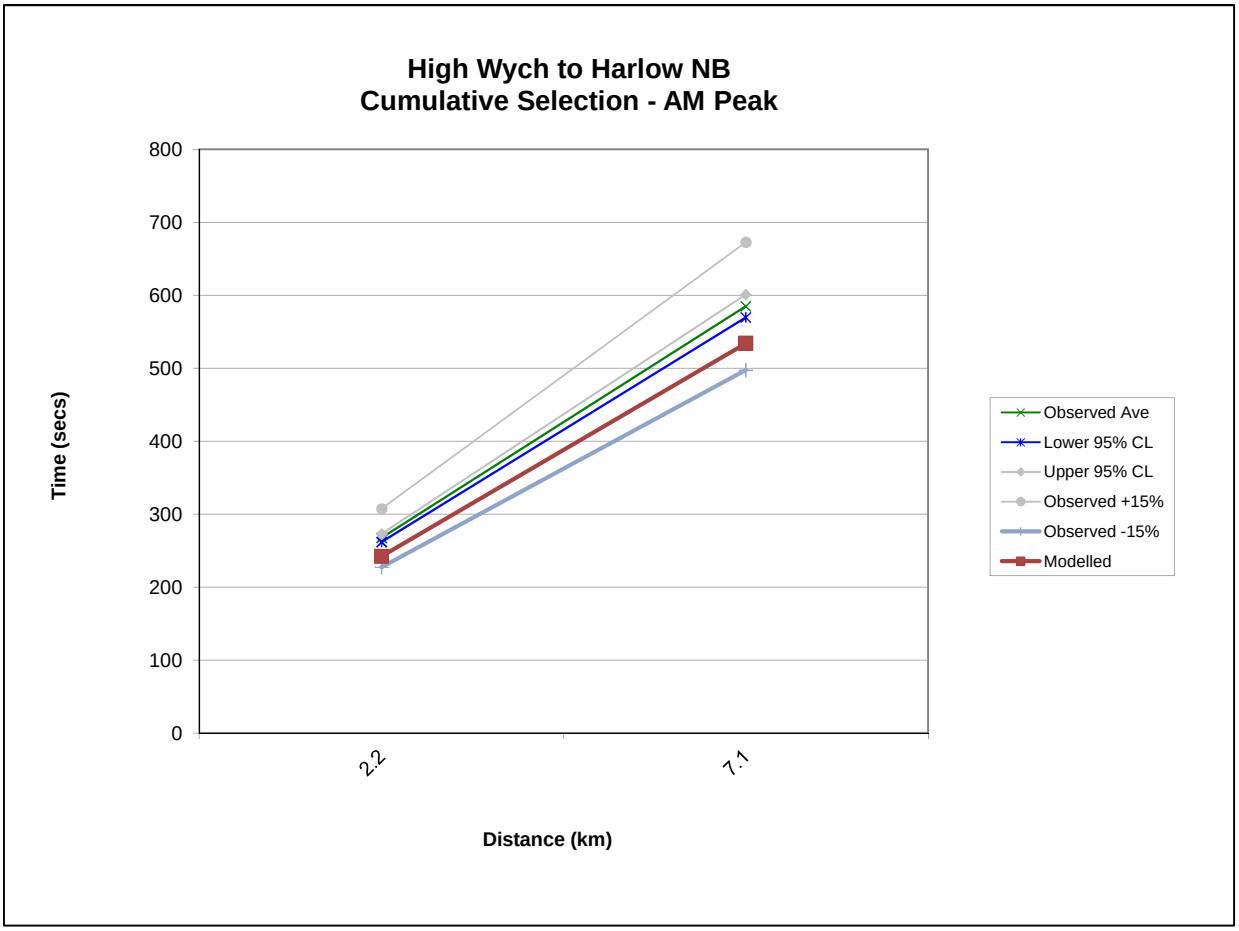

Harlow West and South Clockwise
Individual Selection - AM Peak
Time (secs)
500
450
400
350
300
250
200
150
100
50
0
0
1
2
3
4
Section
Modelled
Observed ± 1 min
Observed ± 15%

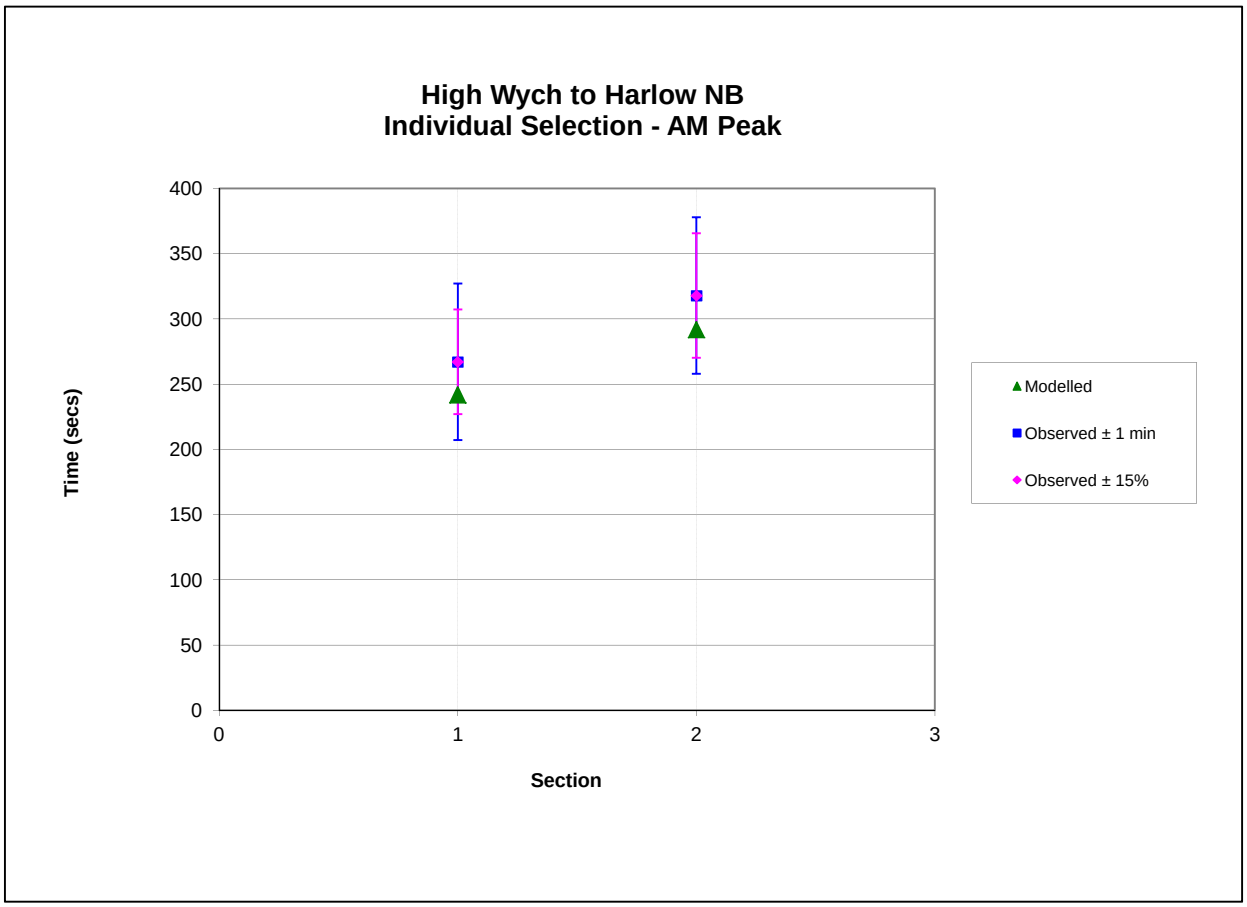

Harlow West and South Clockwise
Cumulative Selection - IP Peak
Time (secs)
900
800
700
600
500
400
300
200
100
0
3.9
5.7
8.7
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

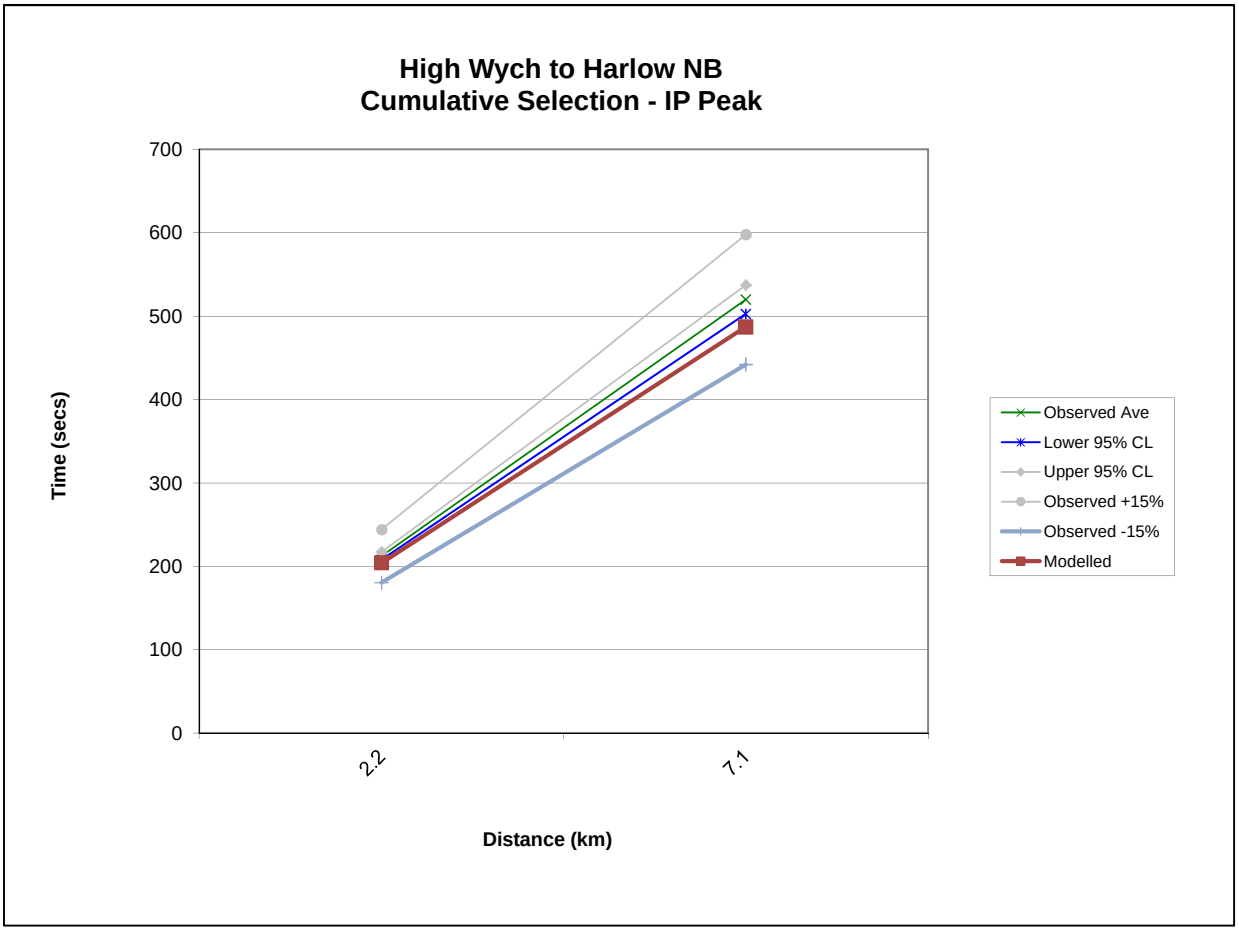

Harlow West and South Clockwise
Individual Selection - IP Peak
Time (secs)
450
400
350
300
250
200
150
100
50
0
0
1
2
3
4
Section
Modelled
Observed ± 1 min
Observed ± 15%

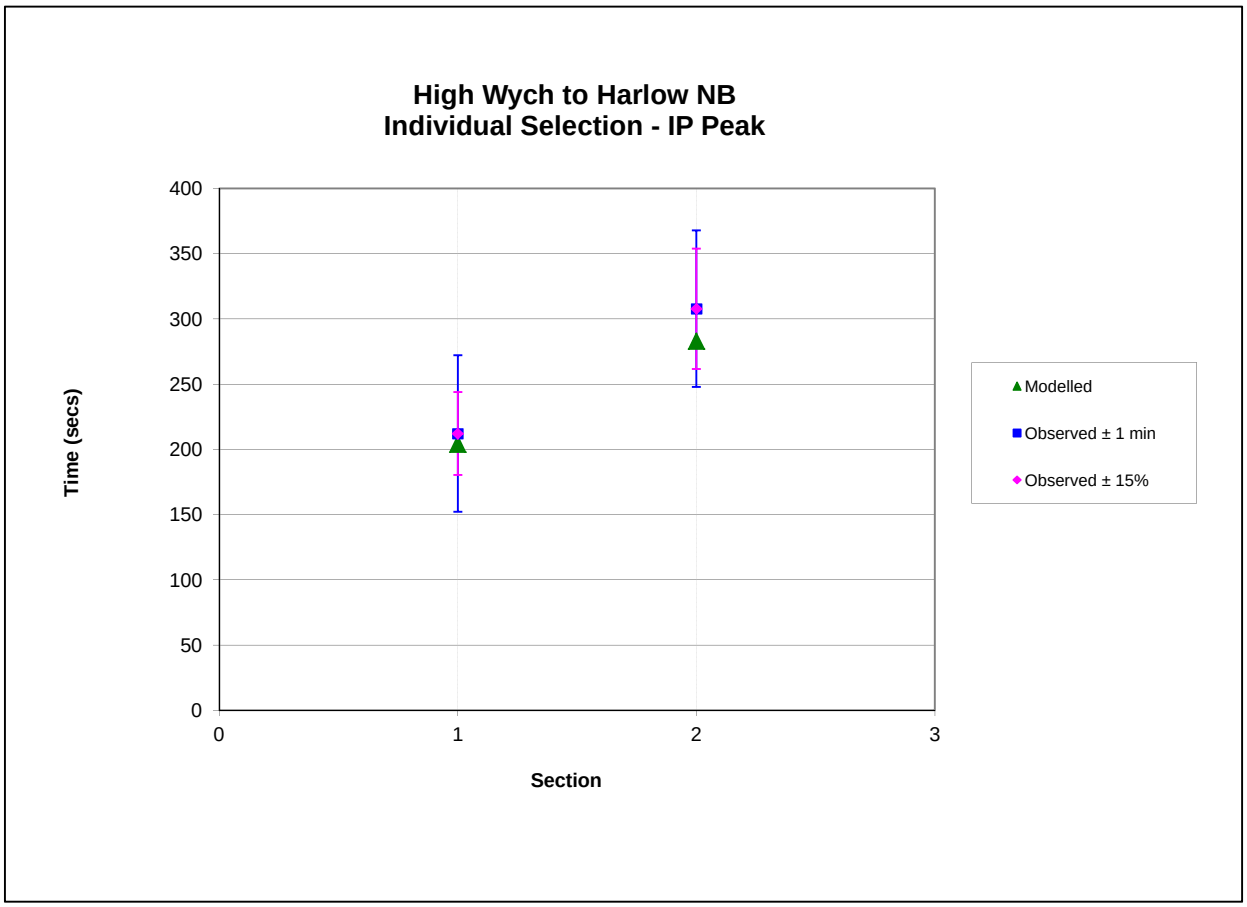

Harlow West and South Clockwise
Cumulative Selection - PM Peak
Time (secs)
1200
1000
800
600
400
200
0
3.9
5.7
8.7
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

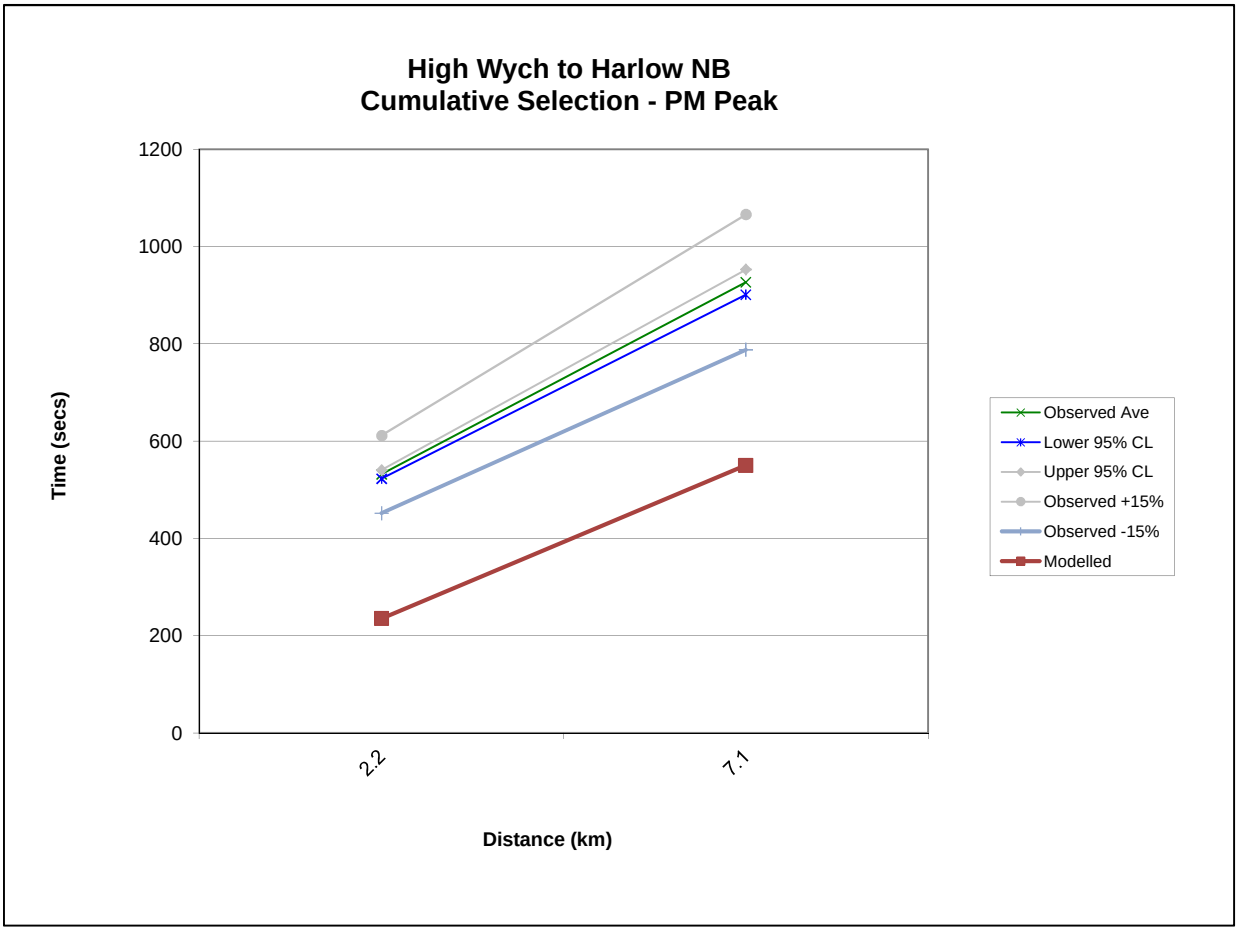

Harlow West and South Clockwise
Individual Selection - PM Peak
Time (secs)
600
500
400
300
200
100
0
0
1
2
3
4
Section
Modelled
Observed ± 1 min
Observed ± 15%

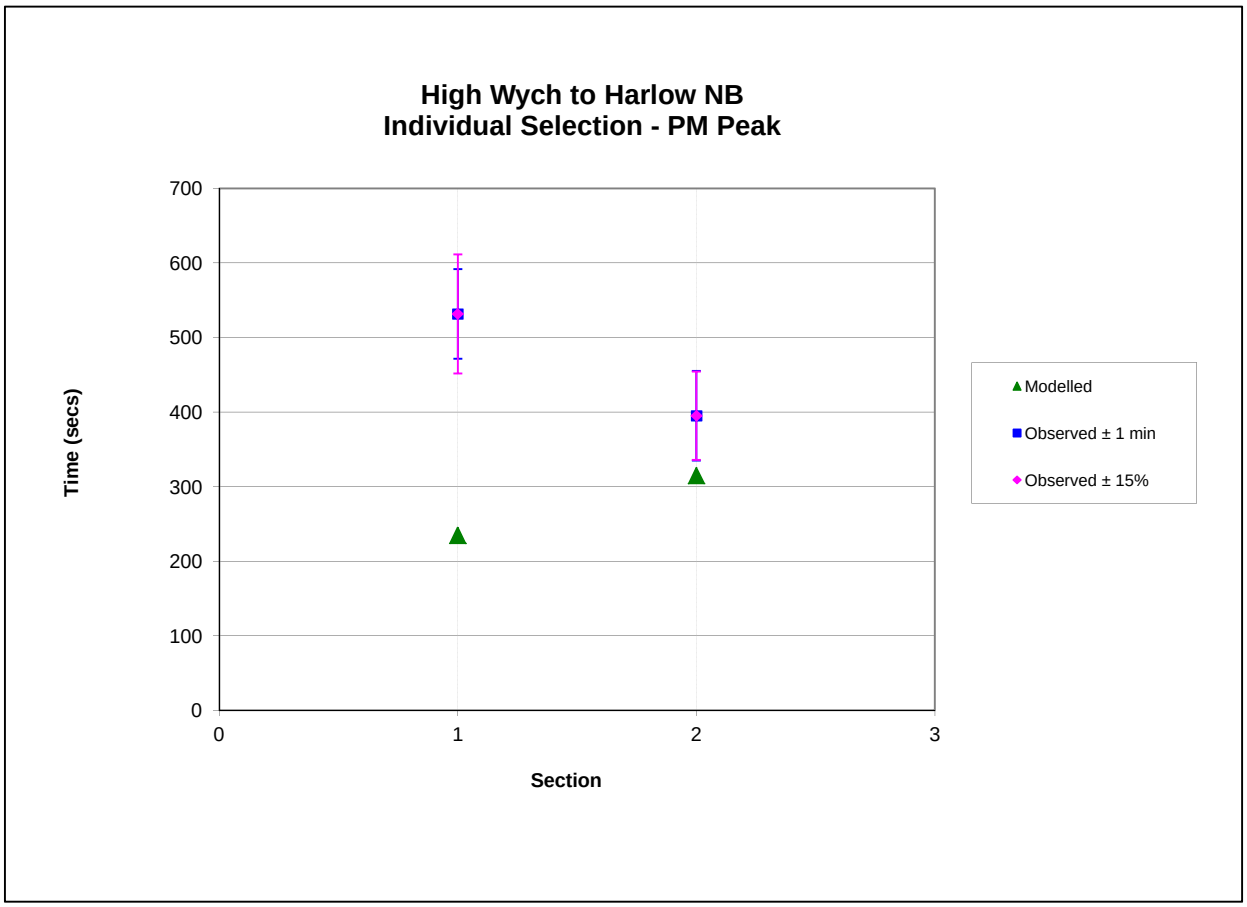

High Wych to Harlow NB
Cumulative Selection - AM Peak
Time (secs)
800
700
600
500
400
300
200
100
0
2.2
7.1
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

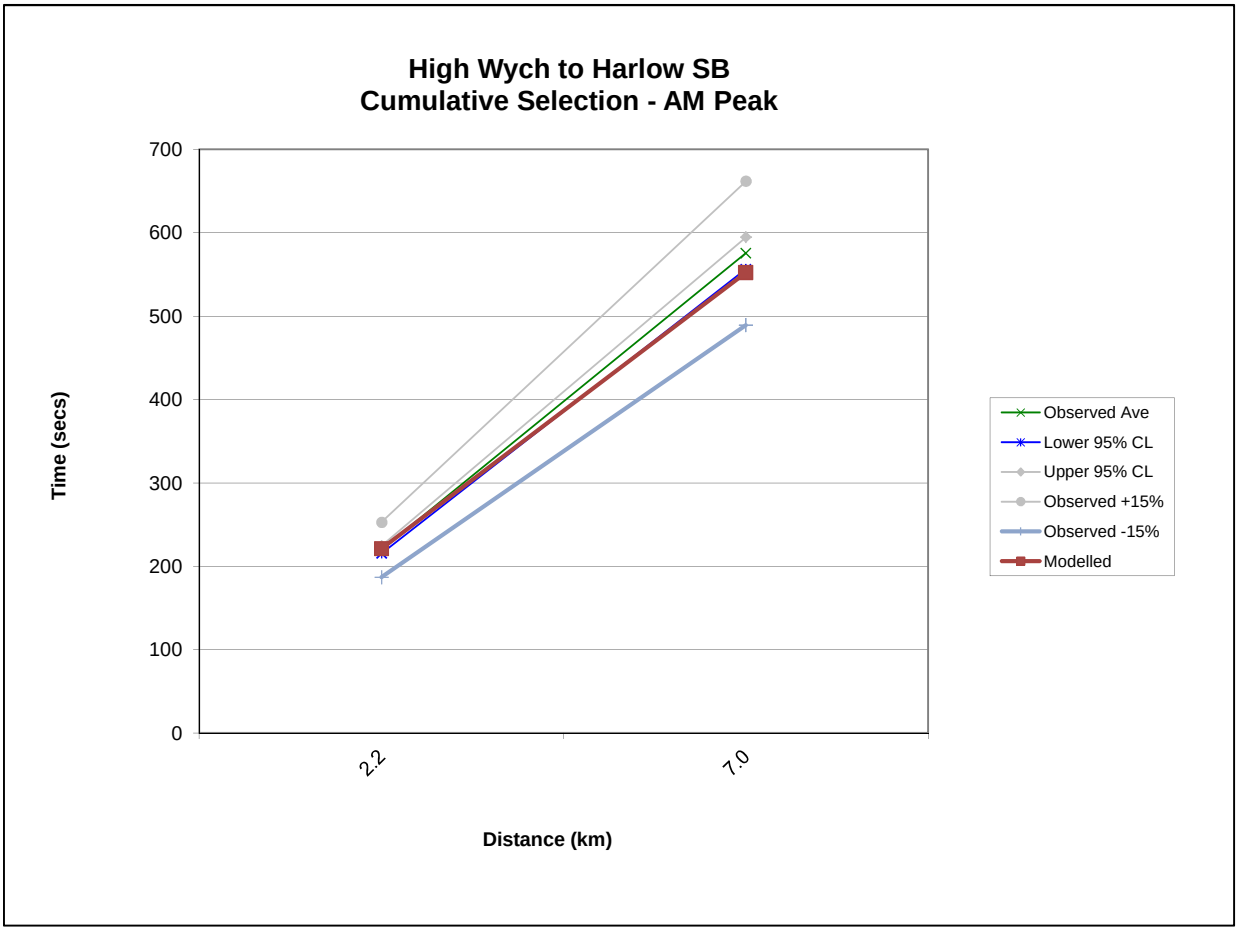

High Wych to Harlow NB
Individual Selection - AM Peak
Time (secs)
400
350
300
250
200
150
100
50
0
0
1
2
3
Section
Modelled
Observed ± 1 min
Observed ± 15%

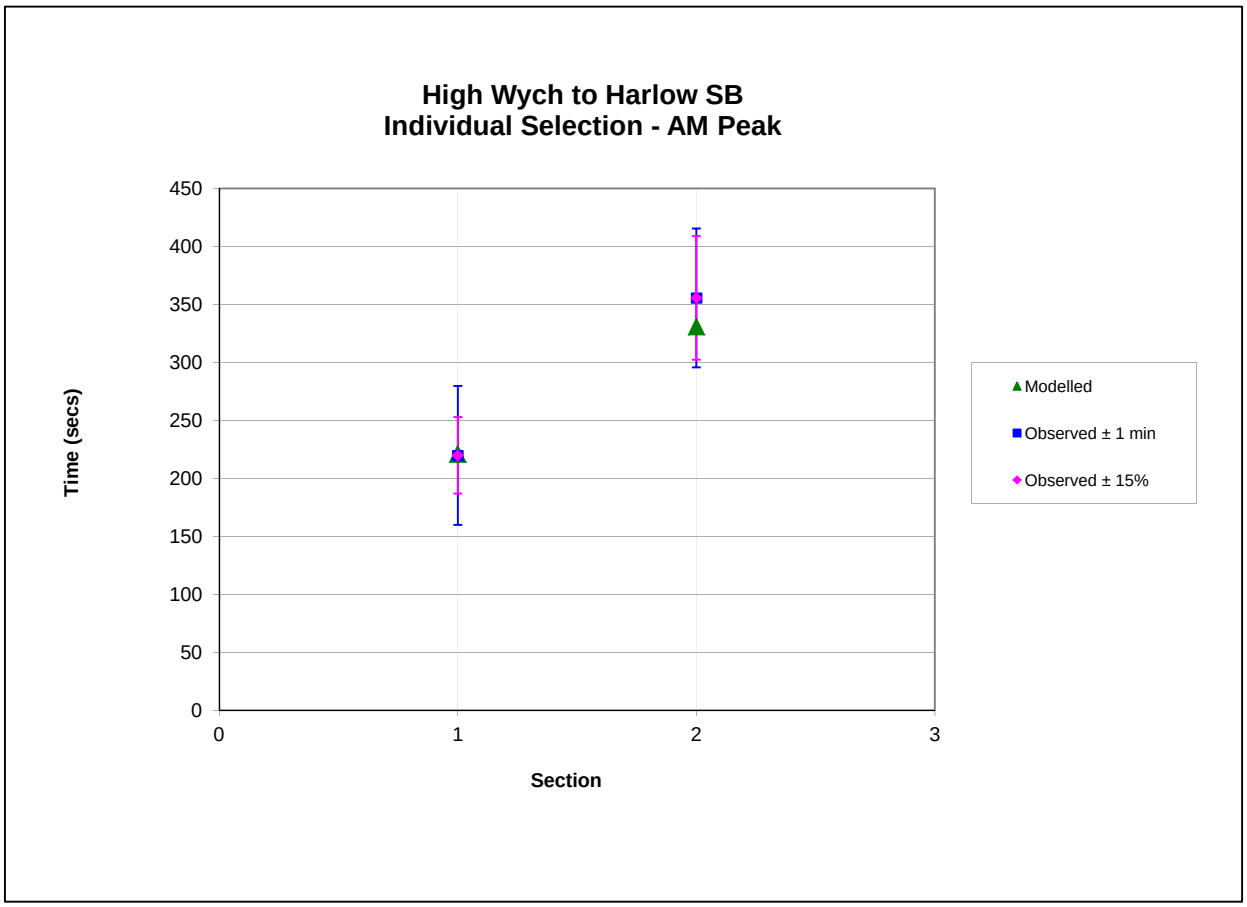

High Wych to Harlow NB
Cumulative Selection - IP Peak
Time (secs)
700
600
500
400
300
200
100
0
2.2
7.1
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

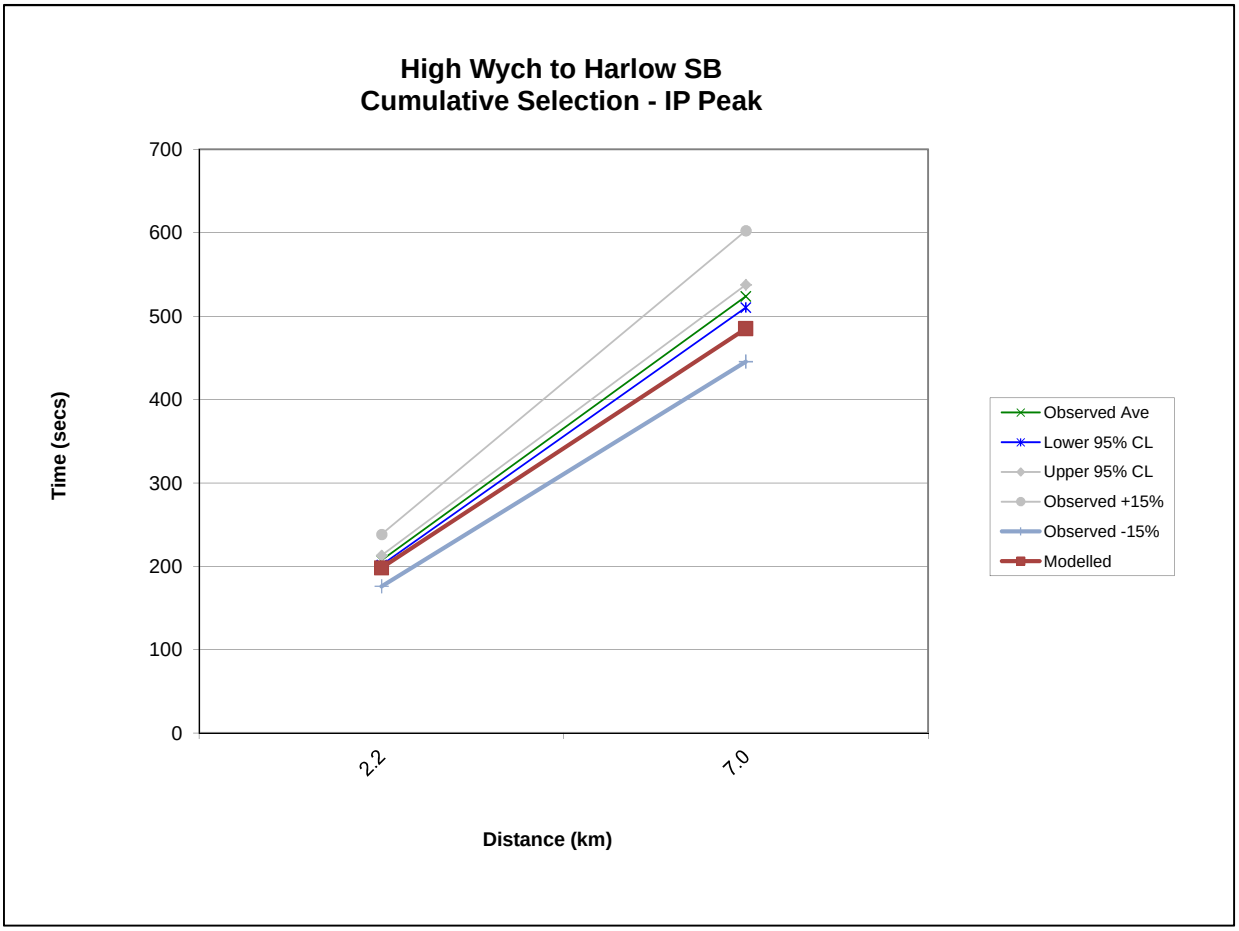

High Wych to Harlow NB
Individual Selection - IP Peak
Time (secs)
400
350
300
250
200
150
100
50
0
0
1
2
3
Section
Modelled
Observed ± 1 min
Observed ± 15%

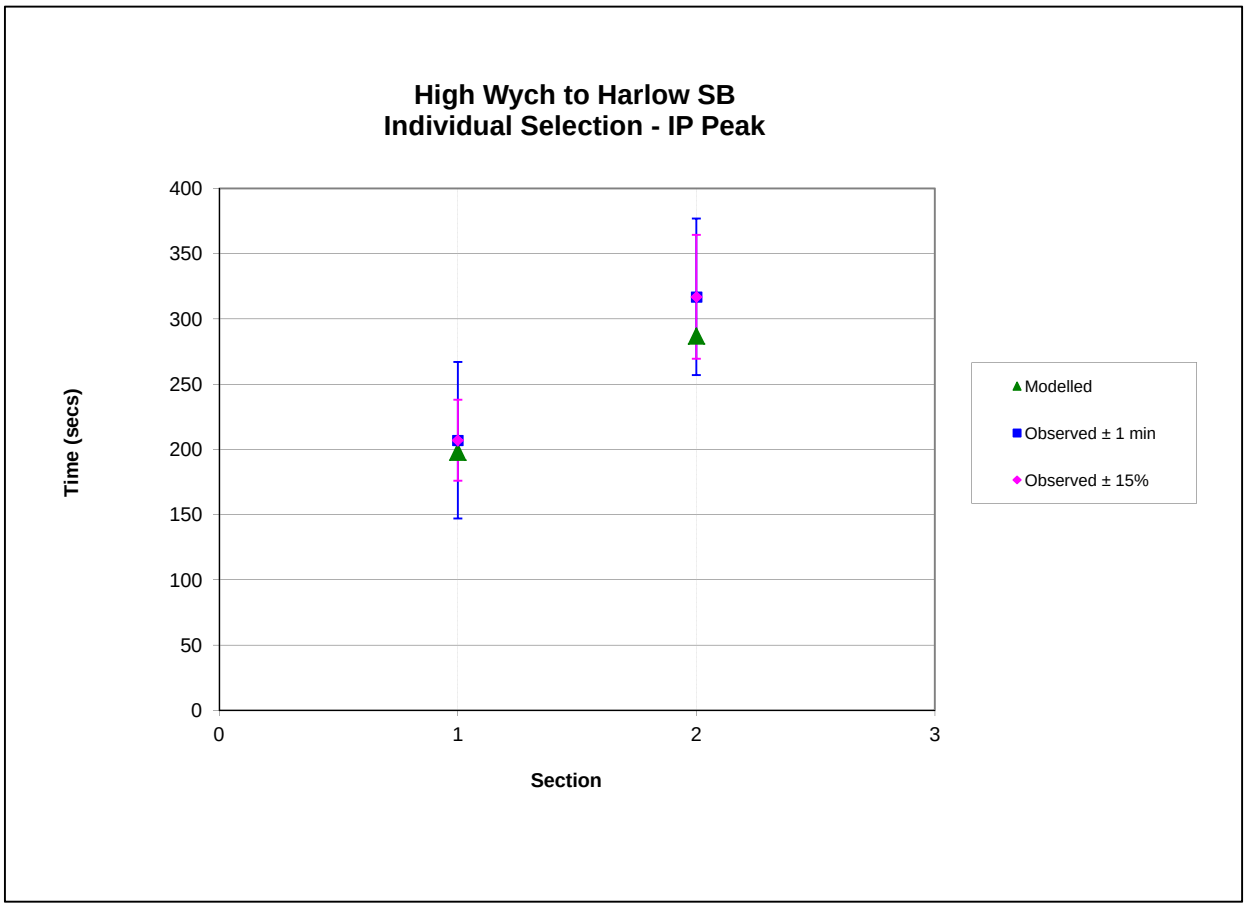

High Wych to Harlow NB
Cumulative Selection - PM Peak
Time (secs)
1200
1000
800
600
400
200
0
2.2
7.1
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

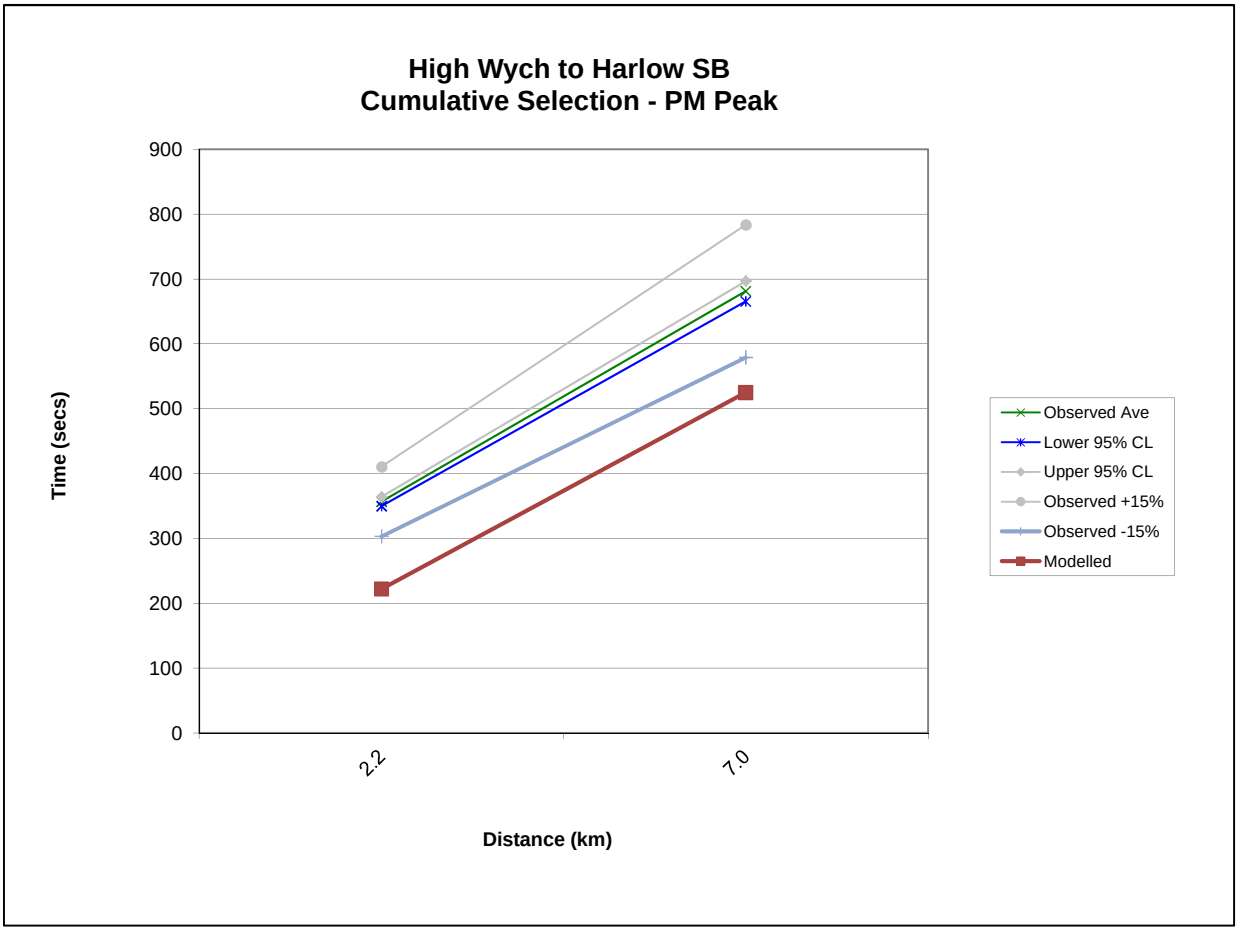

High Wych to Harlow NB
Individual Selection - PM Peak
Time (secs)
700
600
500
400
300
200
100
0
0
1
2
3
Section
Modelled
Observed ± 1 min
Observed ± 15%

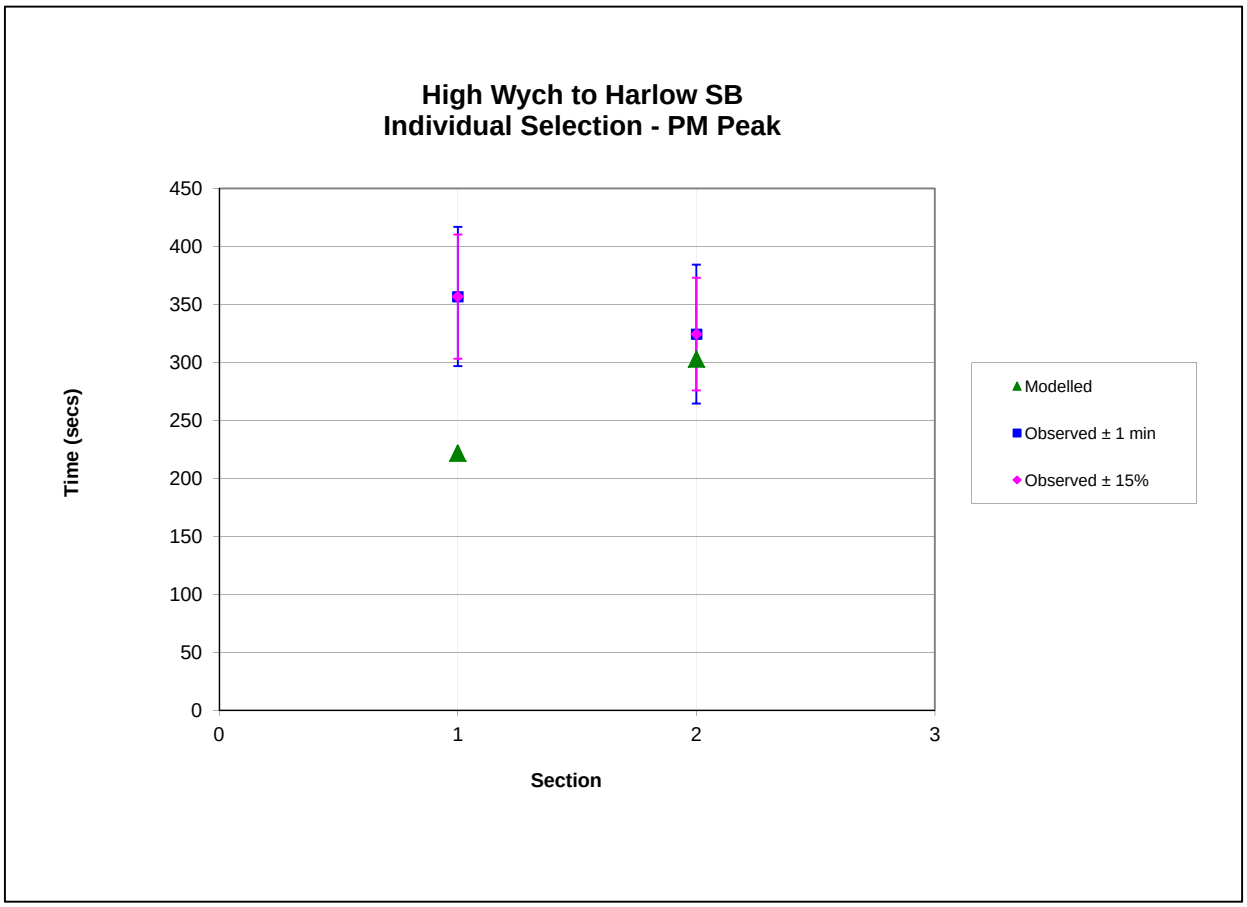

High Wych to Harlow SB
Cumulative Selection - AM Peak
Time (secs)
700
600
500
400
300
200
100
0
2.2
7.0
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

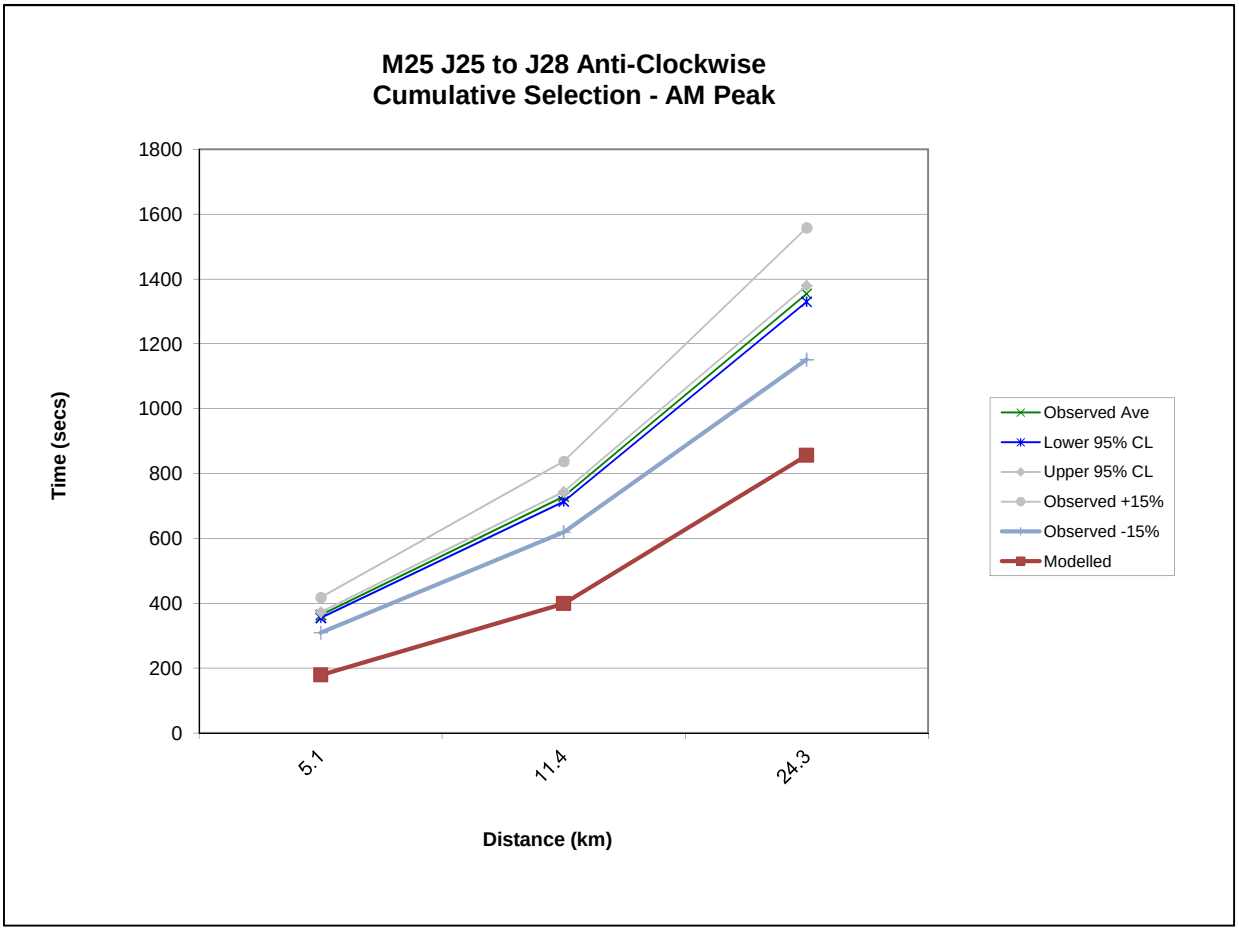

High Wych to Harlow SB
Individual Selection - AM Peak
Time (secs)
450
400
350
300
250
200
150
100
50
0
0
1
2
3
Section
Modelled
Observed ± 1 min
Observed ± 15%

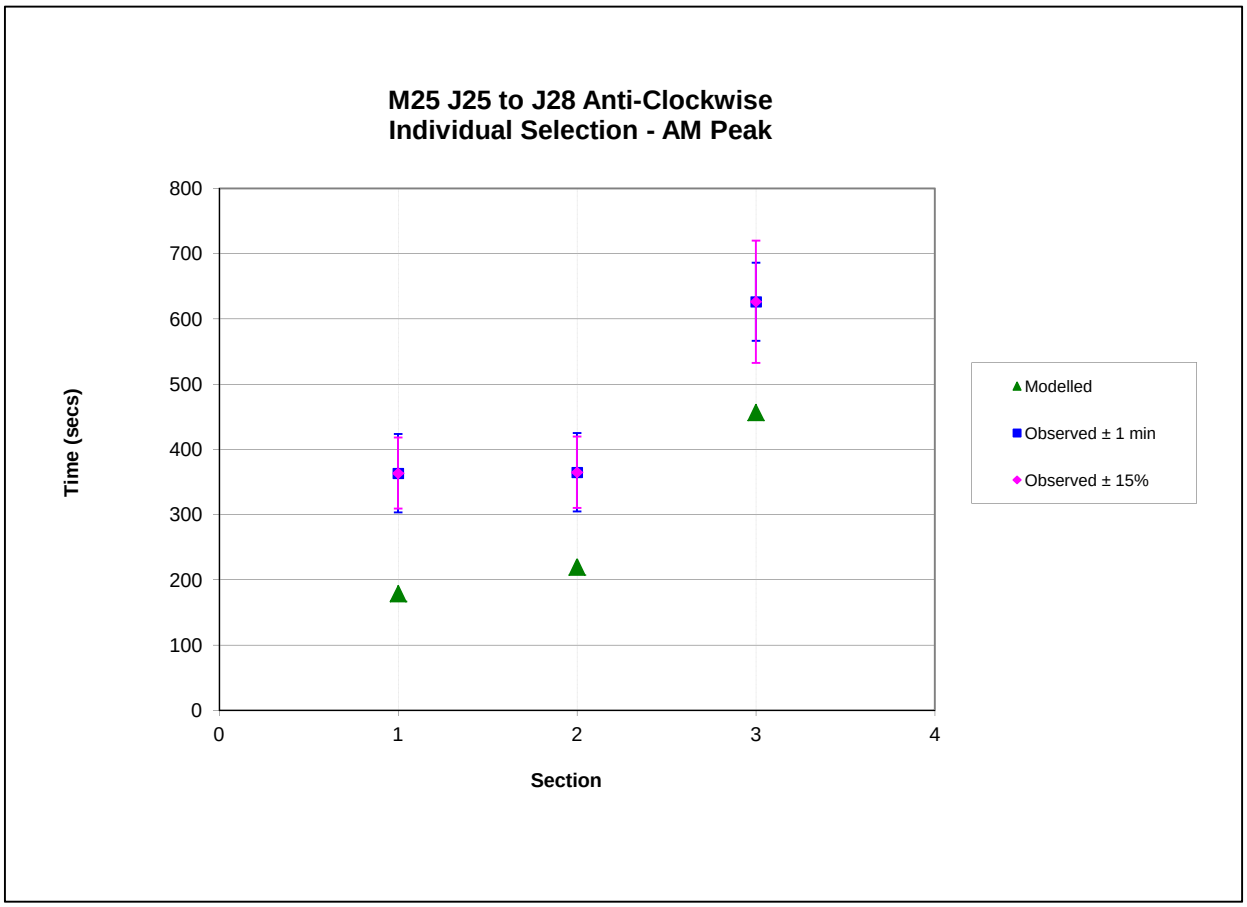

High Wych to Harlow SB
Cumulative Selection - IP Peak
Time (secs)
700
600
500
400
300
200
100
0
2.2
7.0
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

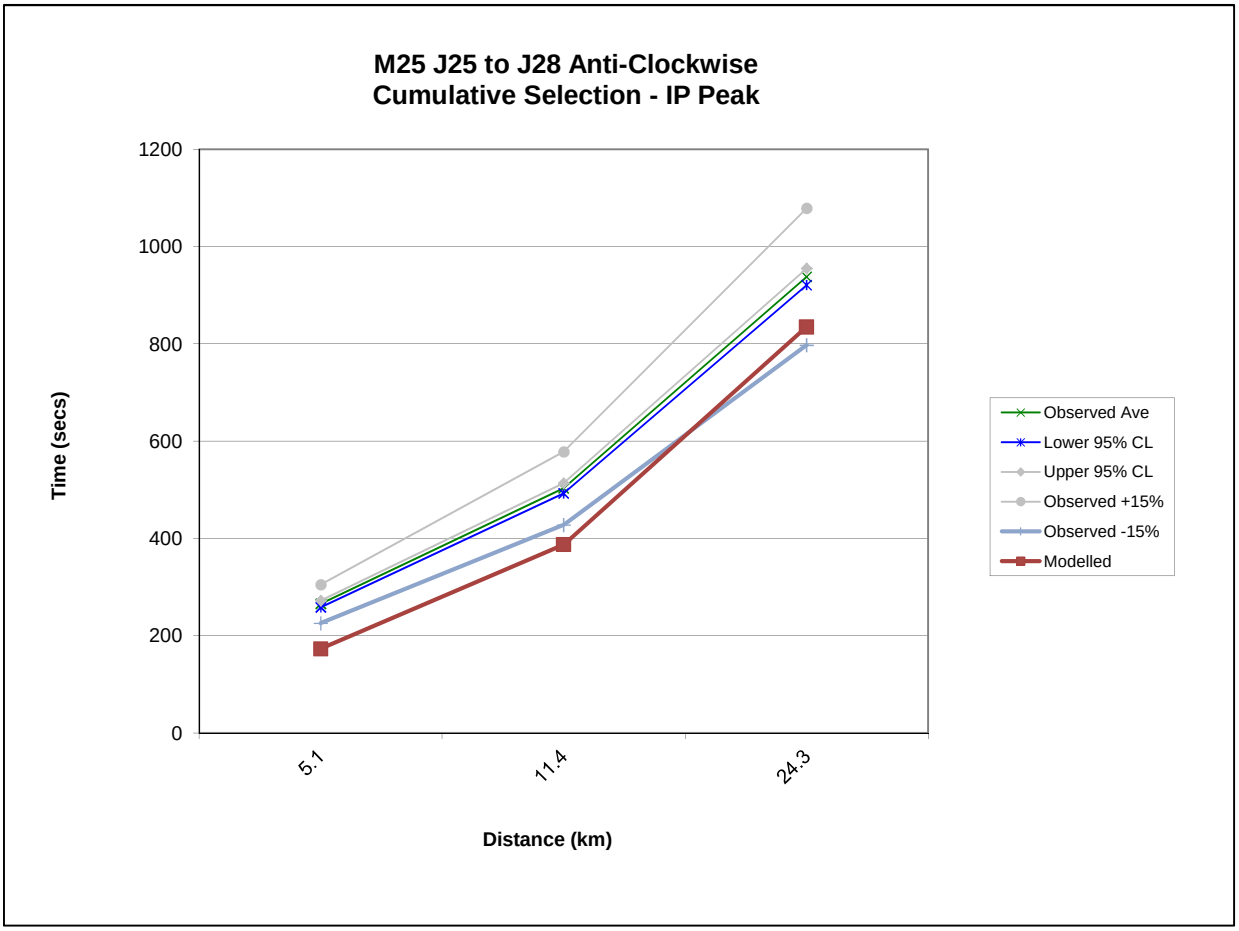

High Wych to Harlow SB
Individual Selection - IP Peak
Time (secs)
400
350
300
250
200
150
100
50
0
0
1
2
3
Section
Modelled
Observed ± 1 min
Observed ± 15%

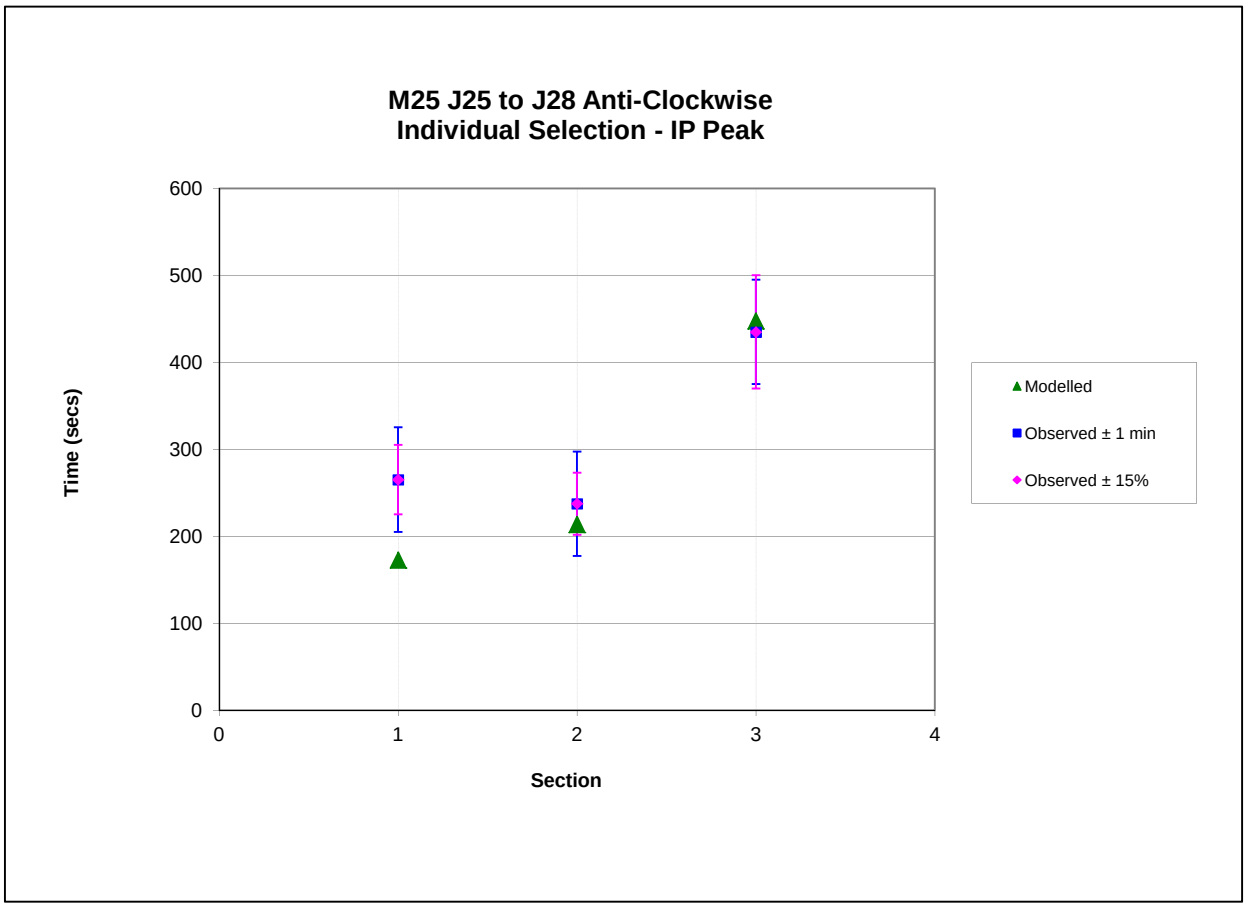

High Wych to Harlow SB
Cumulative Selection - PM Peak
Time (secs)
900
800
700
600
500
400
300
200
100
0
2.2
7.0
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

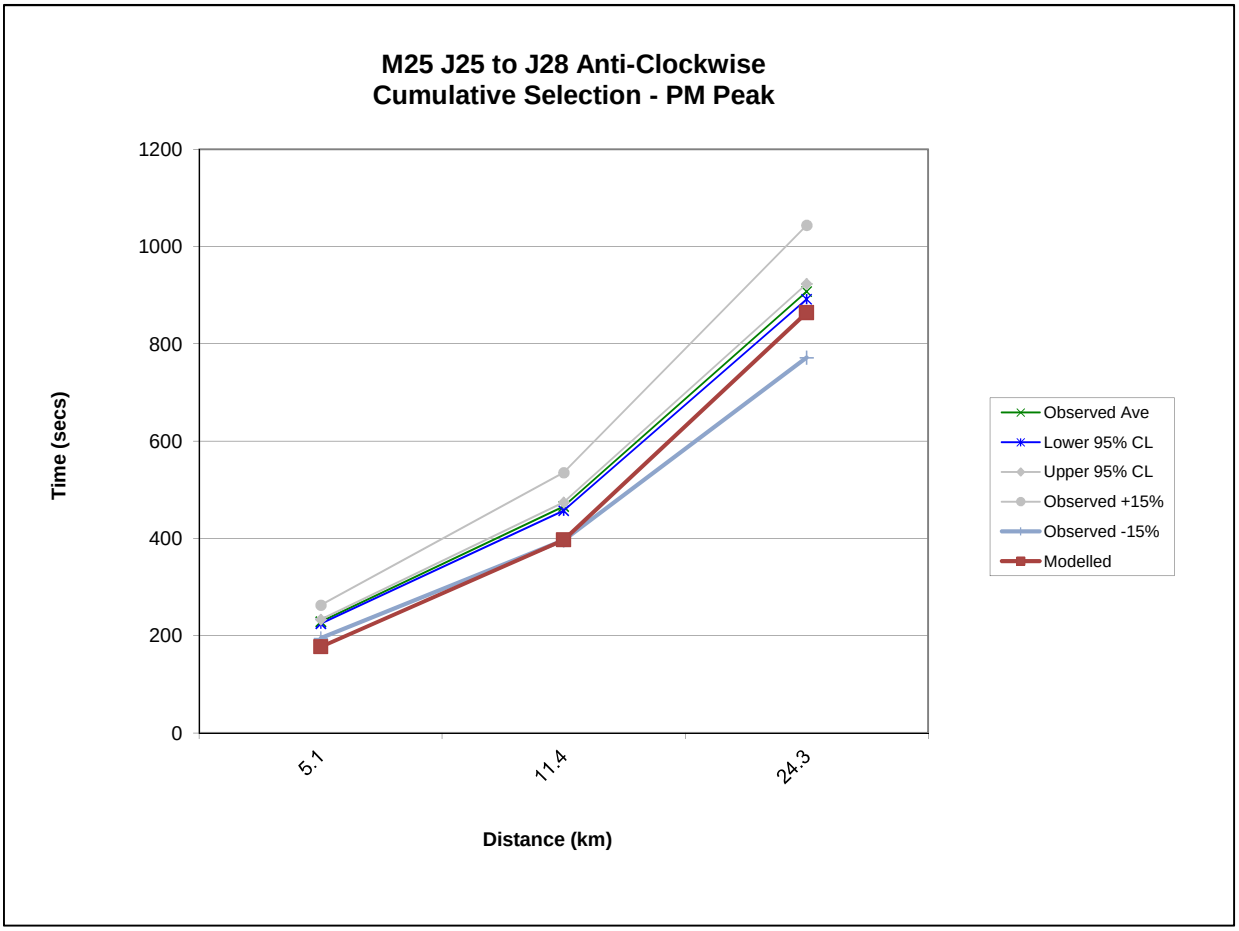

High Wych to Harlow SB
Individual Selection - PM Peak
Time (secs)
450
400
350
300
250
200
150
100
50
0
0
1
2
3
Section
Modelled
Observed ± 1 min
Observed ± 15%

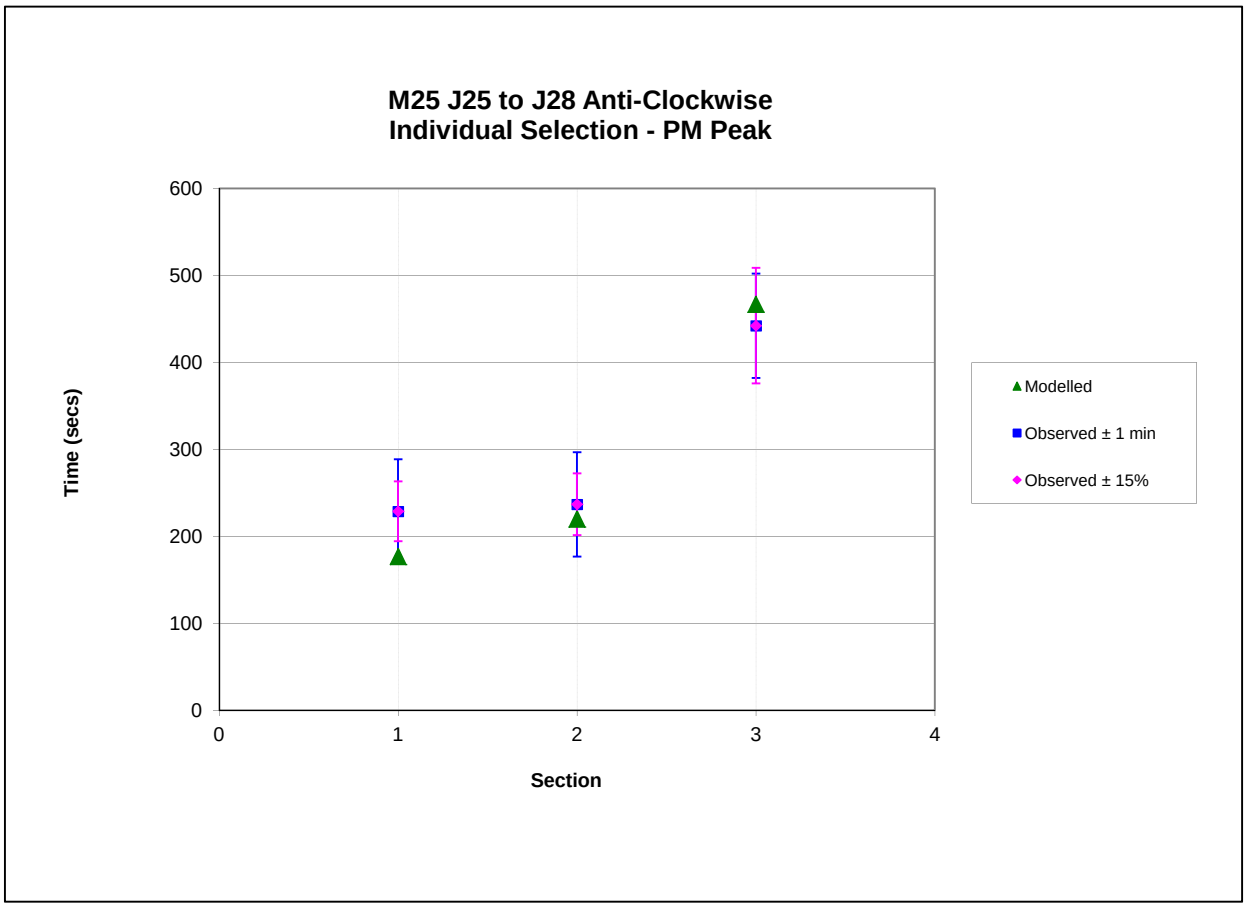

M25 J25 to J28 Anti-Clockwise
Cumulative Selection - AM Peak
Time (secs)
1800
1600
1400
1200
1000
800
600
400
200
0
5.1
11.4
24.3
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

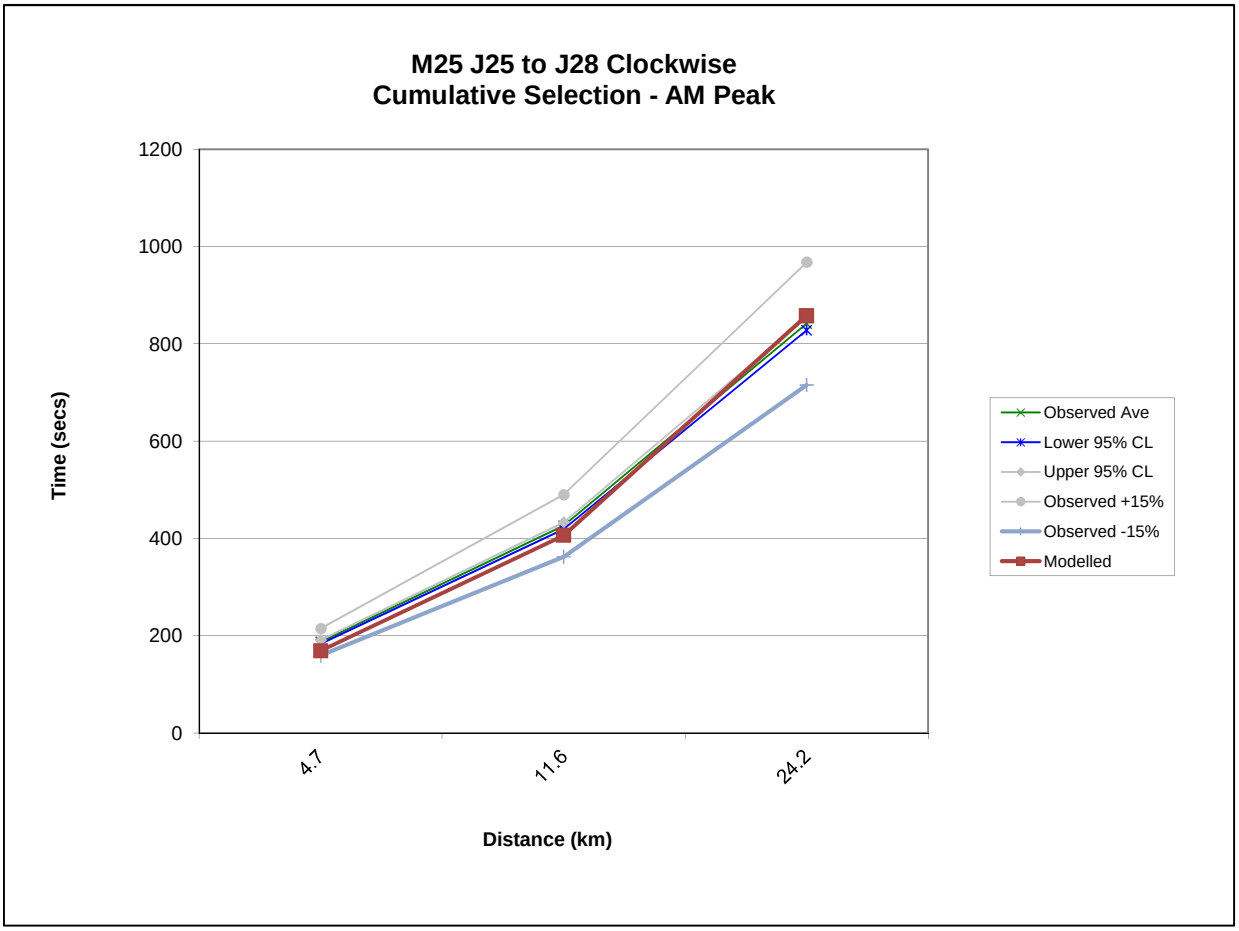

M25 J25 to J28 Anti-Clockwise
Individual Selection - AM Peak
Time (secs)
800
700
600
500
400
300
200
100
0
0
1
2
3
4
Section
Modelled
Observed ± 1 min
Observed ± 15%

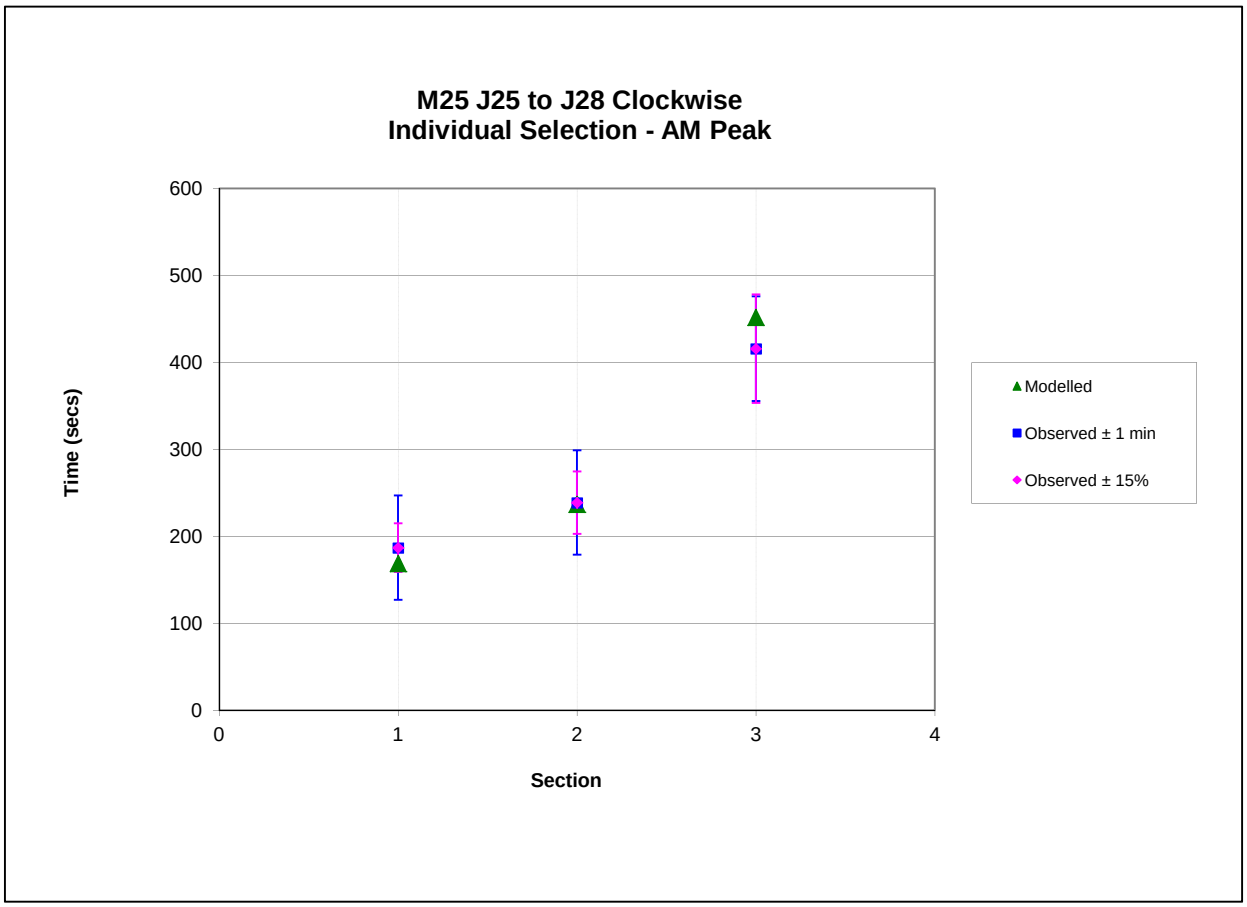

M25 J25 to J28 Anti-Clockwise
Cumulative Selection - IP Peak
Time (secs)
1200
1000
800
600
400
200
0
5.1
11.4
24.3
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

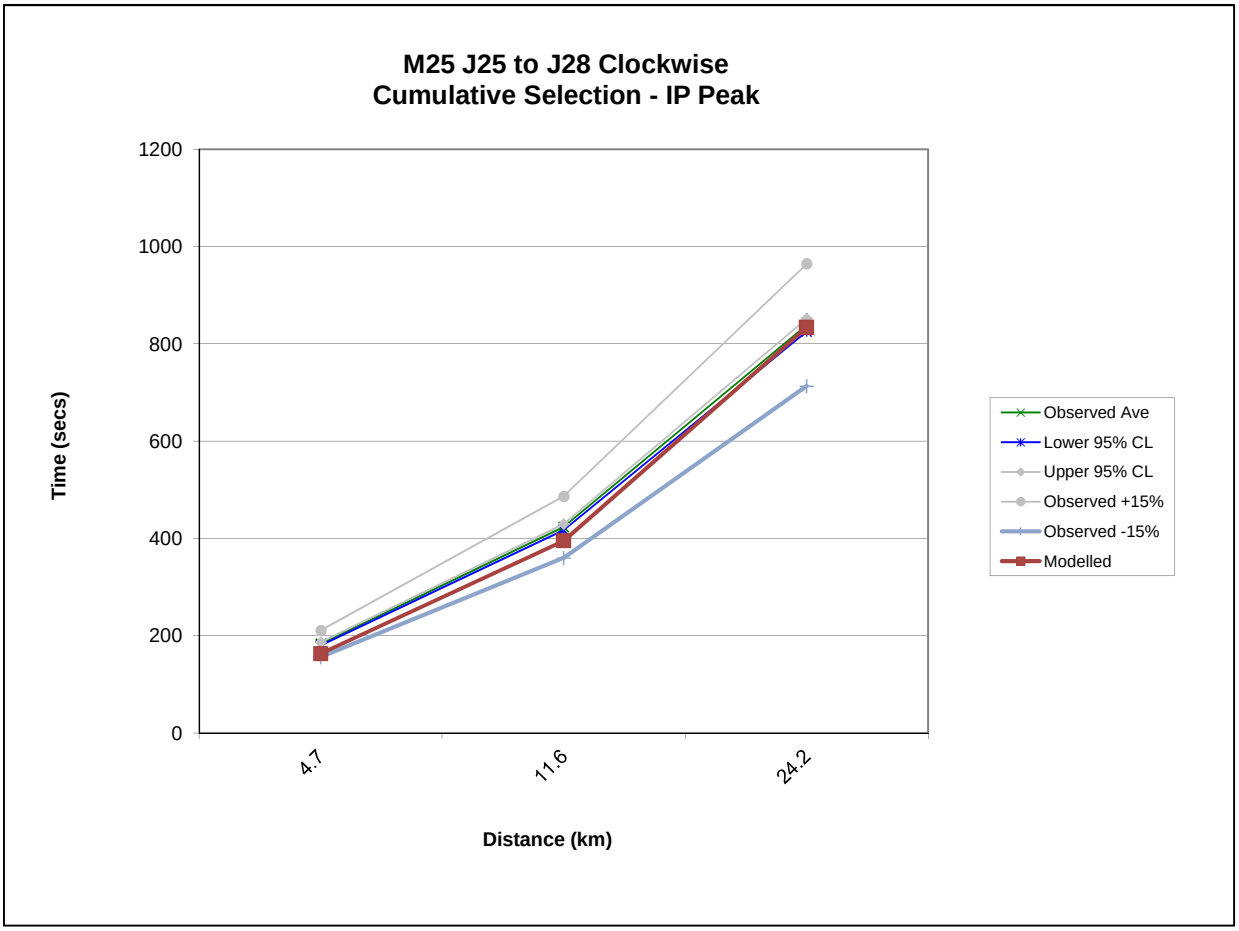

M25 J25 to J28 Anti-Clockwise
Individual Selection - IP Peak
Time (secs)
600
500
400
300
200
100
0
0
1
2
3
4
Section
Modelled
Observed ± 1 min
Observed ± 15%

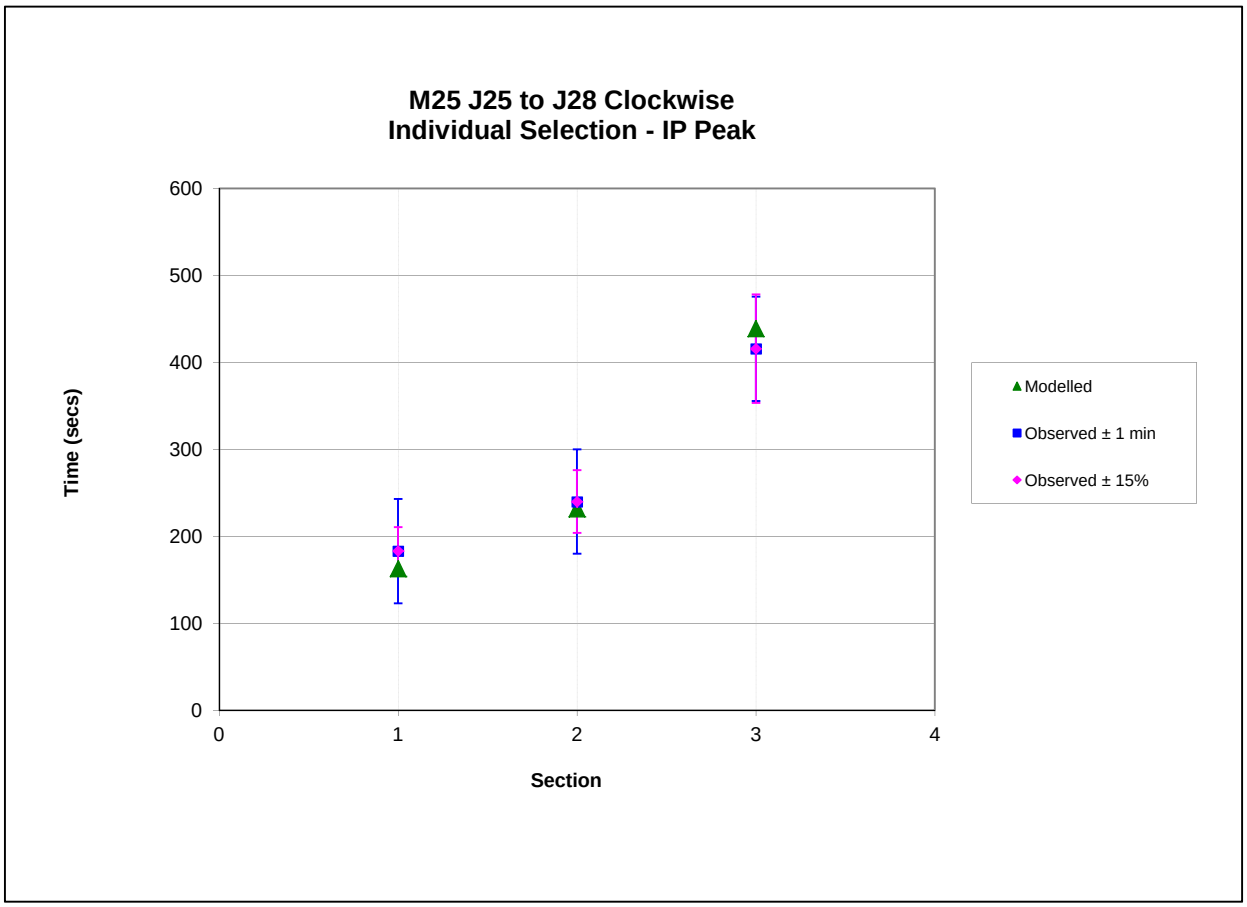

M25 J25 to J28 Anti-Clockwise
Cumulative Selection - PM Peak
Time (secs)
1200
1000
800
600
400
200
0
5.1
11.4
24.3
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

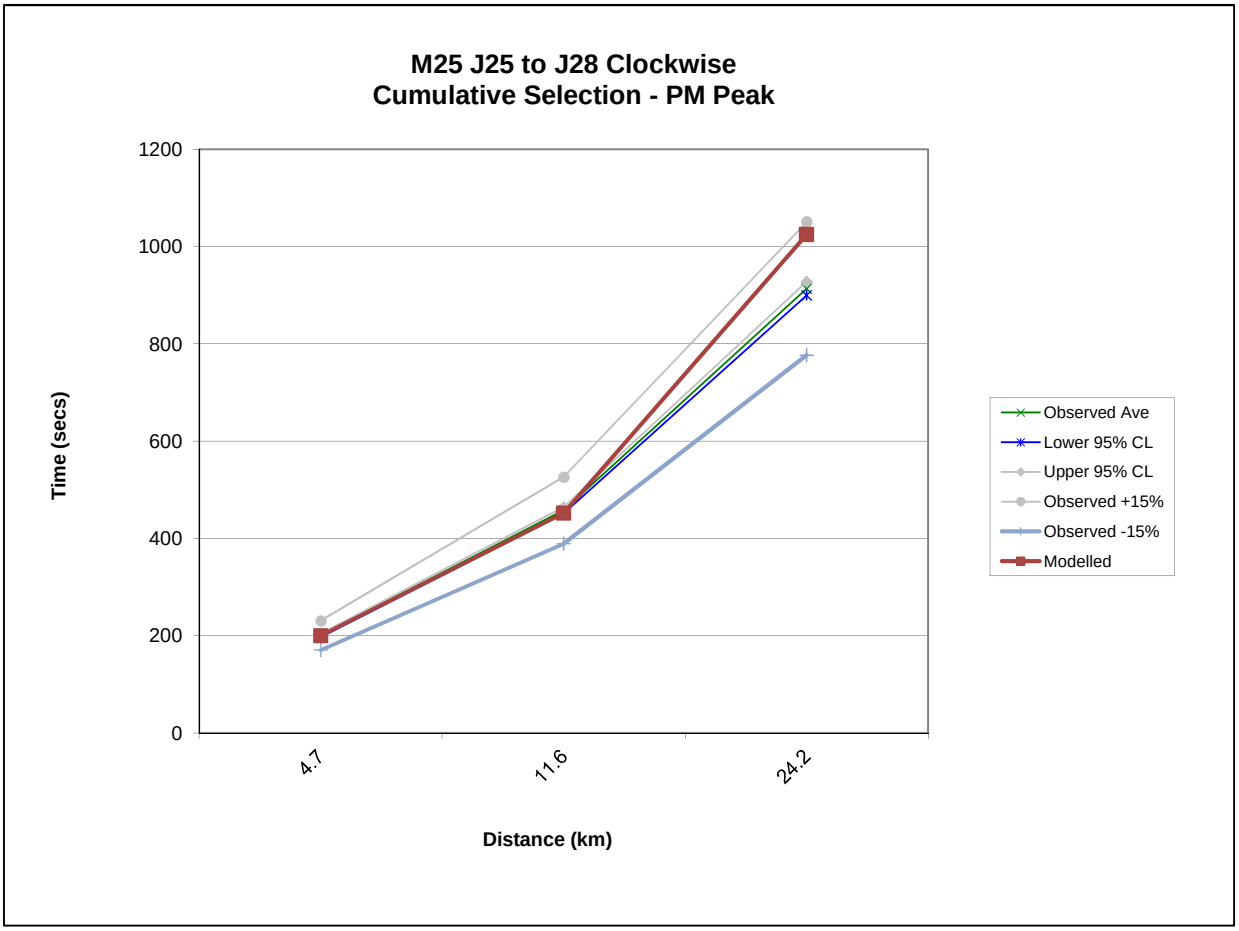

M25 J25 to J28 Anti-Clockwise
Individual Selection - PM Peak
Time (secs)
600
500
400
300
200
100
0
0
1
2
3
4
Section
Modelled
Observed ± 1 min
Observed ± 15%

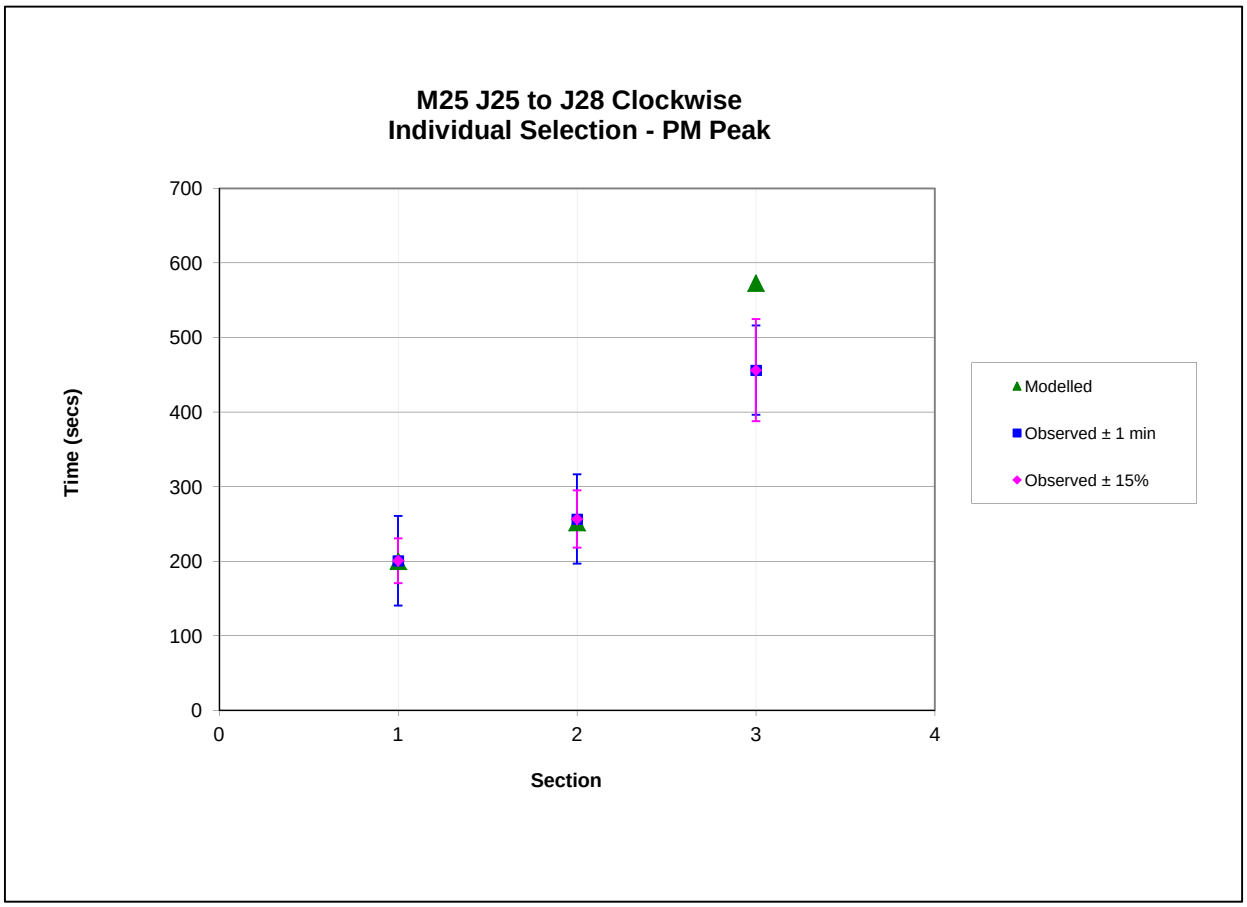

M25 J25 to J28 Clockwise
Cumulative Selection - AM Peak
Time (secs)
1200
1000
800
600
400
200
0
4.7
11.6
24.2
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

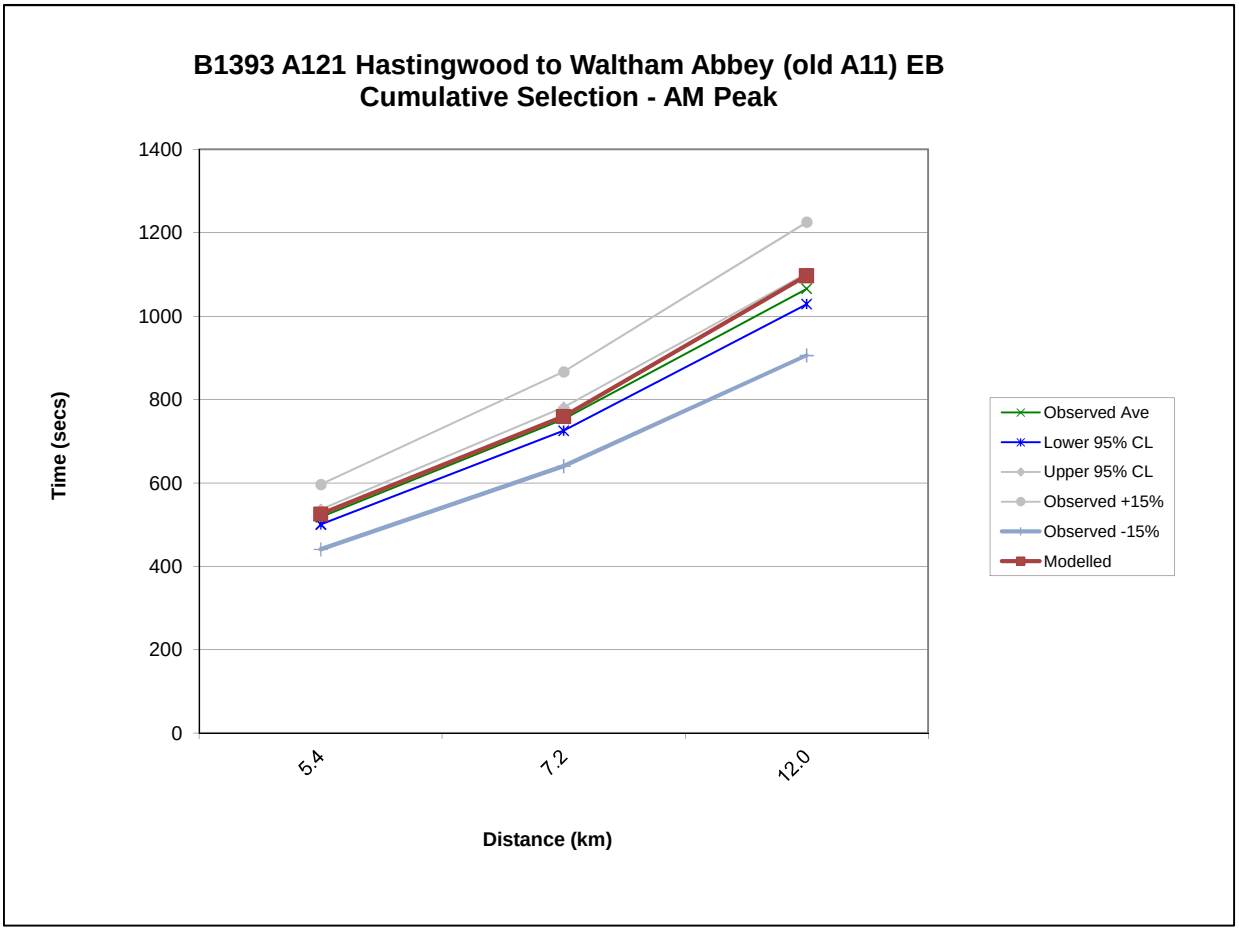

M25 J25 to J28 Clockwise
Individual Selection - AM Peak
Time (secs)
600
500
400
300
200
100
0
0
1
2
3
4
Section
Modelled
Observed ± 1 min
Observed ± 15%

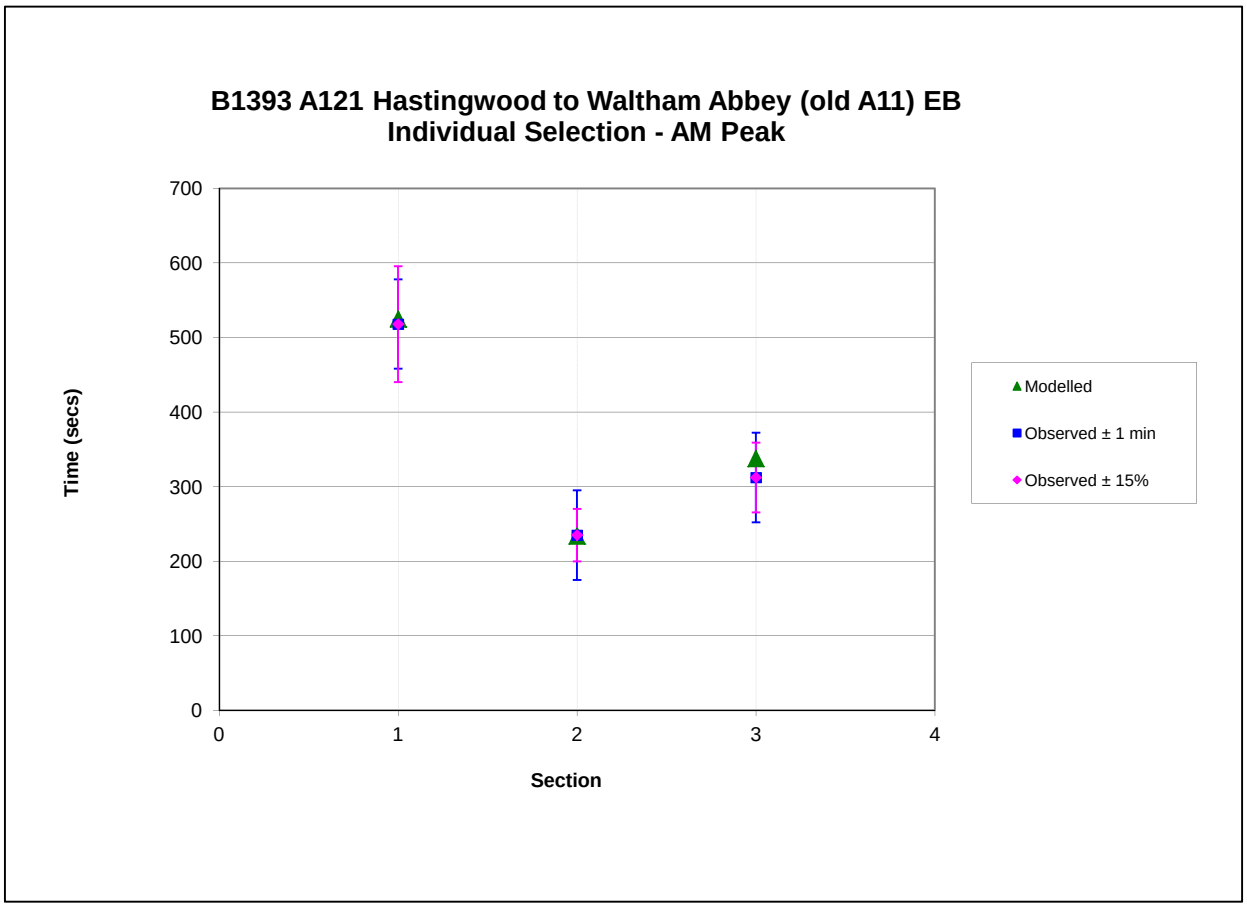

M25 J25 to J28 Clockwise
Cumulative Selection - IP Peak
Time (secs)
1200
1000
800
600
400
200
0
4.7
11.6
24.2
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

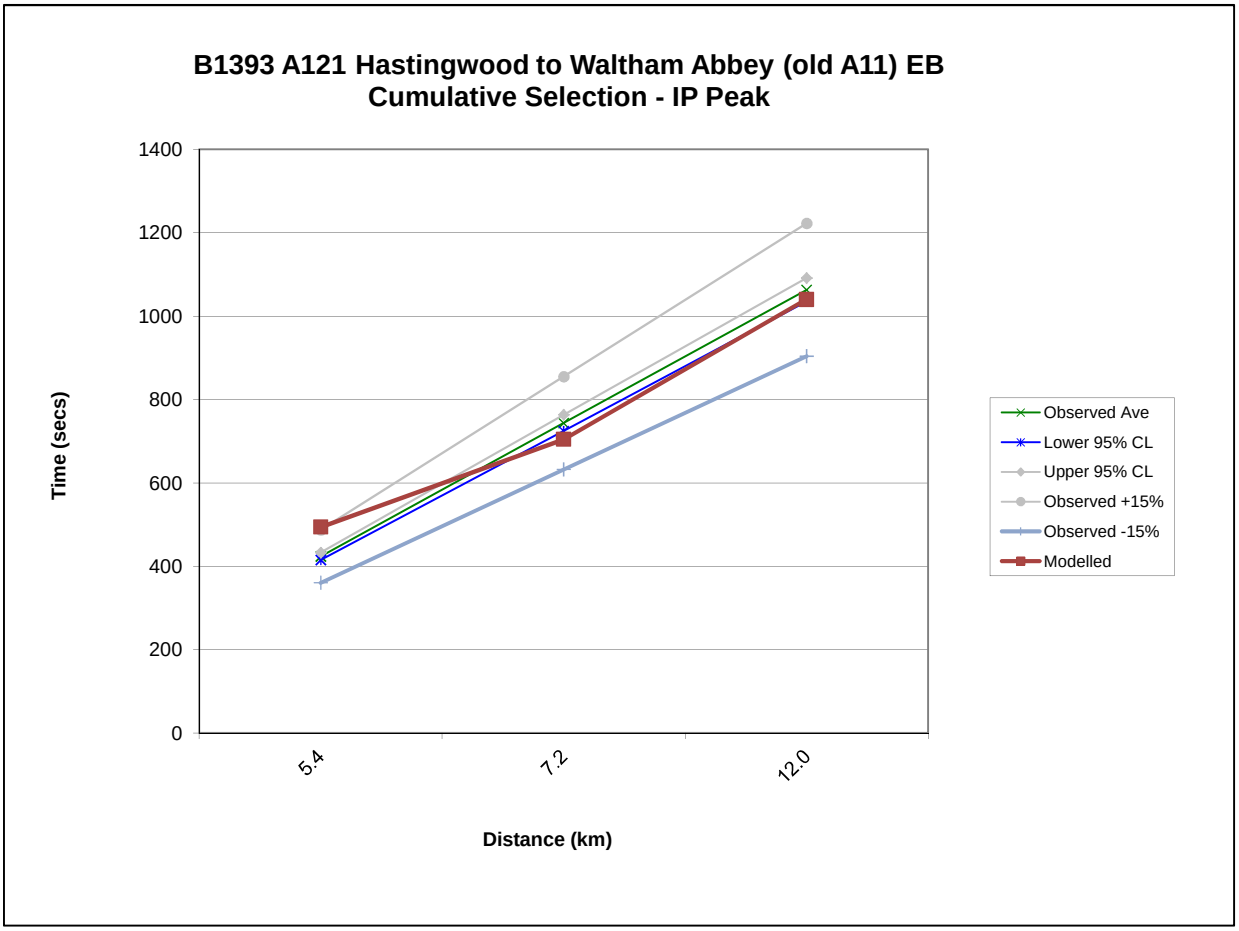

M25 J25 to J28 Clockwise
Individual Selection - IP Peak
Time (secs)
600
500
400
300
200
100
0
0
1
2
3
4
Section
Modelled
Observed ± 1 min
Observed ± 15%

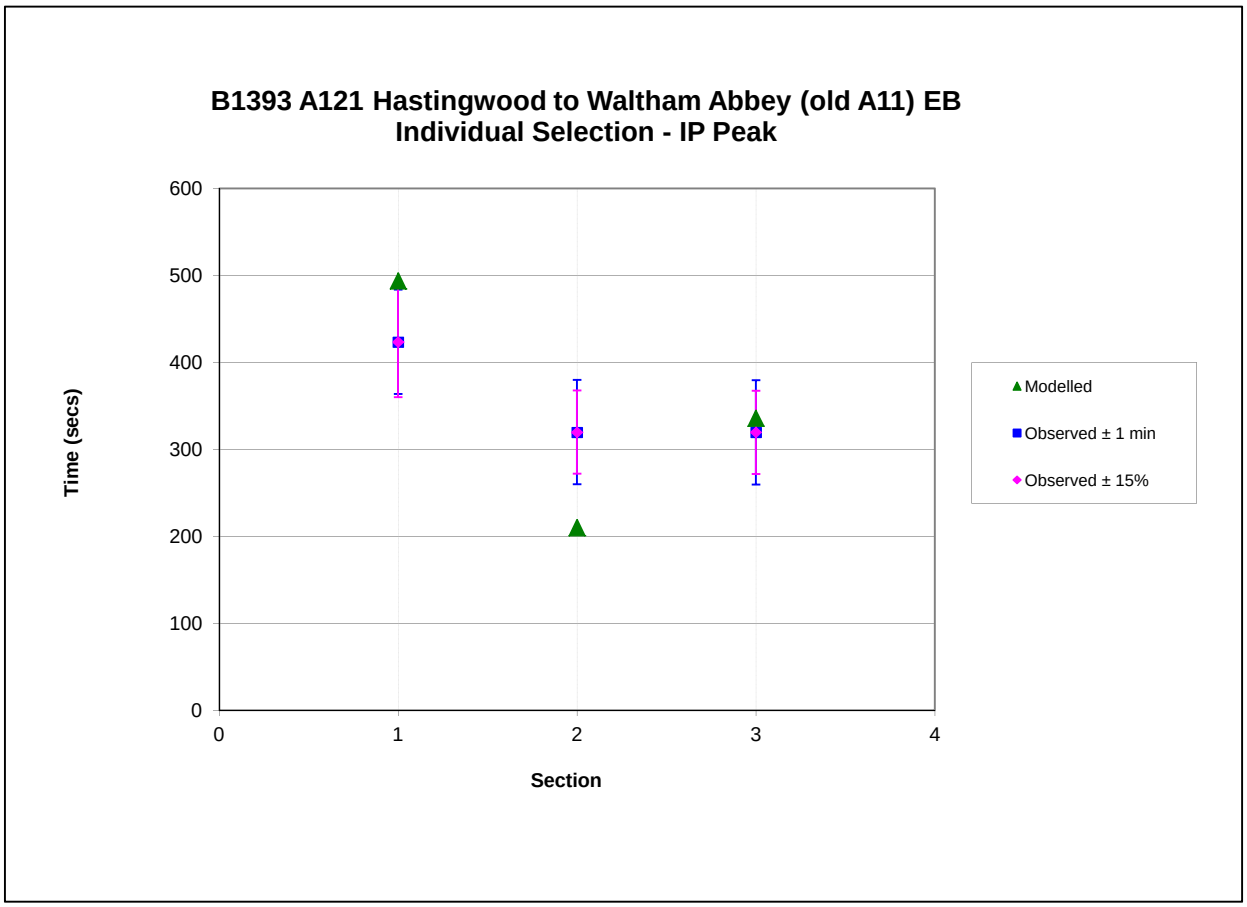

M25 J25 to J28 Clockwise
Cumulative Selection - PM Peak
Time (secs)
1200
1000
800
600
400
200
0
4.7
11.6
24.2
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

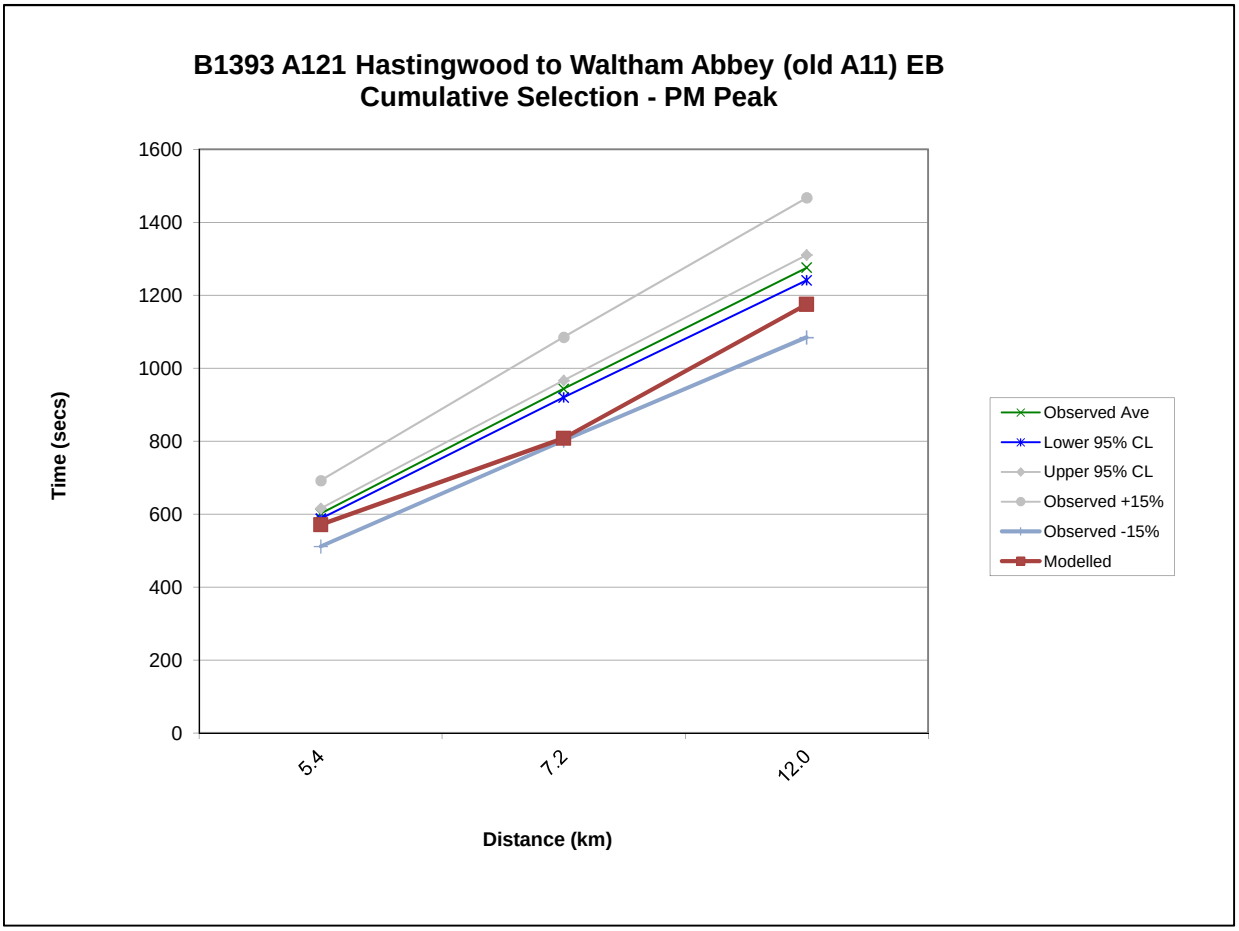

M25 J25 to J28 Clockwise
Individual Selection - PM Peak
Time (secs)
700
600
500
400
300
200
100
0
0
1
2
3
4
Section
Modelled
Observed ± 1 min
Observed ± 15%

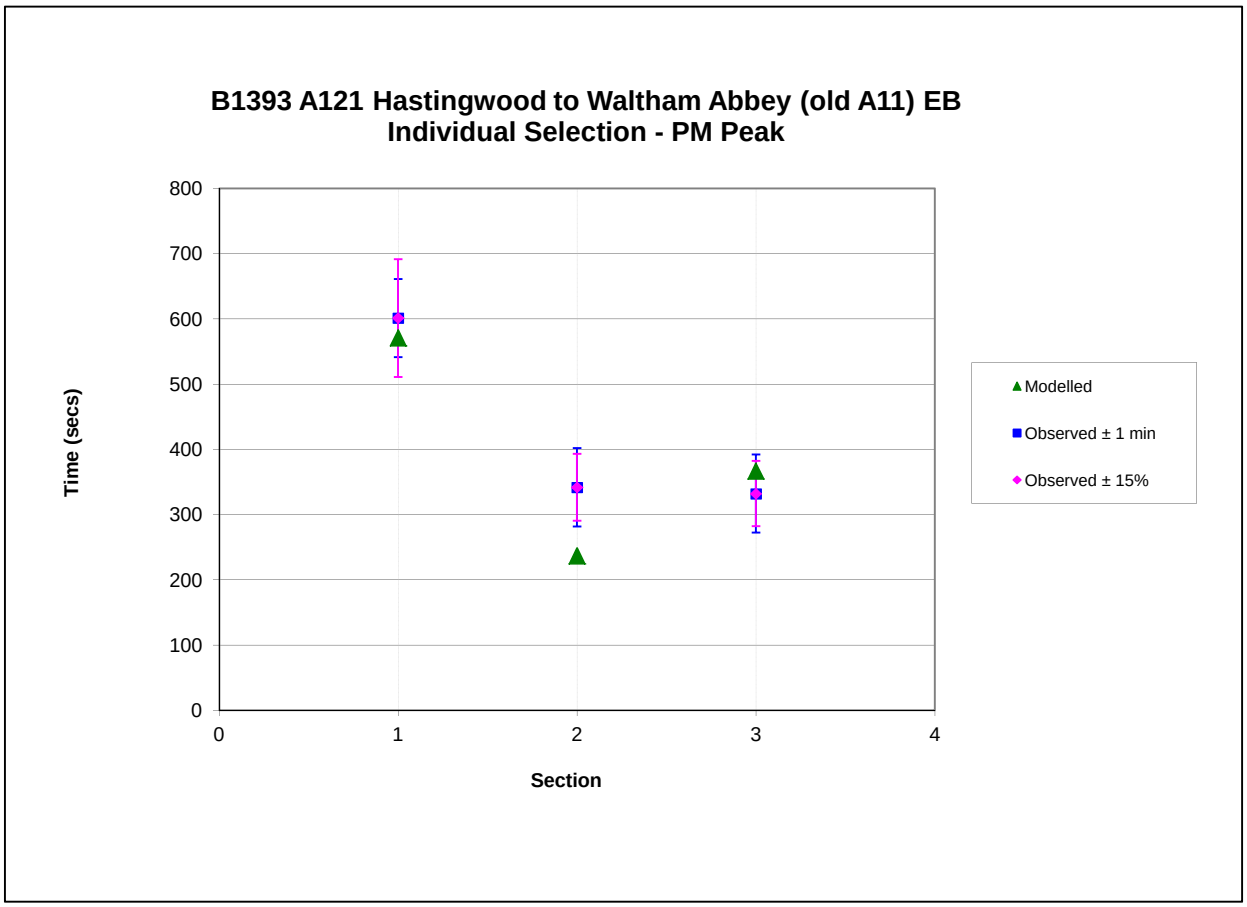

B1393 A121 Hastingwood to Waltham Abbey (old A11) EB
Cumulative Selection - AM Peak
Time (secs)
1400
1200
1000
800
600
400
200
0
5.4
7.2
12.0
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

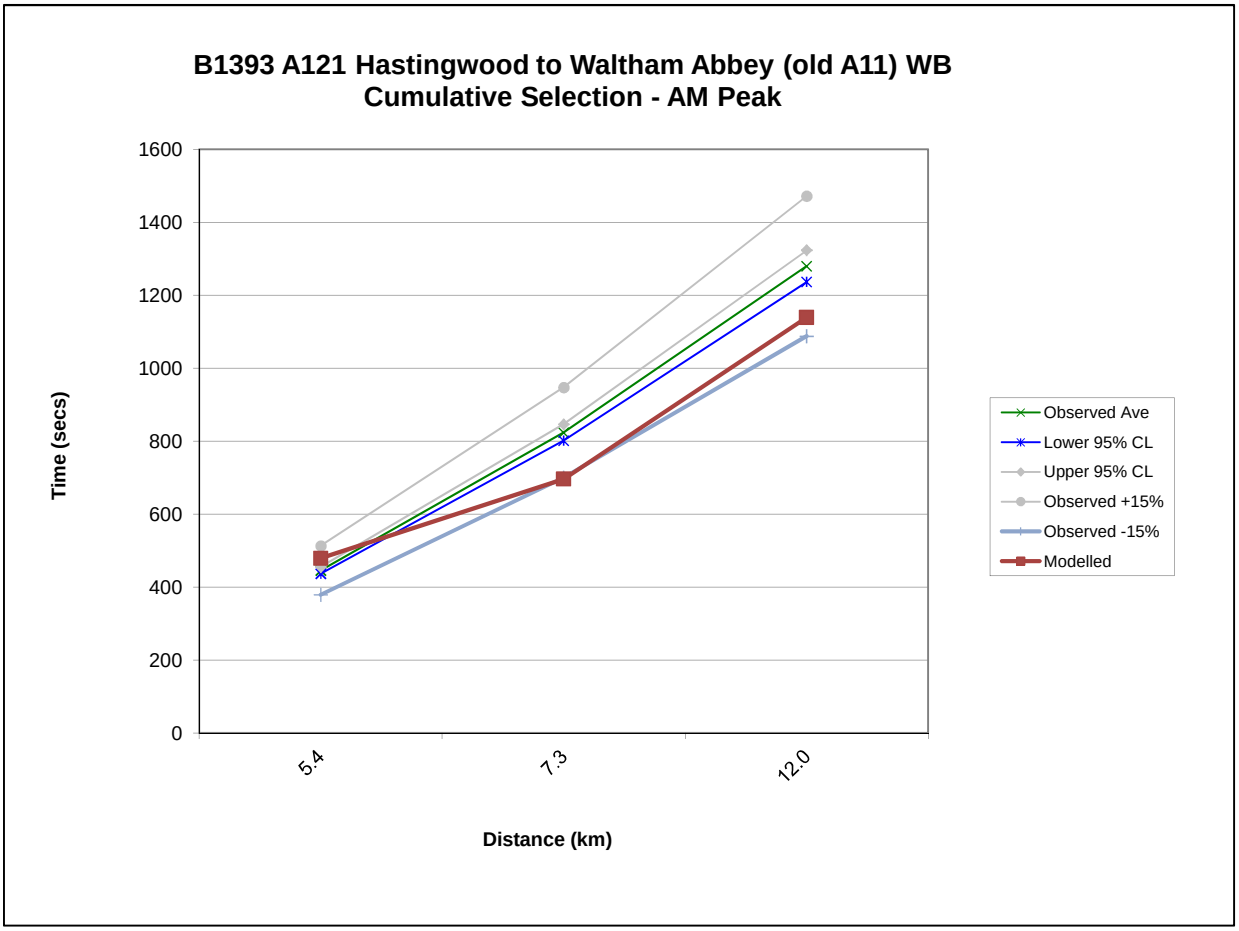

B1393 A121 Hastingwood to Waltham Abbey (old A11) EB
Individual Selection - AM Peak
Time (secs)
700
600
500
400
300
200
100
0
0
1
2
3
4
Section
Modelled
Observed ± 1 min
Observed ± 15%

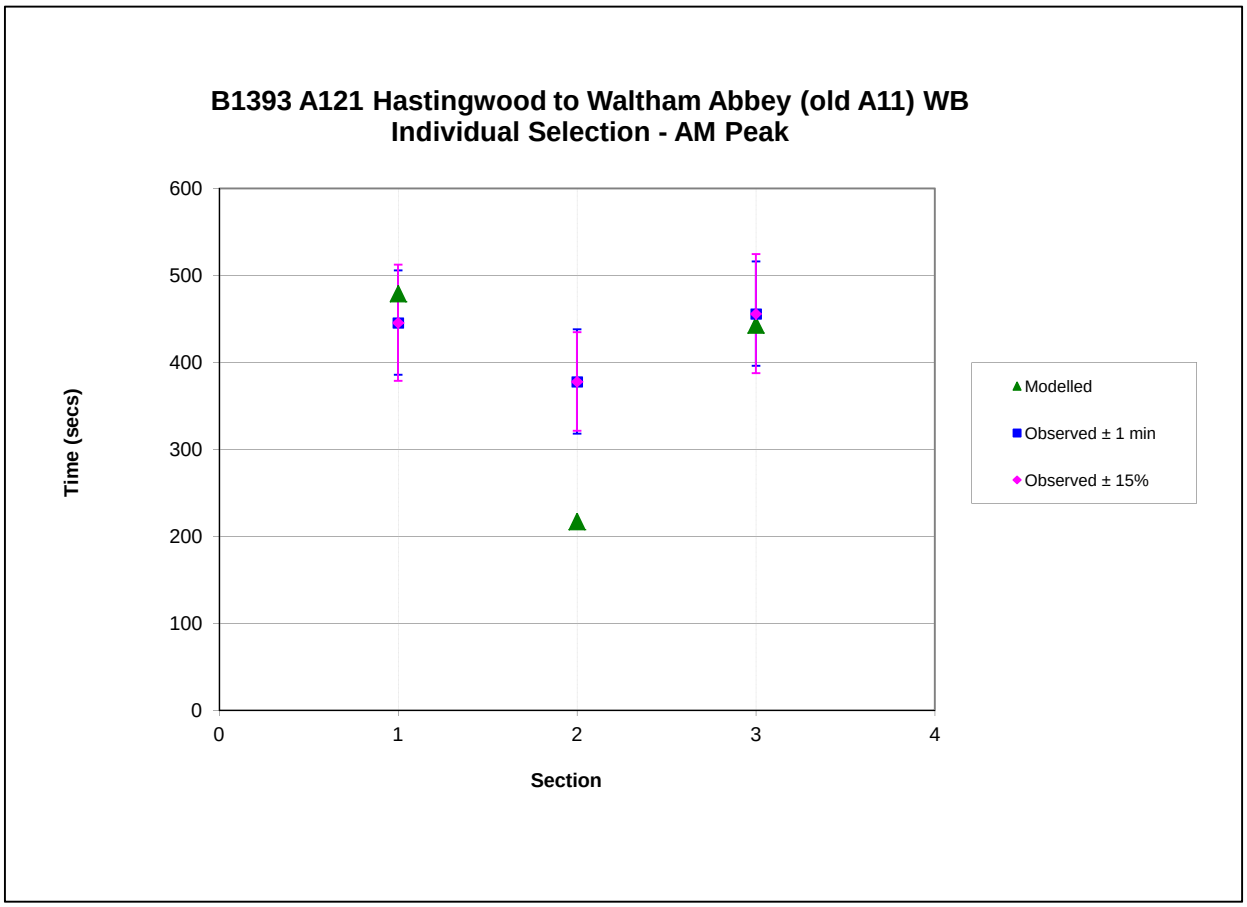

B1393 A121 Hastingwood to Waltham Abbey (old A11) EB
Cumulative Selection - IP Peak
Time (secs)
1400
1200
1000
800
600
400
200
0
5.4
7.2
12.0
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

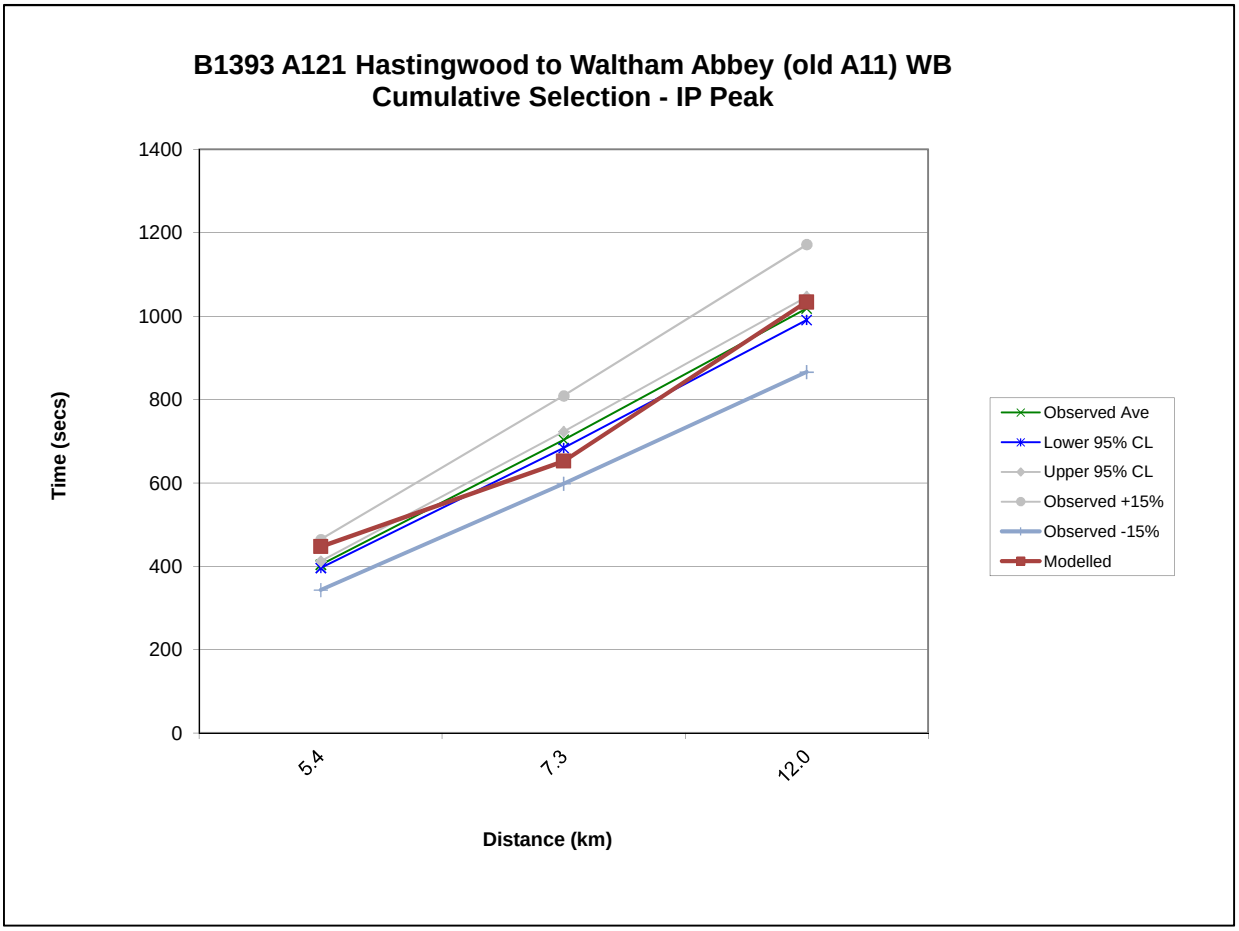

B1393 A121 Hastingwood to Waltham Abbey (old A11) EB
Individual Selection - IP Peak
Time (secs)
600
500
400
300
200
100
0
0
1
2
3
4
Section
Modelled
Observed ± 1 min
Observed ± 15%

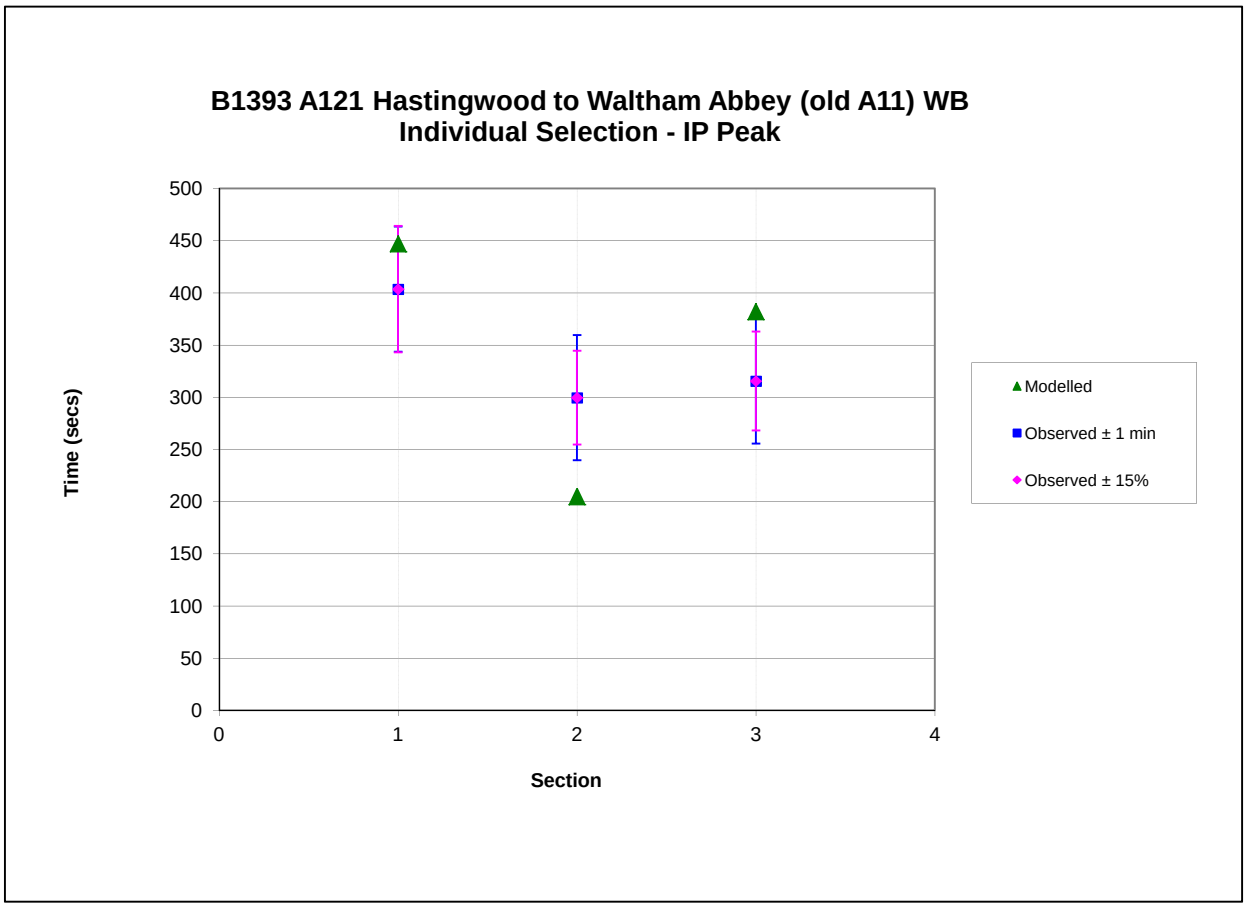

B1393 A121 Hastingwood to Waltham Abbey (old A11) EB
Cumulative Selection - PM Peak
Time (secs)
1600
1400
1200
1000
800
600
400
200
0
5.4
7.2
12.0
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled

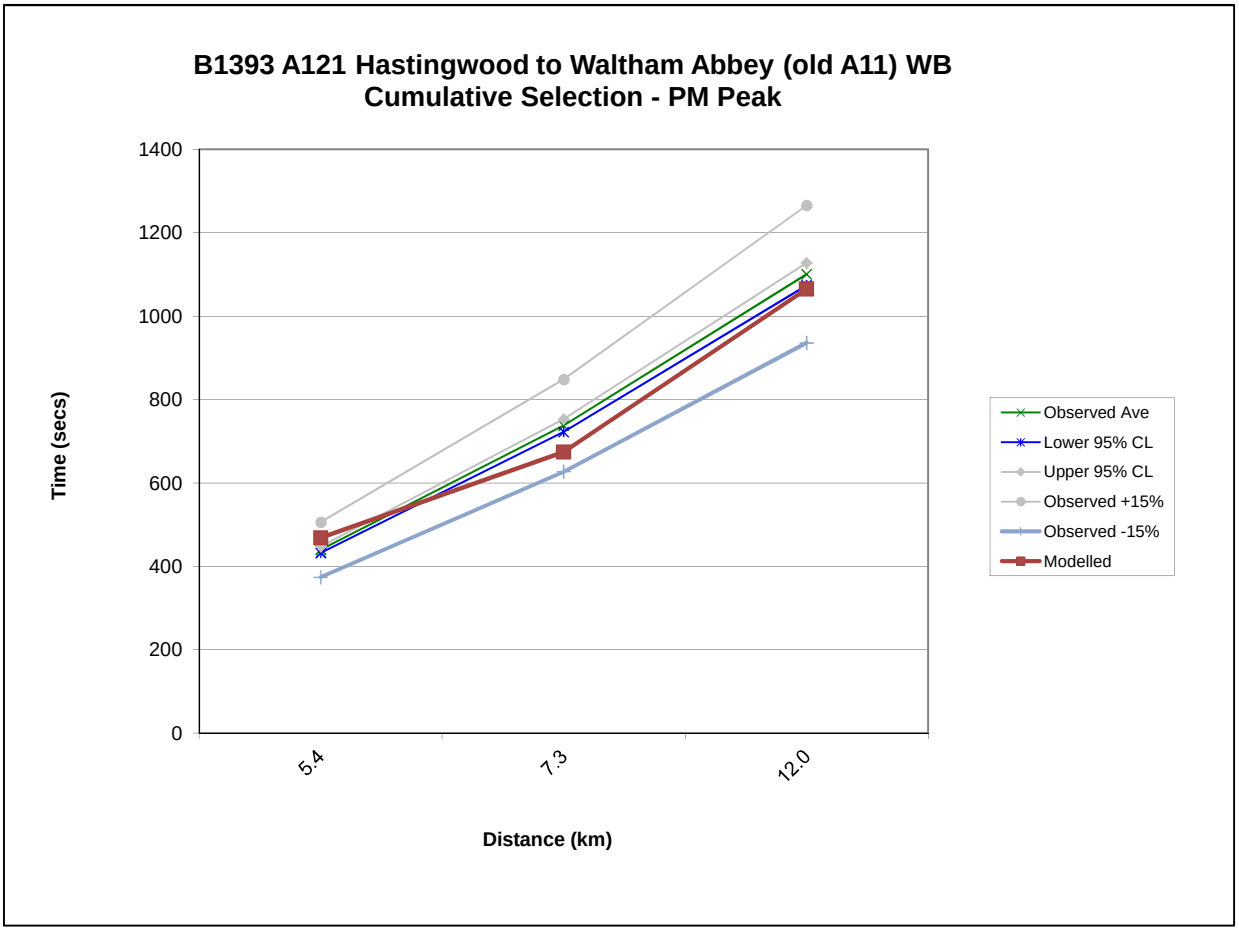

B1393 A121 Hastingwood to Waltham Abbey (old A11) EB
Individual Selection - PM Peak
Time (secs)
800
700
600
500
400
300
200
100
0
0
1
2
3
4
Section
Modelled
Observed ± 1 min
Observed ± 15%

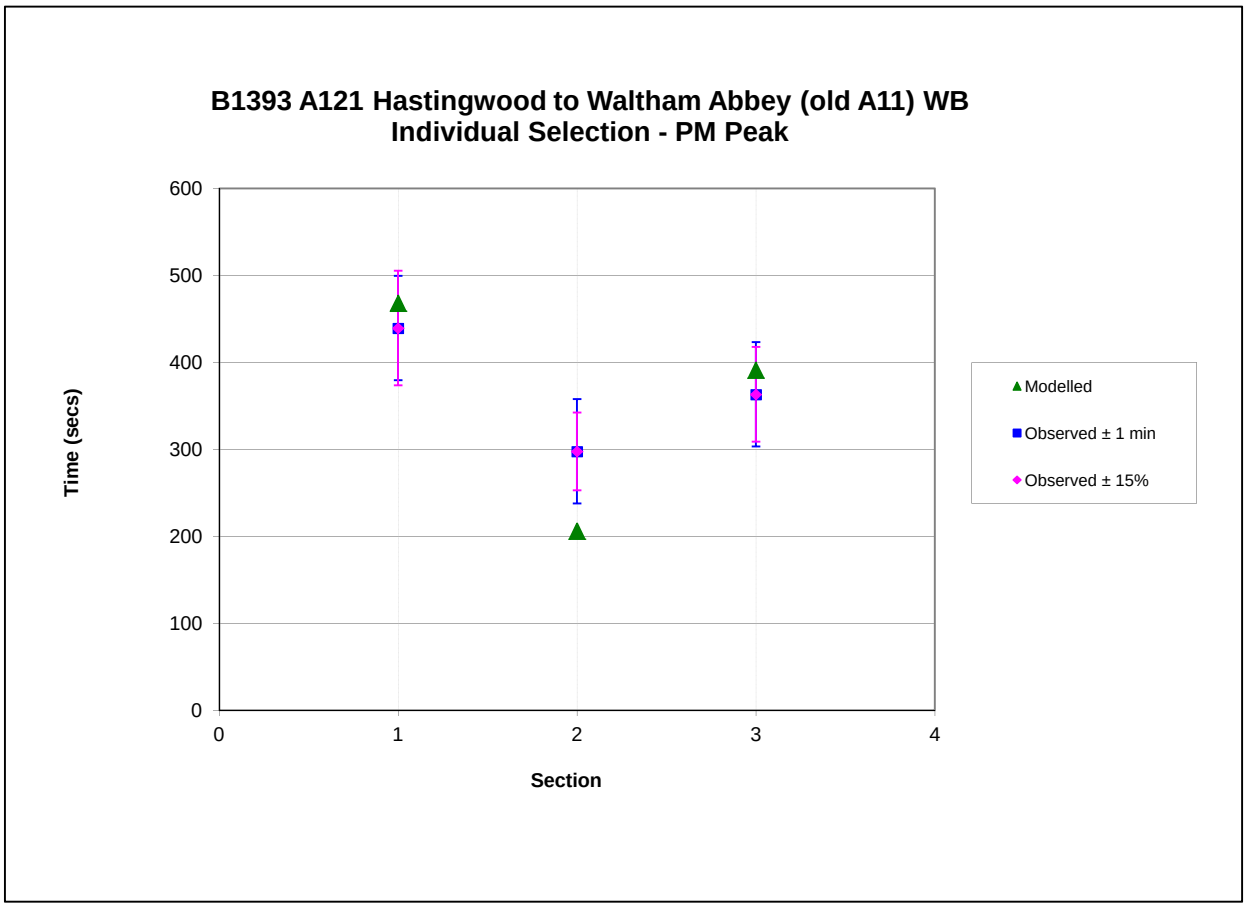

B1393 A121 Hastingwood to Waltham Abbey (old A11) WB
Cumulative Selection - AM Peak
Time (secs)
1600
1400
1200
1000
800
600
400
200
0
5.4
7.3
12.0
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled


B1393 A121 Hastingwood to Waltham Abbey (old A11) WB
Individual Selection - AM Peak
Time (secs)
600
500
400
300
200
100
0
0
1
2
3
4
Section
Modelled
Observed ± 1 min
Observed ± 15%


B1393 A121 Hastingwood to Waltham Abbey (old A11) WB
Cumulative Selection - IP Peak
Time (secs)
1400
1200
1000
800
600
400
200
0
5.4
7.3
12.0
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled


B1393 A121 Hastingwood to Waltham Abbey (old A11) WB
Individual Selection - IP Peak
Time (secs)
500
450
400
350
300
250
200
150
100
50
0
0
1
2
3
4
Section
Modelled
Observed ± 1 min
Observed ± 15%


B1393 A121 Hastingwood to Waltham Abbey (old A11) WB
Cumulative Selection - PM Peak
Time (secs)
1400
1200
1000
800
600
400
200
0
5.4
7.3
12.0
Distance (km)
Observed Ave
Lower 95% CL
Upper 95% CL
Observed +15%
Observed -15%
Modelled


B1393 A121 Hastingwood to Waltham Abbey (old A11) WB
Individual Selection - PM Peak
Time (secs)
600
500
400
300
200
100
0
0
1
2
3
4
Section
Modelled
Observed ± 1 min
Observed ± 15%

Appendix F. Matrix Integrity

M11 Junction 7a Model Changes in Demand due to Matrix Estimation
Sector Analysis
Model: V3.15
AM_Commute_Car
Vehicle Class Car
Purpose Commute
Time Period AM
Result Prior

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Sum
1	14	75	7	19	54	16	2	2	3	23	49	47	65	133	4	12	59	5	12	16	6	623
2	97	356	64	192	292	17	11	4	26	39	154	67	45	105	7	38	110	8	12	30	10	1,684
3	16	64	6	91	96	1	2	7	2	10	38	12	10	27	1	10	8	1	5	8	2	416
4	16	62	30	543	1080	65	10	26	37	13	54	114	75	73	2	83	47	2	66	91	3	2,491
5	39	187	65	1850	541	84	3	43	11	37	137	184	139	150	6	64	57	3	44	32	8	3,687
6	7	5	4	49	27	27	0	29	0	5	1	54	134	85	2	36	116	2	18	36	2	640
7	6	8	2	66	6	3	615	407	631	35	68	4	265	9	13	142	1154	100	84	43	8	3,669
8	5	3	1	65	16	34	367	32	62	9	11	21	579	32	0	26	407	28	24	19	2	1,744
9	2	31	1	72	7	0	518	54	772	90	279	1	186	1	18	344	853	52	49	33	9	3,374
10	27	33	8	47	50	8	74	21	131	4533	167	122	71	361	0	2	305	0	214	0	16	6,191
11	45	159	29	130	145	15	154	30	534	264	176	29	132	24	1	347	451	1	4	10	6	2,685
12	33	71	19	147	170	84	7	15	1	126	27	187	557	554	15	4	54	89	7	19	13	2,199
13	66	9	6	248	77	63	339	805	224	168	56	340	195	5315	0	976	80	451	0	418	684	10,521
14	78	34	17	103	107	82	18	117	3	879	15	746	5184	17519	0	19	55	21	1	598	332	25,927
15	5	3	1	7	5	2	36	0	25	0	2	16	0	0	0	196	204	0	0	0	0	499
16	7	21	3	79	29	18	244	47	613	1	353	3	987	10	80	9573	3	0	0	0	0	12,072
17	57	20	6	116	29	62	831	299	659	242	208	22	139	22	102	1	1	0	0	0	0	2,816
18	5	3	1	3	4	2	8	2	3	0	1	7	33	2	0	0	0	0	0	0	0	74
19	21	3	11	38	27	11	117	25	29	130	1	4	0	0	150	0	0	0	0	0	0	568
20	15	11	2	21	8	17	25	11	6	0	3	10	262	137	0	0	0	0	0	0	0	527
21	6	4	1	6	6	2	18	3	15	4553	1	19	455	125	0	0	0	0	0	0	0	5,216
Sum	567	1,160	285	3,893	2,778	613	3,398	1,981	3,789	11,159	1,801	2,008	9,512	24,684	403	11,872	3,964	762	541	1,352	1,100	87,623

M11 Junction 7a Model Changes in Demand due to Matrix Estimation
Sector Analysis
Model: V3.15
AM_Business_Car
Vehicle Class Car
Purpose Business
Time Period AM
Result Prior

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Sum
1	0	2	0	1	3	1	0	0	0	0	1	1	1	2	0	0	0	0	0	0	0	14
2	3	22	4	13	21	2	1	0	1	1	7	5	2	6	0	2	2	0	0	1	0	95
3	1	3	0	6	5	0	0	1	0	0	2	1	0	2	0	0	0	0	0	0	0	22
4	1	4	2	23	75	5	2	2	2	1	3	5	5	4	0	2	4	0	1	1	0	143
5	2	15	4	71	32	5	0	3	0	2	6	9	3	6	0	2	1	0	1	0	0	163
6	0	0	0	5	3	1	0	1	0	0	0	1	1	2	0	0	1	0	1	0	0	17
7	0	0	0	5	1	0	21	12	20	4	3	0	183	0	1	21	162	0	25	2	1	462
8	0	0	0	3	1	1	11	1	3	1	1	1	107	5	0	6	66	0	8	1	0	216
9	0	1	0	4	1	0	17	4	30	8	7	0	113	0	2	34	96	0	10	2	1	330
10	0	1	0	5	3	0	13	4	22	440	21	14	103	122	0	0	183	0	28	0	3	960
11	1	7	2	9	8	2	8	2	16	15	7	1	93	1	0	34	78	0	0	0	0	285
12	1	6	2	6	13	3	0	0	0	9	1	8	106	43	2	0	5	0	0	0	1	207
13	1	0	0	20	4	0	83	55	89	34	17	38	26	1017	3	226	315	0	17	11	17	1,973
14	1	2	1	10	5	1	0	8	0	104	0	47	1760	2440	2	3	16	0	1	7	38	4,447
15	0	0	0	1	0	0	3	0	5	0	0	4	8	2	0	27	36	0	1	0	0	86
16	0	0	0	8	2	0	35	9	61	0	38	0	728	5	9	928	2	0	0	0	0	1,827
17	0	0	0	13	2	0	91	33	96	34	19	1	448	3	5	1	0	0	0	0	0	748
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
19	0	0	0	3	1	0	19	5	16	9	0	0	14	0	1	0	0	0	0	0	0	70
20	0	0	0	1	0	0	3	1	2	0	0	1	50	7	0	0	0	0	0	0	0	66
21	0	0	0	1	1	0	2	1	4	234	0	3	115	53	0	0	0	0	0	0	0	415
Sum	11	67	17	208	180	22	309	144	367	897	134	140	3,867	3,720	24	1,286	969	1	92	26	63	12,544

M11 Junction 7a Model Changes in Demand due to Matrix Estimation
Sector Analysis
Model: V3.15
AM_Other_Car
Vehicle Class Car
Purpose Other
Time Period AM
Result Prior

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Sum
1	23	71	14	19	29	8	4	6	4	23	43	33	124	112	4	7	89	5	20	15	6	659
2	65	280	45	66	150	15	7	6	23	29	95	40	29	55	4	20	48	4	7	15	5	1,007
3	8	63	9	28	68	3	1	3	1	7	22	10	4	13	1	8	4	1	4	4	1	265
4	11	52	19	213	732	35	7	10	19	11	32	30	35	34	1	40	22	1	29	38	2	1,370
5	32	141	54	719	402	43	2	15	7	25	75	82	79	92	4	29	30	2	28	11	5	1,876
6	14	4	1	41	34	17	1	19	0	6	3	30	99	63	2	29	86	2	13	29	3	497
7	13	8	2	14	3	2	830	231	271	3	15	5	259	16	0	21	463	0	3	0	0	2,159
8	10	5	1	23	18	23	299	21	34	1	5	8	301	8	0	4	163	0	1	0	0	926
9	4	26	1	17	5	1	241	20	783	7	65	2	127	4	0	67	245	0	1	0	0	1,616
10	54	34	8	17	21	7	10	2	20	2445	100	87	7	130	0	2	30	0	0	0	3	2,974
11	71	154	26	51	114	7	32	6	148	87	213	28	61	28	1	232	132	1	1	3	1	1,397
12	58	71	10	56	125	64	5	10	1	69	25	208	235	397	1	4	39	1	4	9	2	1,395
13	263	27	7	45	155	69	183	164	95	3	32	146	118	1712	0	66	116	79	0	0	0	3,282
14	227	46	11	42	120	75	20	11	3	98	19	341	2281	9564	0	1	57	0	0	0	4	12,919
15	12	3	1	2	3	2	0	0	0	0	1	3	0	0	0	2	0	0	0	0	0	29
16	18	23	4	44	32	25	42	10	154	2	261	2	189	3	1	4977	2	0	0	0	0	5,787
17	225	41	6	27	61	65	336	98	205	9	72	34	233	47	0	2	1	0	0	0	0	1,459
18	12	3	1	2	3	2	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	25
19	64	10	5	35	51	11	6	2	2	0	1	5	0	0	0	0	0	0	0	0	0	191
20	37	14	3	39	19	23	0	1	0	0	2	6	0	0	0	0	0	0	0	0	0	145
21	16	4	2	3	4	2	0	0	0	507	1	2	1	6	0	0	0	0	0	0	0	549
Sum	1,237	1,079	231	1,502	2,148	497	2,026	635	1,771	3,332	1,083	1,100	4,181	12,286	19	5,511	1,527	95	111	124	32	40,527

M11 Junction 7a Model Changes in Demand due to Matrix Estimation
Sector Analysis
Model: V3.15
AM_Business_LGV
Vehicle Class LGV
Purpose Business
Time Period AM
Result Prior

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Sum
1	7	18	1	19	11	1	0	0	0	5	11	7	13	25	1	1	11	1	3	3	1	141
2	24	23	16	55	63	4	3	3	8	11	41	18	10	27	2	9	29	2	3	8	2	361
3	3	25	1	19	17	1	0	1	0	2	7	5	1	6	0	3	2	0	2	2	0	97
4	11	35	11	80	276	20	37	19	37	4	22	17	50	10	0	18	46	0	10	11	0	714
5	13	55	16	367	46	14	6	7	7	10	25	26	22	27	2	14	11	0	9	5	2	683
6	0	1	0	21	10	1	0	5	0	0	1	9	24	16	0	7	21	0	3	7	0	125
7	1	3	1	46	5	1	153	76	102	18	13	1	215	1	0	34	318	0	2	0	0	988
8	0	2	1	20	6	5	84	9	20	1	3	1	137	7	0	6	101	0	0	0	0	403
9	1	9	1	47	7	0	112	24	182	23	62	1	192	2	0	107	283	0	1	0	0	1,052
10	5	12	2	21	10	1	27	12	61	2710	87	81	22	302	0	0	63	0	0	0	2	3,421
11	16	55	10	42	41	3	27	6	92	141	50	9	52	10	1	104	84	0	0	0	0	743
12	9	25	3	36	30	18	1	3	0	76	8	44	120	199	1	2	6	0	0	1	2	585
13	9	6	1	86	21	11	241	186	209	18	22	80	174	2125	0	37	310	3	0	0	1	3,542
14	20	17	1	35	26	13	1	27	1	316	6	240	1456	9980	0	3	4	0	0	0	20	12,166
15	1	1	0	1	1	0	5	0	1	0	0	6	0	1	0	3	2	0	0	0	0	21
16	2	9	1	38	14	6	82	15	222	0	159	1	162	1	0	4600	1	0	0	0	0	5,313
17	8	14	1	63	11	13	331	98	227	13	56	4	474	2	0	0	0	0	0	0	0	1,314
18	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
19	2	2	1	10	8	3	8	2	3	0	0	1	0	0	0	0	0	0	0	0	0	39
20	3	5	1	11	6	5	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	35
21	1	1	0	1	1	0	0	0	1	1105	0	8	6	33	0	0	0	0	0	0	0	1,158
Sum	135	318	70	1,018	608	118	1,119	494	1,175	4,454	573	559	3,131	12,774	7	4,949	1,292	7	34	37	32	32,904

M11 Junction 7a Model Changes in Demand due to Matrix Estimation
Sector Analysis
Model: V3.15
AM_Business_HGV
Vehicle Class HGV
Purpose Business
Time Period AM
Result Prior

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Sum
1	4	5	0	5	2	0	0	0	0	0	0	11	12	5	0	0	5	0	0	0	0	49
2	0	0	0	13	8	4	0	0	0	0	2	6	13	6	0	0	11	0	2	0	0	67
3	0	0	0	4	2	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	8
4	2	6	2	24	85	2	12	5	11	1	5	3	11	2	0	3	13	0	5	1	0	193
5	6	3	1	106	7	2	2	1	2	0	2	1	9	5	0	0	4	0	3	0	0	153
6	0	0	0	2	3	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	7
7	0	0	0	14	1	0	34	13	35	3	3	0	57	0	0	8	95	0	1	0	0	265
8	0	0	0	5	1	0	13	2	4	3	0	0	41	2	0	1	27	0	0	0	0	98
9	0	0	0	14	2	0	35	5	51	9	13	0	50	0	0	31	99	0	1	0	0	309
10	0	0	0	8	3	0	7	7	15	859	25	29	27	70	0	0	22	0	0	0	1	1,074
11	0	0	0	11	3	3	8	1	22	11	13	0	16	7	0	34	31	0	0	0	0	160
12	0	0	0	6	4	0	0	0	0	17	0	10	25	68	0	0	2	0	0	1	1	135
13	8	15	0	18	11	1	77	59	65	58	10	19	56	663	0	19	102	1	0	0	4	1,188
14	6	7	0	8	9	1	0	6	0	75	3	106	445	3213	0	4	1	0	0	0	15	3,900
15	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	2	0	0	0	0	5
16	0	0	0	9	2	1	26	4	69	0	53	0	55	1	0	1474	1	0	0	0	0	1,693
17	7	5	0	19	6	1	106	30	95	7	21	1	178	0	0	0	0	0	0	0	0	474
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
19	3	0	3	2	2	0	2	0	2	0	0	0	0	0	0	0	0	0	0	0	0	16
20	0	0	0	0	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	3
21	0	0	0	0	0	0	0	0	0	354	0	5	9	13	0	0	0	0	0	0	0	382
Sum	36	43	7	269	151	16	323	134	372	1,396	149	195	1,004	4,055	1	1,574	416	1	12	2	22	10,179

M11 Junction 7a Model Changes in Demand due to Matrix Estimation
Sector Analysis
Model: V3.15
IP_Commute_Car
Vehicle Class Car
Purpose Commute
Time Period IP
Result Prior

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Sum
1	12	43	3	9	29	4	1	0	2	13	20	33	24	64	2	4	31	2	7	7	3	314
2	99	128	32	59	95	8	5	0	14	17	81	21	16	32	3	17	50	3	5	12	4	701
3	9	19	6	21	35	1	0	0	0	5	7	7	3	8	1	2	3	1	3	2	1	133
4	22	54	17	259	682	53	9	16	24	10	49	55	58	44	1	59	40	1	22	53	2	1,529
5	23	54	36	548	240	40	2	17	5	11	61	86	75	67	2	29	32	1	31	25	2	1,389
6	4	2	1	37	17	18	1	17	0	2	6	68	62	40	0	20	58	0	10	19	1	394
7	2	3	1	8	1	0	184	81	154	26	25	4	90	16	64	47	257	11	28	8	3	1,014
8	6	1	0	10	7	7	87	7	20	5	7	13	198	18	0	11	88	2	6	2	1	497
9	1	12	1	15	1	0	152	16	232	24	97	0	49	1	6	117	173	7	8	5	3	920
10	34	14	5	10	16	2	18	3	19	1173	59	34	32	205	0	1	65	0	43	0	2	1,736
11	45	52	13	41	60	2	24	5	81	62	66	7	21	11	0	88	73	0	2	5	3	659
12	32	20	4	46	64	45	4	7	1	34	10	70	123	186	5	3	24	21	3	8	9	717
13	32	7	2	36	40	55	91	190	58	43	31	134	52	1343	0	279	45	105	0	100	342	2,987
14	78	17	5	31	60	55	13	15	2	168	17	190	1334	4433	0	4	39	6	0	80	70	6,616
15	6	1	0	1	2	1	36	0	3	0	1	4	0	0	0	33	45	0	0	0	0	133
16	3	14	2	40	14	14	38	8	99	1	86	2	267	6	39	2474	1	0	0	0	0	3,107
17	24	22	2	29	17	46	283	92	179	75	79	20	34	48	90	1	0	0	0	0	0	1,042
18	6	1	0	1	2	1	15	3	7	0	0	24	64	8	0	0	0	0	0	0	0	132
19	8	6	1	18	20	6	26	7	9	51	1	3	0	0	86	0	0	0	0	0	0	243
20	18	7	2	25	10	12	9	4	5	0	2	5	94	107	0	0	0	0	0	0	0	298
21	8	2	0	1	3	1	2	1	3	710	1	6	285	82	0	0	0	0	0	0	0	1,105
Sum	472	480	132	1,245	1,414	370	1,001	489	917	2,430	707	786	2,879	6,720	299	3,192	1,025	161	168	326	445	25,657

M11 Junction 7a Model Changes in Demand due to Matrix Estimation
Sector Analysis
Model: V3.15
IP_Business_Car
Vehicle Class Car
Purpose Business
Time Period IP
Result Prior

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Sum
1	0	1	0	2	2	1	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	8
2	2	8	2	8	7	1	0	0	0	0	4	1	1	1	0	0	1	0	0	0	0	39
3	1	2	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
4	1	6	1	22	61	4	4	3	3	1	4	3	8	4	0	3	7	0	1	1	0	136
5	1	4	2	55	20	3	1	1	0	1	4	5	2	3	0	1	1	0	1	0	0	106
6	1	0	0	6	1	1	0	0	0	0	1	2	0	1	0	0	1	0	0	0	0	16
7	0	0	0	4	1	0	34	14	19	10	3	0	111	1	8	15	117	0	13	1	1	350
8	0	0	0	2	1	0	13	2	4	2	1	0	67	3	0	4	38	0	3	0	0	140
9	0	0	0	4	1	0	27	5	37	5	6	0	80	0	4	31	69	0	5	1	1	277
10	0	0	0	2	1	0	11	2	9	548	24	17	63	105	0	0	78	0	12	0	3	875
11	1	2	1	5	4	0	5	1	11	14	6	0	35	0	0	27	33	0	0	0	0	145
12	1	1	0	7	5	1	0	0	0	12	0	7	51	39	2	0	2	0	0	0	3	131
13	0	0	0	8	2	0	110	69	68	128	33	43	34	897	14	280	269	0	9	19	86	2,071
14	0	1	0	4	3	1	0	5	0	113	0	55	873	2438	1	2	7	0	0	4	42	3,550
15	0	0	0	0	0	0	6	0	1	0	0	4	6	1	0	11	19	0	1	0	0	49
16	0	0	0	5	1	0	24	5	49	0	35	0	308	2	9	1024	1	0	0	0	0	1,464
17	0	0	0	8	1	0	118	37	66	71	27	2	279	6	26	1	0	0	0	0	0	641
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	1	0	0	14	3	5	11	0	0	9	0	3	0	0	0	0	0	0	48
20	0	0	0	1	0	0	1	0	1	0	0	0	19	3	0	0	0	0	0	0	0	27
21	0	0	0	0	0	0	1	0	1	240	0	2	74	39	0	0	0	0	0	0	0	358
Sum	9	27	8	147	112	14	368	149	277	1,157	149	143	2,018	3,545	67	1,399	642	0	45	28	137	10,442

M11 Junction 7a Model Changes in Demand due to Matrix Estimation
Sector Analysis
Model: V3.15
IP_Other_Car
Vehicle Class Car
Purpose Other
Time Period IP
Result Prior

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Sum
1	26	103	9	14	27	12	5	4	4	32	48	35	166	144	6	7	120	6	28	18	8	822
2	101	332	48	95	161	10	9	2	33	40	135	45	21	53	4	28	48	5	7	18	6	1,200
3	21	48	11	39	73	1	1	1	1	10	26	13	7	17	1	5	7	1	6	4	2	296
4	21	98	34	468	1025	60	15	17	26	13	72	68	52	56	2	53	41	2	40	50	2	2,217
5	35	159	74	1121	483	48	4	16	7	22	79	106	114	108	3	27	48	2	36	19	4	2,514
6	8	5	5	40	48	21	0	23	0	4	9	68	97	85	1	28	86	2	12	27	2	571
7	7	8	1	15	3	1	714	210	294	26	30	7	402	22	4	44	525	0	6	0	0	2,319
8	3	4	1	17	22	28	206	18	45	3	10	10	339	14	0	10	169	0	1	0	0	900
9	4	36	1	25	5	0	300	42	634	17	116	2	251	3	1	172	333	0	2	0	0	1,944
10	42	42	4	13	24	3	28	4	22	3234	142	98	18	248	0	2	43	0	1	0	5	3,974
11	70	161	29	78	114	3	35	9	112	138	203	25	88	24	0	287	146	0	2	3	3	1,532
12	39	65	11	70	122	59	7	8	1	94	24	174	286	464	2	3	44	1	5	8	3	1,492
13	67	19	3	68	85	83	405	346	210	21	76	240	150	2795	0	193	349	75	0	3	8	5,194
14	110	57	10	56	97	84	20	16	3	236	22	440	2839	13183	0	3	61	0	0	1	12	17,249
15	8	4	1	1	3	1	3	0	0	0	0	5	0	0	0	3	1	0	0	0	0	31
16	14	30	5	76	39	24	62	13	192	2	283	4	273	3	2	6473	2	0	0	0	0	7,498
17	61	52	5	51	30	79	544	171	326	32	133	28	394	64	3	3	0	0	0	0	0	1,978
18	8	5	1	1	2	1	1	0	0	0	0	1	3	0	0	0	0	0	0	0	0	23
19	19	10	2	47	28	10	9	2	3	2	1	4	0	0	2	0	0	0	0	0	0	140
20	27	18	5	59	25	21	1	1	1	0	3	7	4	4	0	0	0	0	0	0	0	174
21	11	6	1	1	4	1	0	0	1	668	1	2	10	17	0	0	0	0	0	0	0	723
Sum	704	1,260	261	2,354	2,421	549	2,367	905	1,916	4,593	1,414	1,382	5,512	17,306	33	7,341	2,024	94	146	152	56	52,790

M11 Junction 7a Model Changes in Demand due to Matrix Estimation
Sector Analysis
Model: V3.15
IP_Business_LGV
Vehicle Class LGV
Purpose Business
Time Period IP
Result Prior

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Sum
1	8	30	3	13	10	1	1	2	1	5	10	6	13	23	1	1	13	1	4	2	1	148
2	35	43	13	39	45	2	3	1	9	10	44	18	5	17	1	7	15	1	3	5	2	318
3	2	14	1	12	16	0	0	0	0	2	8	3	1	4	0	1	2	0	2	1	0	72
4	11	33	11	108	257	22	29	14	24	3	23	23	53	14	0	18	44	0	12	14	1	714
5	7	46	18	240	69	16	5	5	4	5	22	27	24	21	0	8	12	0	8	6	0	545
6	1	2	2	19	17	3	0	3	0	1	1	22	20	17	0	7	20	0	3	6	0	143
7	0	2	0	23	3	1	132	48	83	14	8	2	177	1	0	21	264	0	2	0	0	781
8	0	1	0	11	5	9	48	6	15	2	2	2	138	5	0	4	79	0	0	0	0	329
9	0	10	0	24	3	0	100	16	143	8	32	1	114	1	0	77	195	0	1	0	0	726
10	8	11	1	11	8	0	28	11	25	2067	70	65	30	283	0	0	42	0	0	0	2	2,663
11	15	46	8	29	29	1	16	3	41	131	37	8	24	5	0	77	47	0	0	0	0	516
12	12	20	3	23	28	13	2	2	0	51	7	39	83	141	1	1	7	0	1	1	4	440
13	6	5	1	47	21	23	285	188	115	38	16	62	133	1580	0	31	382	8	0	0	2	2,942
14	34	18	3	25	23	24	2	18	1	313	6	166	1223	7404	0	1	7	0	0	0	25	9,295
15	1	1	0	0	1	0	4	0	1	0	0	6	0	0	0	2	2	0	0	0	0	18
16	3	7	1	28	11	7	59	9	139	0	120	1	155	1	0	3480	1	0	0	0	0	4,022
17	5	18	1	37	8	24	311	85	175	15	37	6	592	4	0	1	0	0	0	0	0	1,318
18	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
19	1	5	1	14	6	3	7	1	2	0	0	1	0	0	0	0	0	0	0	0	0	43
20	4	5	1	11	5	7	0	0	1	0	1	2	1	0	0	0	0	0	0	0	0	38
21	2	2	0	0	1	0	0	0	1	836	0	9	9	37	0	0	0	0	0	0	0	896
Sum	157	320	70	714	567	156	1,033	414	779	3,502	445	469	2,795	9,557	5	3,737	1,133	11	36	36	37	25,972

M11 Junction 7a Model Changes in Demand due to Matrix Estimation
Sector Analysis
Model: V3.15
IP_Business_HGV
Vehicle Class HGV
Purpose Business
Time Period IP
Result Prior

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Sum
1	0	5	0	1	0	0	0	2	0	0	1	2	11	1	0	0	7	0	1	0	0	31
2	4	0	3	4	1	0	0	0	0	0	0	0	5	0	0	0	2	0	0	0	0	19
3	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
4	1	1	1	12	42	1	3	1	2	0	1	0	4	0	0	1	3	0	1	0	0	74
5	0	4	1	36	4	0	0	0	0	0	2	4	14	7	0	0	6	0	4	0	0	84
6	0	0	0	1	0	0	0	0	0	0	0	2	1	1	0	0	1	0	0	0	0	6
7	1	0	0	4	0	0	21	7	18	2	1	0	37	0	0	4	57	0	0	0	0	154
8	0	0	0	1	0	0	8	1	2	4	0	0	27	1	0	0	15	0	0	0	0	60
9	0	0	0	4	0	0	22	3	27	5	5	0	23	0	0	14	46	0	0	0	0	149
10	0	0	0	2	1	0	3	3	5	437	12	16	17	41	0	0	10	0	0	0	0	547
11	4	0	0	3	1	0	3	0	8	5	5	0	5	0	0	16	10	0	0	0	0	61
12	2	6	0	2	1	0	0	0	0	13	0	8	14	32	0	0	1	0	0	0	1	80
13	5	8	1	5	5	0	55	39	22	40	4	15	28	330	0	7	84	1	0	0	7	654
14	5	1	1	2	2	0	0	3	0	47	4	60	243	1574	0	1	1	0	0	0	2	1,946
15	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	2	0	0	0	0	4
16	0	0	0	2	0	1	12	2	29	0	25	0	30	0	0	741	0	0	0	0	0	842
17	4	5	0	5	2	0	65	17	47	5	8	1	133	1	0	0	0	0	0	0	0	294
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
19	2	0	1	1	1	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	7
20	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
21	0	0	0	0	0	0	0	0	0	178	0	2	10	11	0	0	0	0	0	0	0	201
Sum	27	32	7	86	60	3	194	78	161	736	67	114	604	1,999	1	786	245	1	6	0	11	5,219

M11 Junction 7a Model Changes in Demand due to Matrix Estimation
Sector Analysis
Model: V3.15
PM_Commute_Car
Vehicle Class Car
Purpose Commute
Time Period PM
Result Prior

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Sum
1	44	212	29	52	96	19	7	7	4	59	97	81	62	139	9	12	65	9	28	28	12	1,070
2	145	447	71	105	235	11	10	2	37	55	222	92	16	55	8	39	44	8	7	32	11	1,651
3	9	67	16	32	84	3	3	0	1	9	41	14	6	9	1	4	6	1	2	4	2	313
4	35	200	93	526	1858	60	55	57	80	46	134	134	211	99	7	103	114	5	44	61	7	3,928
5	84	252	97	1089	595	57	6	16	15	44	167	179	101	125	7	43	48	5	37	26	8	3,000
6	20	28	9	53	84	27	0	35	1	12	18	85	71	74	2	22	63	2	10	21	3	642
7	6	13	2	12	5	4	654	394	541	96	143	8	379	24	91	290	866	14	118	29	22	3,711
8	10	9	3	24	39	29	307	36	119	32	58	12	899	118	0	111	333	3	24	8	9	2,183
9	11	43	1	39	24	0	571	101	768	133	508	3	213	4	21	597	673	7	30	10	16	3,776
10	50	63	14	31	58	17	35	11	83	4608	266	135	170	1009	0	2	255	0	136	0	4	6,949
11	112	192	46	78	162	11	68	15	283	177	195	40	57	31	1	343	205	1	1	3	6	2,029
12	94	74	21	94	203	73	6	17	3	131	42	244	357	912	18	2	26	12	3	6	22	2,359
13	137	86	16	158	301	189	363	741	197	114	156	619	201	5263	4	1190	238	151	2	321	586	11,030
14	250	132	37	127	260	135	28	48	3	458	54	754	5365	17513	0	14	79	5	0	150	154	25,567
15	8	9	3	4	9	3	39	0	10	0	1	16	0	0	0	87	108	0	0	0	0	298
16	18	53	16	92	104	38	133	35	350	3	349	8	1105	23	198	9758	2	0	0	0	0	12,285
17	141	226	17	86	125	164	1186	445	821	367	453	77	184	82	276	8	1	0	0	0	0	4,658
18	9	10	2	5	7	4	97	25	50	0	0	101	514	32	0	0	0	0	0	0	0	856
19	31	52	25	127	153	19	91	28	48	236	2	8	3	2	373	0	0	0	0	0	0	1,197
20	28	38	15	117	85	35	43	21	30	0	6	24	597	615	0	0	0	0	0	0	0	1,656
21	12	13	4	6	12	5	7	2	9	1705	4	15	869	375	0	0	0	0	0	0	0	3,037
Sum	1,254	2,217	537	2,857	4,501	903	3,709	2,035	3,452	8,284	2,915	2,650	11,379	26,506	1,017	12,623	3,128	223	443	699	863	92,194

M11 Junction 7a Model Changes in Demand due to Matrix Estimation
Sector Analysis
Model: V3.15
PM_Business_Car
Vehicle Class Car
Purpose Business
Time Period PM
Result Prior

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Sum
1	0	8	2	3	4	2	0	0	0	1	2	3	1	2	0	0	0	0	1	0	0	28
2	3	26	6	8	15	1	0	0	1	1	10	7	1	2	0	1	1	0	0	1	0	85
3	1	4	1	2	5	0	0	0	0	0	2	1	0	0	0	0	0	0	0	0	0	17
4	2	15	6	28	97	4	5	4	5	4	9	8	20	8	1	7	12	0	2	1	1	239
5	4	19	6	66	38	4	1	1	1	3	9	9	5	6	0	2	2	0	1	0	1	178
6	1	2	1	4	7	1	0	1	0	0	1	3	0	1	0	0	0	0	0	0	0	25
7	0	1	0	3	1	0	40	25	26	18	10	0	151	1	7	42	133	0	24	4	3	488
8	0	1	0	2	3	1	17	3	10	6	4	0	104	11	0	15	47	0	6	1	2	234
9	0	1	0	2	0	0	34	7	45	22	27	0	81	0	9	67	83	0	9	3	4	395
10	0	2	0	2	3	1	7	2	11	534	26	15	57	158	0	0	67	0	16	0	5	907
11	2	8	3	7	8	1	6	1	15	18	9	2	40	0	0	39	35	0	0	0	0	196
12	2	4	2	8	13	3	0	1	0	15	3	11	60	66	3	0	2	0	0	0	4	199
13	1	3	0	8	4	1	264	142	91	189	98	113	29	1657	22	773	477	1	16	58	142	4,090
14	1	7	2	6	7	2	0	7	0	150	1	66	1066	2678	2	5	7	0	0	8	63	4,078
15	0	0	0	0	0	0	3	0	3	0	0	3	4	1	0	14	13	0	0	0	0	43
16	0	2	0	4	3	0	32	7	53	0	46	0	420	4	30	1144	2	0	0	0	0	1,748
17	1	5	0	6	2	2	218	76	111	181	78	5	525	19	49	2	0	0	0	0	0	1,282
18	0	0	0	0	0	0	3	1	2	0	0	3	14	1	0	0	0	0	0	0	0	24
19	0	2	1	3	3	1	30	8	11	34	0	0	19	1	16	0	0	0	0	0	0	129
20	0	1	0	1	1	0	3	1	3	0	0	1	40	25	0	0	0	0	0	0	0	79
21	0	0	0	0	1	0	1	1	2	215	0	2	67	58	0	0	0	0	0	0	0	347
Sum	20	111	31	166	217	24	664	288	390	1,391	335	253	2,705	4,702	140	2,111	883	1	76	78	225	14,811

M11 Junction 7a Model Changes in Demand due to Matrix Estimation
Sector Analysis
Model: V3.15
PM_Other_Car
Vehicle Class Car
Purpose Other
Time Period PM
Result Prior

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Sum
1	18	76	9	10	29	1	3	4	2	27	38	32	40	107	5	6	36	5	13	15	6	478
2	50	299	43	55	128	3	7	4	24	37	114	44	11	42	5	23	35	5	5	18	6	958
3	5	33	10	25	62	0	1	0	1	5	21	8	4	3	1	4	4	1	2	3	1	193
4	14	69	40	301	853	34	20	19	37	14	81	65	59	40	1	52	41	2	33	50	2	1,825
5	20	128	70	819	415	28	4	22	13	20	104	104	69	75	3	36	32	3	38	26	4	2,033
6	1	3	1	31	32	16	0	15	0	2	2	36	63	76	0	18	61	0	6	17	1	383
7	1	8	2	14	5	1	755	329	296	22	56	3	478	9	2	88	670	0	9	1	1	2,750
8	1	3	1	15	16	10	231	31	92	7	30	6	439	20	0	31	230	0	2	0	0	1,164
9	1	23	1	20	7	0	341	81	690	39	189	1	583	2	1	288	458	0	4	1	1	2,732
10	13	29	8	8	22	1	18	7	35	4161	171	109	14	300	0	1	53	0	3	0	7	4,961
11	27	110	20	43	80	2	46	15	145	158	219	17	102	14	0	410	192	0	1	2	2	1,606
12	13	44	7	37	95	29	2	7	1	106	16	170	278	535	2	3	16	0	2	4	2	1,369
13	8	14	2	40	53	68	543	535	543	19	117	327	185	3849	0	336	336	29	1	5	12	6,989
14	30	30	6	23	61	54	8	17	1	317	11	562	3553	16290	1	3	27	0	0	1	14	21,009
15	2	3	1	1	3	0	1	0	1	0	0	5	0	0	0	4	2	0	0	0	0	24
16	2	22	3	41	27	10	82	24	241	1	369	2	333	2	6	8403	3	0	0	0	0	9,572
17	10	40	3	28	25	56	768	280	480	56	218	22	437	27	6	3	0	0	0	0	0	2,459
18	2	3	1	1	2	0	2	1	1	0	0	3	9	1	0	0	0	0	0	0	0	26
19	3	6	3	23	29	4	12	4	5	6	1	3	1	0	8	0	0	0	0	0	0	109
20	6	14	3	34	16	10	1	2	1	0	3	8	10	13	0	0	0	0	0	0	0	121
21	3	5	1	1	4	0	0	0	1	820	2	2	20	22	0	0	0	0	0	0	0	879
Sum	227	960	234	1,570	1,961	330	2,847	1,397	2,610	5,816	1,761	1,529	6,688	21,428	42	9,707	2,168	44	119	144	59	61,641

M11 Junction 7a Model Changes in Demand due to Matrix Estimation
Sector Analysis
Model: V3.15
PM_Business_LGV
Vehicle Class LGV
Purpose Business
Time Period PM
Result Prior

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Sum
1	6	29	4	28	16	0	0	3	1	4	12	15	4	22	1	1	4	1	2	3	1	157
2	24	33	17	48	62	1	4	2	9	11	49	19	5	19	2	10	15	2	2	8	3	343
3	3	18	2	15	21	0	0	0	0	2	8	3	1	1	0	1	1	0	1	1	0	79
4	14	32	17	92	372	20	51	21	38	4	36	28	98	16	0	19	68	0	10	13	0	948
5	13	55	19	176	54	11	8	8	8	7	40	30	34	19	1	12	16	1	9	8	1	531
6	0	2	0	20	11	1	0	6	0	0	1	14	15	23	0	5	17	0	2	5	0	121
7	0	4	1	41	5	0	148	100	100	12	22	1	236	1	0	39	321	0	2	0	0	1,032
8	0	1	0	18	5	4	61	8	24	2	5	1	166	7	0	9	98	0	0	0	0	410
9	0	11	1	44	7	0	118	17	166	34	86	0	117	1	0	143	229	0	1	0	0	975
10	4	12	2	18	14	0	17	11	35	2375	84	114	24	341	0	0	55	0	0	0	2	3,110
11	12	49	7	39	36	1	19	4	53	140	43	7	34	4	0	92	56	0	0	0	0	598
12	10	23	2	27	29	9	1	2	0	76	4	37	106	199	1	1	4	0	1	1	3	535
13	3	7	1	78	23	19	336	223	133	24	36	94	152	1888	0	42	344	2	0	0	1	3,407
14	20	17	3	29	25	15	1	24	0	274	3	179	1466	8608	0	1	2	0	0	0	18	10,685
15	1	2	0	0	1	0	7	0	2	0	0	5	0	0	0	3	2	0	0	0	0	22
16	1	12	1	37	13	3	65	9	167	0	133	1	196	1	0	4003	1	0	0	0	0	4,645
17	4	27	1	58	12	16	416	113	253	15	63	6	663	2	0	1	0	0	0	0	0	1,649
18	1	2	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
19	2	4	1	9	10	1	9	2	4	0	0	1	0	0	0	0	0	0	0	0	0	44
20	2	8	1	11	6	3	1	0	1	0	1	1	1	0	0	0	0	0	0	0	0	35
21	1	2	0	1	1	0	0	0	1	961	0	6	7	38	0	0	0	0	0	0	0	1,020
Sum	120	350	81	789	722	105	1,262	553	995	3,943	626	563	3,325	11,191	6	4,382	1,232	6	29	39	29	30,349

M11 Junction 7a Model Changes in Demand due to Matrix Estimation
Sector Analysis
Model: V3.15
PM_Business_HGV
Vehicle Class HGV
Purpose Business
Time Period PM
Result Prior

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Sum
1	0	0	0	1	2	0	0	0	0	1	0	7	4	4	0	0	2	0	0	1	0	22
2	0	2	2	3	1	0	0	0	1	0	1	0	1	0	0	0	1	0	0	0	0	12
3	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
4	0	0	0	9	36	0	2	1	2	0	1	2	5	2	0	0	3	0	1	0	0	66
5	8	11	2	34	4	1	0	1	0	2	5	6	8	2	0	0	3	0	0	0	0	88
6	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	2
7	0	0	0	1	0	0	25	8	17	24	1	0	38	0	0	4	58	0	0	0	0	178
8	0	0	0	0	1	0	8	1	2	2	0	0	27	1	0	0	15	0	0	0	0	60
9	0	0	0	1	0	0	21	2	28	2	5	0	20	0	0	14	47	0	0	0	0	141
10	0	0	0	1	2	0	3	2	8	437	12	19	16	39	0	0	9	0	0	0	0	549
11	0	0	0	1	1	0	3	0	7	5	6	1	5	1	0	17	10	0	0	0	0	57
12	1	0	0	1	4	0	0	0	0	11	0	6	12	33	0	0	0	0	0	0	1	70
13	3	9	1	3	18	1	58	39	17	31	3	12	28	329	0	7	88	1	0	0	5	653
14	5	4	1	2	11	1	0	3	0	44	2	50	241	1573	0	1	0	0	0	0	1	1,940
15	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	2	0	0	0	0	4
16	0	0	0	2	0	0	10	1	31	0	26	0	29	0	0	741	0	0	0	0	0	841
17	5	4	0	2	6	1	66	17	43	4	8	2	138	1	0	0	0	0	0	0	0	295
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	1	3	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	8
20	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
21	0	0	0	0	0	0	0	0	0	178	0	1	9	10	0	0	0	0	0	0	0	198
Sum	23	31	6	65	90	3	200	77	159	741	68	109	581	1,996	1	784	240	1	1	1	8	5,186

M11 Junction 7a Model Changes in Demand due to Matrix Estimation
Sector Analysis
Model: V3.15
AM_Commute_Car
Vehicle Class Car
Purpose Commute
Time Period AM
Result Final

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Sum
1	15	63	5	17	40	10	1	1	3	34	72	37	22	78	3	20	31	3	4	9	4	471
2	64	389	58	106	248	15	17	2	48	48	153	90	21	132	9	34	122	10	9	39	13	1,628
3	26	90	6	90	122	1	7	9	9	15	71	12	10	41	2	32	21	3	13	21	3	605
4	12	40	26	472	1124	151	14	32	58	12	62	126	94	57	2	124	71	3	112	105	2	2,697
5	35	151	41	1641	564	99	4	46	19	38	152	214	99	122	5	106	55	3	22	30	7	3,452
6	3	4	2	51	22	31	0	22	0	3	1	50	95	66	1	34	120	2	19	38	1	565
7	2	24	7	95	7	6	605	506	651	38	65	5	280	12	13	135	1143	87	85	40	7	3,813
8	6	3	1	108	26	46	372	35	60	12	13	33	631	49	0	24	420	27	25	19	1	1,912
9	3	47	3	98	7	0	501	52	912	111	298	3	163	2	20	344	704	40	39	25	7	3,379
10	51	52	9	46	65	11	92	19	179	4693	178	132	57	378	0	2	238	0	184	0	17	6,402
11	68	198	37	86	167	18	155	26	562	271	218	48	104	29	1	309	403	2	4	20	6	2,733
12	36	128	13	142	186	129	8	17	3	169	53	188	646	587	18	9	58	176	6	10	24	2,605
13	29	7	3	243	86	96	349	836	221	147	52	407	203	5605	0	1022	95	536	0	499	494	10,928
14	82	71	27	105	139	131	20	146	8	971	33	765	5283	18071	0	33	58	33	1	536	389	26,903
15	5	6	1	8	7	2	44	0	23	0	3	17	0	0	0	203	190	0	0	0	0	508
16	11	22	8	117	31	34	257	50	677	1	350	4	1045	18	83	9846	2	0	0	0	0	12,556
17	30	32	21	161	34	97	827	317	615	229	195	23	188	25	92	1	1	0	0	0	0	2,887
18	5	6	2	4	3	3	7	3	3	0	3	14	45	4	0	0	0	0	0	0	0	102
19	10	4	43	56	23	19	120	26	27	131	2	3	0	0	163	0	0	0	0	0	0	629
20	14	19	7	24	7	27	25	13	6	0	10	7	358	183	0	0	0	0	0	0	0	700
21	7	8	1	7	8	3	15	3	12	4732	1	38	393	151	0	0	0	0	0	0	0	5,379
Sum	511	1,363	322	3,676	2,916	931	3,441	2,160	4,096	11,653	1,986	2,215	9,736	25,610	412	12,278	3,733	925	524	1,391	975	90,852

M11 Junction 7a Model Changes in Demand due to Matrix Estimation
Sector Analysis
Model: V3.15
AM_Business_Car
Vehicle Class Car
Purpose Business
Time Period AM
Result Final

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Sum
1	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	2	0	0	0	0	0	6
2	1	25	4	3	19	1	1	0	2	1	9	6	0	5	0	2	2	0	0	1	0	83
3	1	4	1	1	6	0	0	0	1	1	15	1	0	3	0	1	0	0	0	1	0	35
4	0	2	1	25	87	11	2	3	2	1	8	5	5	3	0	3	5	0	1	2	0	165
5	1	13	3	69	33	6	1	3	1	2	8	10	2	4	0	2	1	0	0	0	0	157
6	0	0	0	5	2	1	0	1	0	0	0	1	0	1	0	0	1	0	1	0	0	14
7	0	4	3	6	1	0	19	16	21	4	5	1	193	0	0	20	164	0	25	2	0	485
8	0	0	0	5	1	2	11	2	2	1	10	3	118	6	0	5	71	0	8	1	0	245
9	0	2	1	6	1	0	17	5	42	10	11	0	101	0	2	37	90	0	9	1	1	337
10	4	2	0	5	6	0	10	3	24	454	25	19	57	161	0	0	159	0	27	0	3	959
11	3	9	2	5	6	2	8	2	19	14	9	2	64	1	0	31	68	0	0	0	0	244
12	1	13	2	6	15	5	0	0	0	12	2	7	111	44	2	0	7	0	0	0	2	229
13	0	0	0	17	5	1	76	57	100	24	17	50	27	1124	2	230	109	0	17	12	13	1,881
14	0	8	1	13	10	2	0	8	0	137	0	51	1737	2521	2	8	19	0	1	6	47	4,571
15	0	0	0	1	1	0	3	0	5	0	1	6	4	2	0	27	36	0	1	0	0	88
16	1	1	0	10	2	0	34	9	59	0	37	0	761	5	9	956	2	0	0	0	0	1,887
17	0	1	1	17	2	1	85	35	111	31	21	1	292	3	3	1	0	0	0	0	0	604
18	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
19	0	0	0	4	1	1	18	6	19	10	1	0	15	0	1	0	0	0	0	0	0	77
20	0	1	2	1	0	0	3	1	2	0	0	0	55	7	0	0	0	0	0	0	0	74
21	0	1	0	1	1	0	2	1	3	243	0	5	103	75	0	0	0	0	0	0	0	435
Sum	12	85	23	197	199	34	290	152	413	945	182	168	3,647	3,966	21	1,325	732	1	92	26	68	12,578

M11 Junction 7a Model Changes in Demand due to Matrix Estimation
Sector Analysis
Model: V3.15
AM_Other_Car
Vehicle Class Car
Purpose Other
Time Period AM
Result Final

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Sum
1	20	63	15	12	22	5	2	3	6	34	73	27	57	64	4	8	52	4	9	11	5	496
2	44	316	39	26	118	13	9	4	43	34	101	61	18	60	5	21	42	6	4	20	7	992
3	10	67	10	21	69	3	2	3	4	18	51	9	3	21	1	19	8	2	6	9	2	337
4	9	42	29	269	1115	77	9	13	32	12	45	43	43	31	1	56	32	2	44	51	1	1,957
5	25	94	38	703	427	45	3	16	13	27	83	87	55	83	3	36	30	1	11	9	5	1,794
6	5	3	1	40	23	19	1	14	0	4	3	31	74	55	1	26	92	2	14	32	2	441
7	2	20	9	19	2	3	815	275	275	3	16	6	291	25	0	18	466	0	3	0	0	2,249
8	6	5	2	34	22	30	299	22	30	1	5	9	330	11	0	4	168	0	1	0	0	979
9	5	45	7	21	5	1	236	19	878	10	69	4	108	6	0	62	192	0	1	0	0	1,668
10	62	46	10	12	25	8	9	2	21	2529	101	100	4	134	0	1	24	0	0	0	3	3,091
11	77	196	44	35	130	9	30	6	151	88	254	39	49	27	1	222	119	1	1	5	1	1,486
12	76	140	8	66	143	93	7	11	3	91	60	226	276	421	3	8	42	2	3	6	3	1,688
13	126	29	5	40	153	96	199	175	92	3	30	177	123	1833	0	71	160	110	0	0	0	3,423
14	226	74	15	47	128	109	27	13	8	118	37	371	2329	9811	0	2	60	0	0	0	4	13,378
15	7	5	1	2	3	2	0	0	0	0	1	5	0	0	0	2	0	0	0	0	0	30
16	19	30	16	48	30	38	40	9	142	2	255	2	208	4	1	5171	1	0	0	0	0	6,016
17	115	45	19	29	80	97	336	108	170	9	68	38	355	52	0	1	1	0	0	0	0	1,523
18	8	6	4	2	2	3	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	27
19	25	10	23	43	33	17	6	2	2	0	3	5	0	0	0	0	0	0	0	0	0	169
20	22	19	13	37	12	35	0	1	0	0	4	2	1	0	0	0	0	0	0	0	0	147
21	10	7	2	2	4	3	0	0	0	531	0	4	1	8	0	0	0	0	0	0	0	573
Sum	900	1,262	309	1,508	2,544	707	2,028	695	1,869	3,516	1,260	1,251	4,326	12,647	20	5,727	1,490	128	99	144	33	42,464

M11 Junction 7a Model Changes in Demand due to Matrix Estimation
Sector Analysis
Model: V3.15
AM_Business_LGV
Vehicle Class LGV
Purpose Business
Time Period AM
Result Final

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Sum
1	7	20	0	15	9	1	0	1	1	4	12	7	16	14	1	0	25	1	5	3	1	145
2	26	24	13	32	68	6	3	2	10	8	50	31	12	27	2	12	34	2	7	9	3	382
3	2	33	1	16	21	1	0	1	1	2	7	4	1	8	1	11	4	0	3	4	1	120
4	11	23	7	74	257	35	17	14	17	4	20	19	68	8	0	19	25	0	11	9	0	638
5	16	54	11	341	43	16	6	6	10	15	28	36	21	23	4	19	12	0	5	4	5	673
6	0	2	0	15	7	1	0	4	0	1	1	8	19	11	0	8	18	0	2	6	0	106
7	1	9	3	31	5	1	141	91	104	17	14	2	173	1	0	41	279	0	2	0	0	914
8	0	1	1	14	4	7	74	8	20	2	3	1	127	6	0	8	90	0	0	0	0	366
9	2	14	2	31	6	0	95	22	231	24	66	2	112	2	0	122	221	0	1	0	0	952
10	6	10	1	13	7	3	21	11	61	2502	78	70	14	191	0	0	70	0	1	0	2	3,061
11	14	52	9	24	36	6	27	6	97	94	44	10	47	6	2	85	71	0	0	0	0	630
12	9	47	2	38	33	28	2	3	1	65	11	45	151	201	1	2	10	0	0	1	2	650
13	20	19	1	94	21	14	204	158	127	34	28	109	162	2036	0	33	254	3	0	160	152	3,629
14	49	20	2	28	40	17	1	22	2	236	8	243	1376	9302	0	2	5	0	0	0	36	11,390
15	1	2	0	1	1	1	8	0	3	0	0	6	0	0	0	3	3	0	0	0	0	28
16	2	6	2	28	16	11	80	15	217	0	129	0	142	1	0	4254	1	0	0	0	0	4,906
17	25	28	3	34	9	22	301	93	178	17	48	4	378	2	0	0	0	0	0	0	0	1,142
18	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
19	4	7	4	6	3	4	7	2	2	1	0	1	0	0	0	0	0	0	0	0	0	41
20	4	8	2	7	5	9	0	0	1	0	0	0	161	0	0	0	0	0	0	0	0	196
21	1	3	0	1	1	1	0	0	1	1027	0	5	169	21	0	0	0	0	0	0	0	1,230
Sum	201	384	66	844	591	184	988	459	1,084	4,053	547	604	3,147	11,858	11	4,621	1,122	7	38	196	202	31,206

M11 Junction 7a Model Changes in Demand due to Matrix Estimation
Sector Analysis
Model: V3.15
AM_Business_HGV
Vehicle Class HGV
Purpose Business
Time Period AM
Result Final

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Sum
1	3	9	0	3	1	0	0	0	0	0	0	3	10	4	0	0	10	0	0	0	0	42
2	0	1	0	12	8	13	0	0	0	0	3	2	12	3	0	0	11	0	2	0	0	69
3	0	0	0	5	2	0	0	0	0	0	0	0	2	0	0	0	1	0	0	0	0	10
4	2	3	0	22	78	3	5	3	3	0	2	4	15	3	0	1	5	0	3	1	0	153
5	2	19	0	97	7	2	2	1	3	0	3	2	12	7	0	1	10	0	4	0	0	171
6	0	0	0	1	3	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	6
7	0	0	0	6	2	0	31	12	30	3	5	0	46	0	0	10	86	0	1	0	0	230
8	0	0	0	2	0	0	12	2	3	2	0	0	36	2	0	1	25	0	0	0	0	86
9	0	0	0	6	2	0	29	4	54	20	21	0	40	0	0	39	86	0	0	0	0	302
10	0	0	0	4	1	0	9	4	15	790	21	24	12	52	0	0	15	0	0	0	1	947
11	0	0	0	6	3	0	14	2	24	12	12	0	17	5	0	27	27	0	0	0	0	149
12	0	2	0	8	5	0	0	0	0	18	1	9	34	68	0	0	3	0	0	1	2	150
13	13	16	0	8	12	1	68	52	46	55	9	23	51	620	0	33	100	1	0	80	34	1,223
14	9	4	0	10	8	1	0	5	0	57	4	94	419	2962	0	9	1	0	0	0	60	3,643
15	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	3	0	0	0	0	6
16	0	0	0	4	3	1	32	5	73	0	38	0	54	8	0	1350	1	0	0	0	0	1,568
17	13	12	0	7	7	1	96	27	67	4	16	1	140	0	0	0	0	0	0	0	0	393
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
19	6	0	2	1	3	0	2	0	1	0	0	0	0	0	0	0	0	0	0	0	0	16
20	0	0	0	0	1	1	0	0	0	0	0	2	80	0	0	0	0	0	0	0	0	84
21	0	0	0	0	0	0	0	0	0	326	0	6	65	40	0	0	0	0	0	0	0	438
Sum	49	66	3	201	146	23	302	117	321	1,267	133	170	1,045	3,775	1	1,473	384	1	10	81	96	9,684

M11 Junction 7a Model Changes in Demand due to Matrix Estimation
Sector Analysis
Model: V3.15
IP_Commute_Car
Vehicle Class Car
Purpose Commute
Time Period IP
Result Final

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Sum
1	8	28	5	7	21	3	0	0	2	16	23	30	13	54	2	5	23	2	4	7	3	258
2	84	135	31	39	83	6	6	0	13	23	84	36	10	35	3	17	46	4	5	13	5	676
3	9	19	6	18	31	0	1	0	0	6	9	5	2	7	1	4	6	1	6	4	1	137
4	14	33	16	267	704	47	10	18	33	7	43	50	40	34	1	64	46	1	26	52	1	1,507
5	16	47	32	565	248	38	3	20	8	9	57	81	58	53	1	34	39	2	29	29	2	1,372
6	3	1	1	35	16	24	1	17	0	2	4	72	53	34	0	20	78	0	14	26	1	405
7	1	5	1	9	2	0	184	93	165	26	22	5	90	21	51	40	258	10	28	8	2	1,021
8	5	1	1	11	8	7	92	7	22	4	6	13	208	21	0	10	92	2	6	2	1	519
9	1	14	2	23	2	0	156	19	273	41	113	0	46	2	7	118	154	7	7	4	2	992
10	45	17	6	9	16	2	19	3	31	1200	62	40	23	225	0	1	57	0	42	0	2	1,801
11	53	56	17	32	64	2	24	5	90	64	96	15	18	11	0	85	67	0	3	7	2	711
12	30	22	3	43	58	50	3	7	1	39	19	66	139	205	5	3	24	32	3	8	12	773
13	22	5	2	36	45	70	93	200	64	39	30	162	54	1393	0	289	52	123	0	117	357	3,153
14	86	18	11	25	53	66	15	17	3	183	17	210	1380	4547	0	8	41	9	0	76	82	6,848
15	7	1	0	1	2	1	41	0	2	0	0	4	0	0	0	34	43	0	0	0	0	139
16	5	13	4	46	16	12	33	8	97	1	82	2	280	12	40	2537	1	0	0	0	0	3,187
17	22	26	5	33	26	61	286	96	160	69	67	27	43	51	77	1	0	0	0	0	0	1,050
18	8	1	0	1	2	1	14	4	6	0	1	35	83	11	0	0	0	0	0	0	0	166
19	8	8	4	21	24	7	27	7	8	48	1	4	0	0	98	0	0	0	0	0	0	267
20	21	7	4	27	11	16	9	4	4	0	4	5	123	105	0	0	0	0	0	0	0	339
21	10	2	0	2	3	1	2	1	2	733	1	9	288	97	0	0	0	0	0	0	0	1,149
Sum	457	460	151	1,250	1,437	414	1,019	526	983	2,510	739	871	2,950	6,920	289	3,271	1,030	193	174	354	474	26,470

M11 Junction 7a Model Changes in Demand due to Matrix Estimation
Sector Analysis
Model: V3.15
IP_Business_Car
Vehicle Class Car
Purpose Business
Time Period IP
Result Final

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Sum
1	0	0	0	1	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	4
2	1	9	2	5	5	1	1	0	0	1	4	2	0	2	0	0	1	0	0	0	0	33
3	0	2	0	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
4	0	4	1	23	63	3	4	3	3	1	3	3	6	3	0	3	7	0	1	1	0	134
5	0	3	2	57	21	3	1	1	1	0	4	4	2	3	0	1	1	0	0	0	0	104
6	0	0	0	6	2	2	0	0	0	0	1	2	0	0	0	0	1	0	1	0	0	16
7	0	0	0	5	1	0	36	17	21	6	3	0	117	1	4	13	121	0	13	1	1	359
8	0	0	0	2	1	0	14	2	5	1	1	0	71	3	0	3	39	0	4	0	0	147
9	0	1	0	6	1	0	28	7	43	7	9	0	71	0	5	33	68	0	5	1	1	284
10	0	1	0	3	2	0	9	1	10	564	23	20	35	127	0	0	74	0	13	0	3	885
11	1	2	1	4	5	0	5	1	14	16	8	0	31	0	0	24	30	0	0	0	0	143
12	0	1	0	6	4	1	0	0	0	13	0	6	56	45	2	0	2	0	0	0	3	141
13	0	0	0	17	3	0	114	72	81	115	31	52	35	934	14	283	275	0	9	20	83	2,138
14	0	1	0	4	3	2	0	5	0	142	0	63	912	2512	1	2	7	0	0	3	54	3,711
15	0	0	0	0	0	0	8	0	2	0	0	5	3	1	0	11	24	0	1	0	0	54
16	0	0	0	6	1	0	21	5	50	0	32	0	319	1	10	1052	1	0	0	0	0	1,499
17	0	1	0	9	1	1	122	39	63	70	26	2	304	6	25	1	0	0	0	0	0	669
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	1	1	0	14	4	5	13	0	0	9	0	4	0	0	0	0	0	0	52
20	0	0	0	1	0	0	1	0	1	0	0	0	20	3	0	0	0	0	0	0	0	28
21	0	0	0	0	0	0	0	0	1	248	0	3	75	49	0	0	0	0	0	0	0	378
Sum	5	24	9	158	117	15	379	157	299	1,196	144	163	2,066	3,692	64	1,427	653	0	48	29	145	10,790

M11 Junction 7a Model Changes in Demand due to Matrix Estimation
Sector Analysis
Model: V3.15
IP_Other_Car
Vehicle Class Car
Purpose Other
Time Period IP
Result Prior

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Sum
1	26	103	9	14	27	12	5	4	4	32	48	35	166	144	6	7	120	6	28	18	8	822
2	101	332	48	95	161	10	9	2	33	40	135	45	21	53	4	28	48	5	7	18	6	1,200
3	21	48	11	39	73	1	1	1	1	10	26	13	7	17	1	5	7	1	6	4	2	296
4	21	98	34	468	1025	60	15	17	26	13	72	68	52	56	2	53	41	2	40	50	2	2,217
5	35	159	74	1121	483	48	4	16	7	22	79	106	114	108	3	27	48	2	36	19	4	2,514
6	8	5	5	40	48	21	0	23	0	4	9	68	97	85	1	28	86	2	12	27	2	571
7	7	8	1	15	3	1	714	210	294	26	30	7	402	22	4	44	525	0	6	0	0	2,319
8	3	4	1	17	22	28	206	18	45	3	10	10	339	14	0	10	169	0	1	0	0	900
9	4	36	1	25	5	0	300	42	634	17	116	2	251	3	1	172	333	0	2	0	0	1,944
10	42	42	4	13	24	3	28	4	22	3234	142	98	18	248	0	2	43	0	1	0	5	3,974
11	70	161	29	78	114	3	35	9	112	138	203	25	88	24	0	287	146	0	2	3	3	1,532
12	39	65	11	70	122	59	7	8	1	94	24	174	286	464	2	3	44	1	5	8	3	1,492
13	67	19	3	68	85	83	405	346	210	21	76	240	150	2795	0	193	349	75	0	3	8	5,194
14	110	57	10	56	97	84	20	16	3	236	22	440	2839	13183	0	3	61	0	0	1	12	17,249
15	8	4	1	1	3	1	3	0	0	0	0	5	0	0	0	3	1	0	0	0	0	31
16	14	30	5	76	39	24	62	13	192	2	283	4	273	3	2	6473	2	0	0	0	0	7,498
17	61	52	5	51	30	79	544	171	326	32	133	28	394	64	3	3	0	0	0	0	0	1,978
18	8	5	1	1	2	1	1	0	0	0	0	1	3	0	0	0	0	0	0	0	0	23
19	19	10	2	47	28	10	9	2	3	2	1	4	0	0	2	0	0	0	0	0	0	140
20	27	18	5	59	25	21	1	1	1	0	3	7	4	4	0	0	0	0	0	0	0	174
21	11	6	1	1	4	1	0	0	1	668	1	2	10	17	0	0	0	0	0	0	0	723
Sum	704	1,260	261	2,354	2,421	549	2,367	905	1,916	4,593	1,414	1,382	5,512	17,306	33	7,341	2,024	94	146	152	56	52,790

M11 Junction 7a Model Changes in Demand due to Matrix Estimation
Sector Analysis
Model: V3.15
IP_Business_LGV
Vehicle Class LGV
Purpose Business
Time Period IP
Result Final

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Sum
1	7	17	2	10	7	2	1	3	1	5	11	7	23	21	1	2	30	1	12	3	1	166
2	32	39	14	25	42	2	4	1	9	11	42	20	7	15	2	6	19	2	4	7	3	306
3	2	12	1	11	12	0	0	0	0	2	8	2	1	6	0	2	3	0	3	2	0	70
4	13	22	10	93	223	17	20	9	14	5	22	19	59	11	1	22	28	0	8	10	2	607
5	10	40	15	209	60	13	6	4	6	6	21	25	24	23	1	13	15	0	8	7	1	504
6	1	2	2	14	14	2	0	4	0	2	1	22	15	17	1	7	22	0	4	7	1	138
7	0	4	1	19	4	1	119	50	75	16	9	2	134	1	1	20	223	0	1	0	0	682
8	0	1	0	7	4	10	45	5	16	4	2	2	110	4	0	4	70	0	0	0	0	285
9	1	12	1	12	5	0	85	19	152	19	50	1	88	1	0	82	141	0	1	0	0	670
10	8	8	1	8	6	1	18	15	24	1778	53	53	28	174	0	0	71	0	1	0	1	2,247
11	16	37	10	19	26	1	12	2	41	84	37	7	26	3	0	56	34	0	0	1	0	414
12	14	24	3	18	25	12	2	1	1	39	9	35	88	163	1	1	9	0	2	1	2	449
13	23	15	1	73	28	18	201	146	82	108	24	84	115	1416	0	25	258	5	0	290	247	3,159
14	40	14	4	14	18	14	2	11	1	179	5	165	1056	6444	0	1	7	0	0	0	12	7,987
15	2	1	0	0	1	0	5	0	1	0	0	6	0	0	0	2	6	0	0	0	0	25
16	3	6	2	20	13	6	40	8	95	0	88	1	125	0	0	3000	0	0	0	0	0	3,408
17	29	25	3	22	14	27	269	75	121	48	30	9	380	4	1	0	0	0	0	0	0	1,058
18	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
19	6	12	2	10	6	4	6	1	2	1	0	2	0	0	0	0	0	0	0	0	0	54
20	6	5	2	8	6	9	0	0	0	0	1	2	280	0	0	0	0	0	0	0	0	319
21	2	2	0	0	1	0	0	0	0	725	0	4	235	22	0	0	0	0	0	0	0	993
Sum	218	298	75	593	515	141	836	353	641	3,033	413	469	2,794	8,325	9	3,244	935	9	43	329	271	23,544

M11 Junction 7a Model Changes in Demand due to Matrix Estimation
Sector Analysis
Model: V3.15
IP_Business_HGV
Vehicle Class HGV
Purpose Business
Time Period IP
Result Final

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Sum
1	0	5	0	1	0	0	0	1	0	0	0	1	9	0	0	0	9	0	1	0	0	27
2	8	0	3	6	2	0	0	0	0	0	0	0	8	0	0	0	3	0	0	0	0	29
3	0	1	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	4
4	0	1	1	10	36	1	2	1	1	0	1	0	4	0	0	2	1	0	1	0	0	62
5	0	4	2	31	3	0	1	0	1	0	1	3	15	6	0	1	6	0	5	0	0	77
6	0	0	0	0	0	0	0	0	0	0	0	2	1	1	0	0	1	0	0	0	0	5
7	1	0	0	3	1	0	18	6	15	2	2	0	27	1	0	4	46	0	0	0	0	127
8	0	0	0	1	0	0	6	1	2	3	0	0	21	1	0	1	13	0	0	0	0	47
9	0	0	0	2	1	0	16	2	25	6	10	0	20	0	0	16	31	0	0	0	0	130
10	0	0	0	2	1	0	4	3	6	369	8	15	7	34	0	0	10	0	0	0	0	458
11	2	0	0	3	2	0	3	0	9	5	5	0	7	0	0	12	7	0	0	0	0	56
12	0	4	0	2	1	0	0	0	0	11	0	6	19	37	0	0	1	0	0	0	1	84
13	4	9	1	4	7	0	44	31	22	51	5	14	24	282	0	8	67	0	0	80	60	713
14	4	1	0	2	2	0	0	2	0	28	3	47	203	1332	0	3	1	0	0	0	1	1,631
15	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	3	0	0	0	0	5
16	0	0	0	1	1	1	8	1	18	0	19	0	22	2	0	627	0	0	0	0	0	700
17	6	4	0	2	2	0	54	14	29	5	7	1	93	1	0	0	0	0	0	0	0	218
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-
19	4	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
20	0	0	0	0	0	1	0	0	0	0	0	1	80	0	0	0	0	0	0	0	0	82
21	0	0	0	0	0	0	0	0	0	151	0	2	74	15	0	0	0	0	0	0	0	243
Sum	31	28	7	71	59	3	157	62	128	632	62	93	636	1,712	1	674	200	1	6	80	63	4,706

M11 Junction 7a Model Changes in Demand due to Matrix Estimation
Sector Analysis
Model: V3.15
PM_Commute_Car
Vehicle Class Car
Purpose Commute
Time Period PM
Result Final

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Sum
1	34	190	40	46	81	19	5	7	10	76	135	98	62	163	9	17	71	9	33	26	12	1,142
2	133	448	80	52	178	13	24	1	56	72	252	205	17	103	10	41	67	11	15	39	14	1,829
3	11	76	15	31	61	2	14	0	5	15	68	10	3	19	1	14	20	3	7	13	2	390
4	36	117	77	481	1669	76	66	138	78	37	120	113	167	84	4	121	86	4	51	50	6	3,580
5	69	169	61	1001	559	51	7	58	18	46	160	157	85	127	5	50	57	4	27	21	7	2,738
6	18	22	8	118	115	32	0	61	2	14	28	152	100	88	2	48	106	4	18	38	3	978
7	2	19	7	19	8	4	582	448	513	94	123	11	361	27	96	270	790	12	110	25	21	3,543
8	6	14	7	35	47	25	262	30	102	32	54	16	833	138	0	104	306	2	22	7	8	2,049
9	10	67	5	51	27	0	534	96	755	161	505	9	195	6	20	577	516	5	23	8	12	3,584
10	48	55	10	26	41	15	34	11	98	4302	238	148	102	1123	0	2	225	0	130	0	4	6,612
11	122	158	66	70	135	12	54	19	255	156	216	73	48	35	1	263	165	2	3	5	5	1,861
12	96	88	16	107	198	69	8	29	9	134	69	251	403	837	18	4	32	16	3	4	30	2,421
13	64	41	8	129	255	115	336	675	174	87	156	621	189	5016	3	1130	254	162	2	345	384	10,145
14	155	107	45	78	162	84	31	53	4	515	48	650	5116	16568	0	19	79	5	0	137	150	24,008
15	5	6	2	3	6	2	35	0	9	0	1	15	0	0	0	82	85	0	0	0	0	253
16	13	37	40	81	87	34	107	29	299	2	274	7	1058	22	186	9086	1	0	0	0	0	11,362
17	86	184	34	93	154	131	1059	418	590	245	341	94	205	90	238	5	1	0	0	0	0	3,967
18	5	7	5	3	4	3	72	32	28	0	1	133	573	35	0	0	0	0	0	0	0	902
19	18	40	60	150	88	14	83	28	35	193	2	7	3	3	373	0	0	0	0	0	0	1,098
20	15	29	32	91	53	27	35	25	17	0	9	13	669	425	0	0	0	0	0	0	0	1,440
21	7	9	3	5	9	3	5	2	5	1604	2	21	673	371	0	0	0	0	0	0	0	2,717
Sum	953	1,884	619	2,672	3,937	731	3,353	2,161	3,063	7,784	2,801	2,804	10,862	25,279	966	11,833	2,862	240	445	717	657	86,622

M11 Junction 7a Model Changes in Demand due to Matrix Estimation
Sector Analysis
Model: V3.15
PM_Business_Car
Vehicle Class Car
Purpose Business
Time Period PM
Result Final

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Sum
1	0	6	2	3	3	1	0	0	0	3	3	2	1	2	0	0	0	0	1	0	0	29
2	1	28	5	4	10	1	2	0	2	3	11	15	1	6	0	1	1	0	0	2	1	94
3	0	4	1	2	3	0	1	0	0	1	2	1	0	1	0	0	0	0	0	1	0	19
4	0	8	6	29	94	5	6	9	5	2	7	8	13	6	0	4	8	0	2	1	0	214
5	1	11	4	71	35	3	1	6	1	2	7	7	5	7	0	2	2	0	1	0	0	168
6	0	1	1	8	13	2	0	2	0	0	1	6	1	2	0	0	1	0	1	0	0	40
7	0	2	1	3	1	0	36	28	24	12	9	0	147	1	5	38	122	0	22	4	2	456
8	0	2	0	2	3	0	15	2	8	3	5	0	96	11	0	13	43	0	6	1	1	212
9	0	2	1	1	0	0	32	8	45	24	30	0	79	0	8	64	69	0	8	2	3	378
10	0	1	1	3	3	0	5	2	12	489	22	16	31	158	0	0	61	0	16	0	5	826
11	1	5	5	7	8	1	6	3	17	17	9	2	35	0	0	33	31	0	0	0	0	179
12	1	4	1	7	9	2	0	6	0	17	3	10	77	61	4	0	2	0	0	0	5	211
13	0	1	0	6	4	0	191	129	68	134	61	118	27	1568	18	697	451	1	15	55	121	3,665
14	0	3	1	3	3	1	0	8	0	147	1	48	1052	2489	2	5	8	0	0	7	68	3,846
15	0	0	0	0	0	0	2	0	3	0	0	3	2	1	0	13	13	0	0	0	0	38
16	0	1	1	2	2	0	25	6	46	0	37	0	389	5	28	1050	1	0	0	0	0	1,593
17	0	3	1	6	2	1	192	73	80	147	61	7	508	24	52	2	0	0	0	0	0	1,159
18	0	0	0	0	0	0	2	1	1	0	0	4	14	1	0	0	0	0	0	0	0	23
19	0	1	0	3	2	0	27	8	8	31	0	0	18	2	18	0	0	0	0	0	0	118
20	0	1	2	1	0	0	3	2	2	0	0	1	38	17	0	0	0	0	0	0	0	66
21	0	0	0	0	0	0	1	0	1	198	0	3	57	59	0	0	0	0	0	0	0	320
Sum	6	84	34	162	196	20	546	293	323	1,230	271	253	2,590	4,420	136	1,923	814	2	72	75	207	13,655

M11 Junction 7a Model Changes in Demand due to Matrix Estimation
Sector Analysis
Model: V3.15
PM_Other_Car
Vehicle Class Car
Purpose Other
Time Period PM
Result Final

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Sum
1	14	56	8	10	18	0	1	3	5	34	48	37	37	123	4	7	30	5	11	13	6	471
2	42	291	44	34	81	2	18	6	41	49	127	74	11	65	5	24	45	6	4	21	8	997
3	5	33	10	26	37	0	6	0	4	7	28	6	2	6	1	16	14	2	5	14	1	222
4	8	27	29	373	763	40	25	39	32	8	63	68	47	31	1	58	40	1	40	44	1	1,739
5	12	83	43	845	379	23	5	42	17	17	78	90	60	74	2	39	34	1	16	16	3	1,878
6	1	3	0	67	45	17	0	22	1	2	3	60	76	98	0	32	105	1	10	28	0	572
7	0	17	11	32	5	0	663	371	270	16	46	4	441	9	1	73	593	0	9	1	0	2,561
8	0	3	0	25	16	8	193	25	75	3	25	6	389	17	0	24	203	0	2	0	0	1,015
9	1	43	6	14	7	0	313	84	656	50	181	3	489	7	1	254	330	0	3	0	1	2,443
10	13	24	4	8	12	1	15	5	43	3783	151	106	9	272	0	1	40	0	3	0	7	4,497
11	25	85	22	30	50	1	43	18	139	131	214	28	79	19	0	296	142	0	5	3	1	1,332
12	14	45	7	47	77	23	3	7	2	103	29	138	377	486	2	5	17	1	2	2	2	1,388
13	3	9	1	29	42	30	485	485	397	13	100	334	169	3563	0	307	251	29	1	5	11	6,263
14	16	23	7	14	35	27	9	14	3	261	8	439	3414	14942	0	4	27	0	0	1	14	19,260
15	1	3	1	0	2	0	1	0	1	0	0	5	0	0	0	4	2	0	0	0	0	20
16	2	18	11	23	18	8	63	21	206	1	298	2	305	2	6	7629	2	0	0	0	0	8,616
17	4	38	7	34	26	42	676	261	339	38	167	23	112	27	5	2	0	0	0	0	0	1,801
18	1	3	3	0	1	0	2	1	1	0	0	4	9	1	0	0	0	0	0	0	0	25
19	2	5	5	20	15	3	11	4	4	4	2	3	1	0	7	0	0	0	0	0	0	86
20	4	11	9	21	6	7	1	2	1	0	4	6	10	8	0	0	0	0	0	0	0	90
21	2	4	1	1	2	0	0	0	1	752	1	3	16	21	0	0	0	0	0	0	0	803
Sum	170	823	230	1,652	1,639	233	2,534	1,408	2,236	5,274	1,571	1,439	6,052	19,772	37	8,774	1,876	47	109	149	55	56,080

M11 Junction 7a Model Changes in Demand due to Matrix Estimation
Sector Analysis
Model: V3.15
PM_Business_LGV
Vehicle Class LGV
Purpose Business
Time Period PM
Result Final

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Sum
1	6	18	4	38	18	0	1	7	2	6	19	30	9	32	1	1	7	1	9	3	1	212
2	23	35	25	20	44	5	9	3	13	12	53	40	6	21	2	9	16	2	2	7	2	347
3	2	18	2	8	9	0	2	0	2	2	10	3	0	2	0	5	3	1	0	4	0	73
4	20	19	16	86	347	18	35	15	27	5	32	34	74	18	1	28	38	0	5	12	1	830
5	20	53	15	165	51	17	10	7	16	13	41	37	24	35	2	24	13	1	3	9	2	559
6	2	10	0	26	18	1	0	9	0	1	2	24	18	48	0	9	31	0	3	8	0	211
7	0	10	5	38	5	0	138	135	106	20	34	2	176	1	0	46	297	0	2	0	0	1,015
8	0	1	0	16	5	6	54	7	24	4	8	3	136	6	0	10	90	0	0	0	0	370
9	0	13	3	45	7	0	109	17	175	46	121	2	87	3	0	163	187	0	1	0	0	979
10	3	7	1	10	7	2	11	7	35	2220	79	84	25	249	0	0	49	0	0	0	2	2,790
11	10	35	7	22	24	2	14	2	53	57	35	11	25	6	0	77	38	0	0	1	0	420
12	7	25	2	27	28	11	0	2	1	53	12	39	105	202	1	2	4	0	1	1	2	526
13	13	16	1	135	32	14	238	197	101	48	61	131	142	1841	0	36	267	2	0	200	233	3,708
14	30	7	2	17	15	12	1	16	0	170	2	163	1404	8191	0	1	3	0	0	0	10	10,042
15	0	1	0	1	1	0	5	0	1	0	0	5	0	0	0	3	2	0	0	0	0	20
16	0	7	5	28	9	3	51	8	144	0	105	0	171	0	0	3718	0	0	0	0	0	4,251
17	17	42	5	50	17	20	381	108	191	28	55	11	449	3	0	1	0	0	0	0	0	1,378
18	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
19	16	18	4	7	7	1	9	2	3	1	0	2	0	0	0	0	0	0	0	0	0	70
20	1	6	5	8	4	4	1	0	1	0	0	1	231	0	0	0	0	0	0	0	0	261
21	1	2	0	0	2	1	0	0	0	898	0	4	185	26	0	0	0	0	0	0	0	1,120
Sum	171	344	102	746	651	117	1,069	542	896	3,584	668	628	3,268	10,685	7	4,131	1,046	6	26	245	254	29,186

M11 Junction 7a Model Changes in Demand due to Matrix Estimation
Sector Analysis
Model: V3.15
PM_Business_HGV
Vehicle Class HGV
Purpose Business
Time Period PM
Result Final

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Sum
1	0	0	0	1	2	0	0	0	0	0	0	6	2	5	0	0	1	0	0	0	0	18
2	0	2	2	4	1	0	0	0	1	0	1	0	2	0	0	0	1	0	0	0	0	14
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
4	0	0	0	8	29	1	2	1	1	0	1	2	3	2	0	0	3	0	1	0	0	52
5	4	8	1	27	3	1	1	1	1	2	3	5	6	2	0	0	3	0	0	0	0	70
6	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	3
7	0	0	0	2	0	0	19	7	13	14	2	0	78	2	0	5	45	0	0	0	0	187
8	0	0	0	1	1	0	7	1	2	1	0	0	42	6	0	1	12	0	0	0	0	71
9	0	0	0	2	0	0	15	2	25	3	9	0	18	0	0	21	27	0	0	0	0	123
10	0	0	0	0	1	0	2	0	6	349	8	8	1	25	0	0	4	0	0	0	0	405
11	0	0	0	1	1	0	3	0	7	3	7	2	3	1	0	11	7	0	0	0	0	45
12	0	0	0	1	4	0	0	0	0	5	0	4	6	37	0	0	0	0	0	0	0	59
13	1	4	0	1	10	0	46	30	20	1	5	8	23	266	0	5	52	0	0	0	46	519
14	2	3	1	1	7	0	0	5	0	18	1	36	186	1261	0	3	0	0	0	0	21	1,544
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
16	0	0	0	2	0	0	6	1	21	0	17	0	26	0	0	588	0	0	0	0	0	662
17	10	4	1	3	4	0	52	15	26	1	7	1	239	1	0	0	0	0	0	0	0	364
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	3	0	0	1	4	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
20	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2
21	0	0	0	0	0	0	0	0	0	143	0	0	45	30	0	0	0	0	0	0	0	218
Sum	20	22	4	56	68	3	155	63	122	541	61	77	680	1,638	1	635	155	1	2	1	67	4,370

M11 Junction 7a Model Changes in Demand due to Matrix Estimation

Sector Analysis

Model:	V3.15				
	AM_Commute_Car		External Zone Start:	220	
Vehicle Class	Car	Threshold:	Percent Difference >	0%	
Purpose	Commute		Absolute Flow Difference >	10	
Time Period	AM				
Result	Percent Difference				

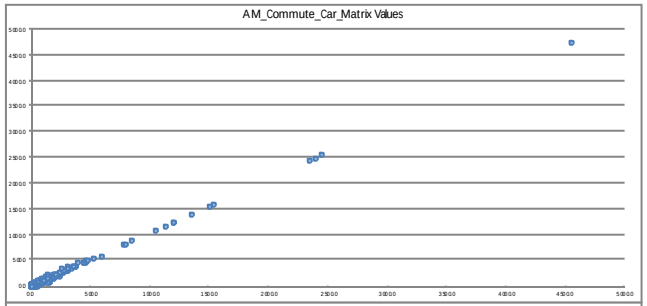
Green	Fully Observed - fully observed
Light Green	Fully Observed - partially observed
Yellow	Partially observed - partially observed
Orange	Partially observed - synthetic
Red	Synthetic - synthetic

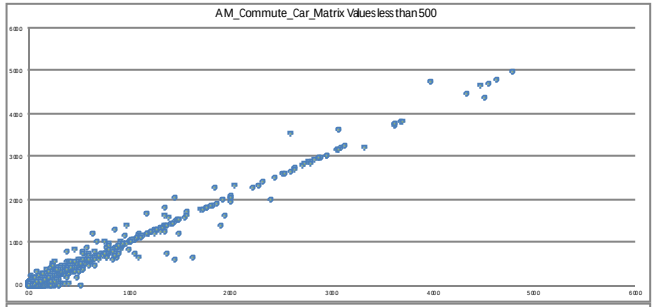
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Sum
1	0%	-16%	0%	0%	-25%	0%	0%	0%	0%	49%	48%	-22%	-65%	-42%	0%	0%	-48%	0%	0%	0%	0%	- 0
2	-34%	9%	0%	-45%	-15%	0%	0%	0%	87%	0%	0%	35%	-53%	26%	0%	0%	11%	0%	0%	0%	0%	0
3	0%	42%	0%	0%	27%	0%	0%	0%	0%	0%	88%	0%	0%	53%	0%	230%	170%	0%	0%	182%	0%	0
4	0%	-35%	0%	-13%	4%	134%	0%	0%	58%	0%	0%	11%	25%	-22%	0%	50%	52%	0%	70%	15%	0%	0
5	0%	-19%	-37%	-11%	4%	17%	0%	0%	0%	0%	11%	16%	-29%	-19%	0%	65%	0%	0%	-50%	0%	0%	- 0
6	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-29%	-23%	0%	0%	0%	0%	0%	0%	0%	- 0
7	0%	193%	0%	42%	0%	0%	0%	24%	3%	0%	0%	0%	6%	0%	0%	0%	-1%	-13%	0%	0%	0%	0
8	0%	0%	0%	65%	65%	37%	0%	0%	0%	0%	0%	53%	9%	53%	0%	0%	3%	0%	0%	0%	0%	0
9	0%	51%	0%	35%	0%	0%	-3%	0%	18%	23%	7%	0%	-12%	0%	0%	0%	-17%	-24%	0%	0%	0%	0
10	86%	57%	0%	0%	29%	0%	24%	0%	36%	4%	7%	0%	-21%	5%	0%	0%	-22%	0%	-14%	0%	0%	0
11	53%	25%	0%	-34%	15%	0%	0%	0%	5%	0%	24%	66%	-21%	0%	0%	-11%	-11%	0%	0%	0%	0%	0
12	0%	81%	0%	0%	9%	53%	0%	0%	0%	34%	95%	0%	16%	6%	0%	0%	0%	98%	0%	0%	86%	0
13	-57%	0%	0%	0%	0%	53%	3%	4%	0%	-13%	0%	20%	0%	5%	0%	5%	19%	19%	0%	19%	-28%	0
14	0%	105%	0%	0%	29%	60%	0%	25%	0%	10%	115%	3%	2%	3%	0%	75%	0%	59%	0%	-10%	17%	0
15	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-7%	0%	0%	0%	0%	- 0
16	0%	0%	0%	48%	0%	94%	5%	0%	10%	0%	0%	0%	6%	0%	0%	3%	0%	0%	0%	0%	0%	0
17	-48%	58%	253%	38%	0%	57%	0%	6%	-7%	-5%	-6%	0%	36%	0%	-10%	0%	0%	0%	0%	0%	0%	0
18	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	36%	0%	0%	0%	0%	0%	0%	0%	0%	0
19	-52%	0%	283%	47%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	9%	0%	0%	0%	0%	0%	0%	0
20	0%	0%	0%	0%	0%	62%	0%	0%	0%	0%	0%	0%	37%	34%	0%	0%	0%	0%	0%	0%	0%	0
21	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	0%	98%	-14%	21%	0%	0%	0%	0%	0%	0%	0%	0
Sum	- 0	0	0	0	0	0	0	0	0	0	0	0	- 0	0	- 0	0	0	0	0	0	0	0

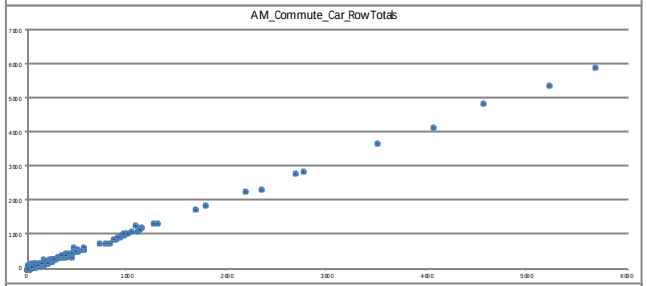
M11 Junction 7a Model Changes in Demand due to Matrix Estimation

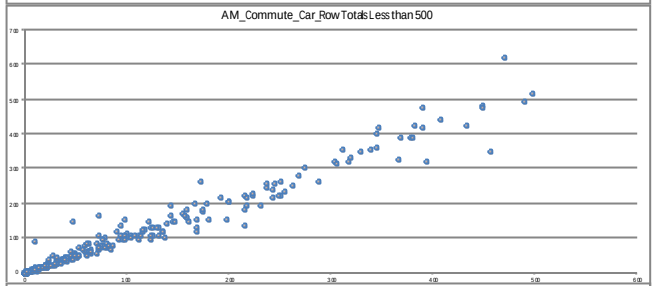
Regression Plots

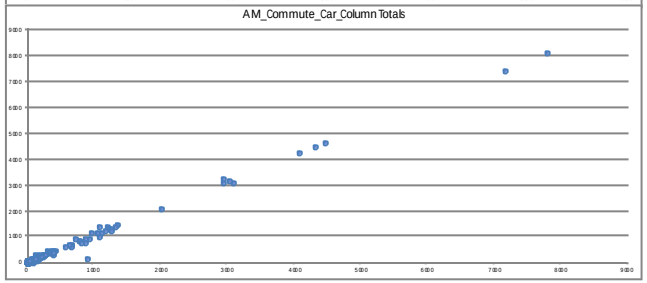
Model: V3.15

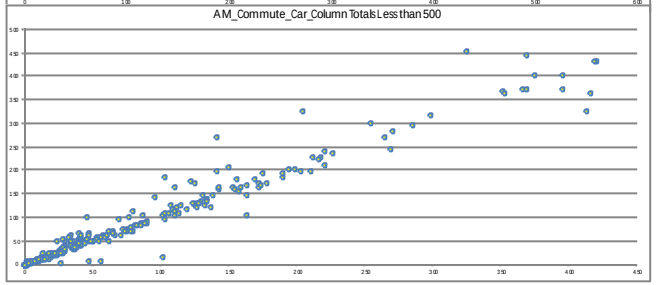












M11 Junction 7a Model Changes in Demand due to Matrix Estimation

Regression Analysis

Model: V3.15

Vehicle Class Car

Purpose Commute

Time Period AM

Regression		Full Matrix		
		A	B	R2
AM	Matrix	0.0	0.96	1.00
	Row Totals	0.7	0.96	1.00
	Column	0.4	0.96	1.00

Standard Error		Full Matrix	
		A	B
AM	Matrix	0.0	0.0
	Row	1.8	0.0
	Column	3.8	0.0

95% Confidence Interval		Full Matrix	
Students T-Statistic:		A	B
AM	Matrix	0 - 0	0.96 - 0.96
	Row	0.71 - 0.63	0.96 - 0.96
	Column	0.5 - 0.31	0.96 - 0.96

M11 Junction 7a Model Changes in Demand due to Matrix Estimation

Trip Length Distributions

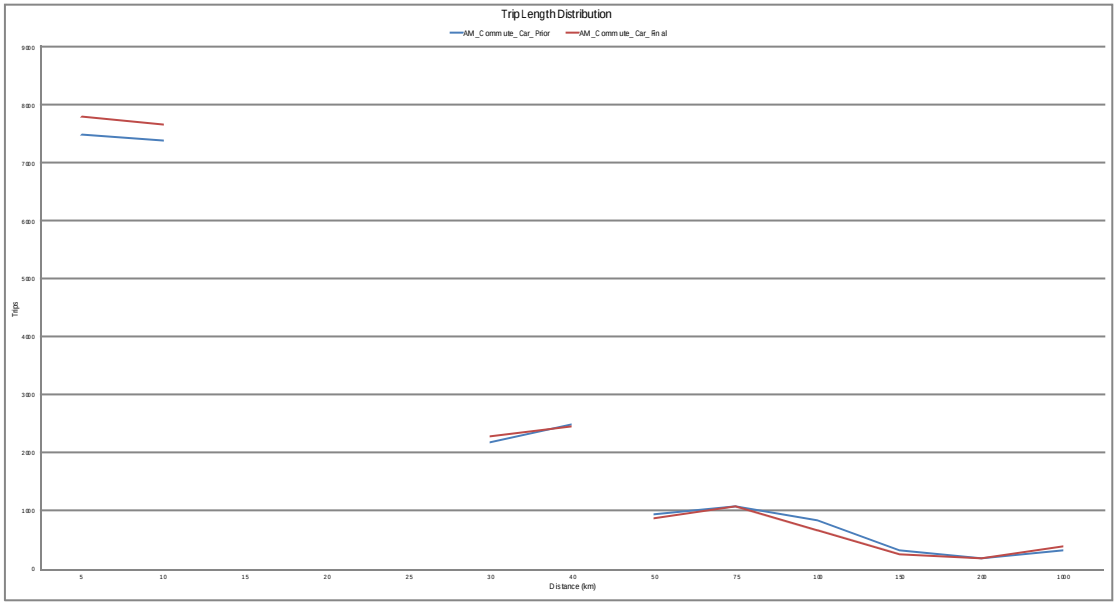
Model Version: V3.15

Vehicle Class Car

Purpose Commute

Time Period AM

	Prior		Final		Differences Absolute		Differences Percentage	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
H	9.3	7.1	9.5	7.2	0.1	0.1	1%	2%
HE	36.9	42.3	36.9	44.7	- 0.0	2.5	0%	6%
EH	25.5	28.0	26.7	30.6	1.2	2.6	5%	9%
EE	34.4	40.1	35.2	42.2	0.8	2.0	2%	5%
TOTAL	27.4	35.4	27.8	37.2	0.4	1.8	1%	5%



M11 Junction 7a Model Changes in Demand due to Matrix Estimation

Sector Analysis

Model:	V3.15				
	AM_Business_Car		External Zone Start:	220	
Vehicle Class	Car	Threshold:	Percent Difference >	0%	
Purpose	Business		Absolute Flow Difference >	10	
Time Period	AM				
Result	Percent Difference				

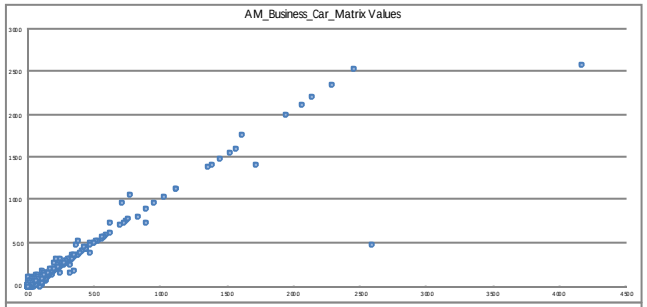
Green	Fully Observed - fully observed
Light Green	Fully Observed - partially observed
Yellow	Partially observed - partially observed
Orange	Partially observed - synthetic
Red	Synthetic - synthetic

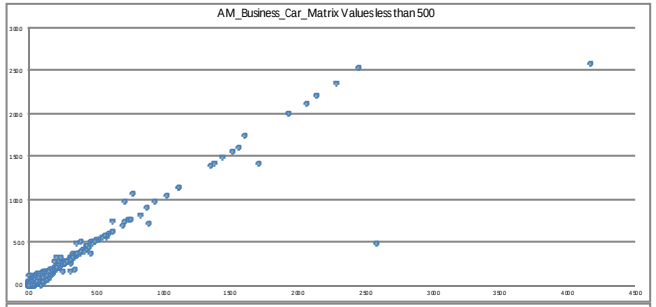
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Sum
1	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
2	0%	0%	0%	-78%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0
3	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	749%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0
4	0%	0%	0%	0%	17%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0
5	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
6	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
7	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
8	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0
9	0%	0%	0%	0%	0%	0%	0%	0%	39%	0%	0%	0%	-10%	0%	0%	0%	0%	0%	0%	0%	0%	0
10	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	-44%	32%	0%	0%	-13%	0%	0%	0%	0%	- 0
11	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-32%	0%	0%	0%	-13%	0%	0%	0%	0%	- 0
12	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
13	0%	0%	0%	0%	0%	0%	0%	0%	12%	0%	0%	32%	0%	10%	0%	0%	-65%	0%	0%	0%	0%	- 0
14	0%	0%	0%	0%	0%	0%	0%	0%	0%	31%	0%	0%	-1%	3%	0%	0%	0%	0%	0%	0%	0%	0
15	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
16	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%	3%	0%	0%	0%	0%	0%	0
17	0%	0%	0%	0%	0%	0%	0%	0%	18%	0%	0%	0%	-35%	0%	0%	0%	0%	0%	0%	0%	0%	- 0
18	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
19	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
20	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
21	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-10%	41%	0%	0%	0%	0%	0%	0%	0%	0
Sum	-	-	-	- 0	0	-	-	-	0	0	0	0	- 0	0	-	0	- 0	-	-	-	-	0

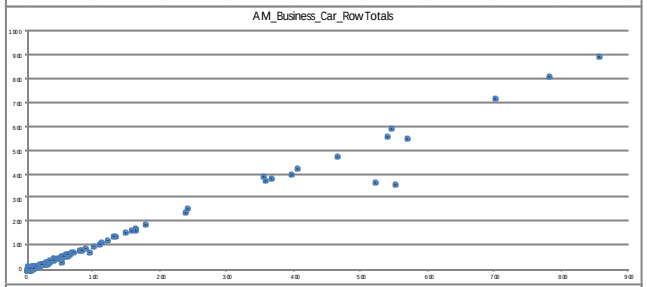
M11 Junction 7a Model Changes in Demand due to Matrix Estimation

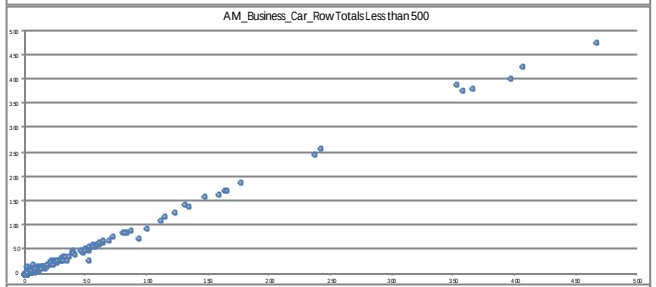
Regression Plots

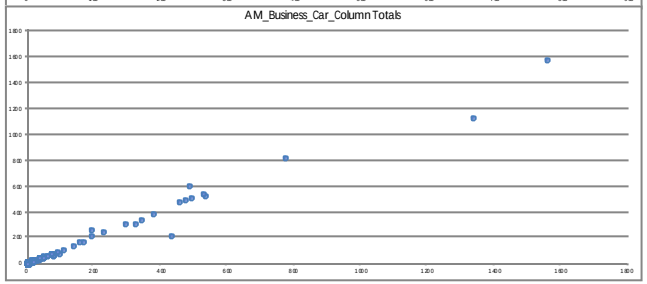
Model: V3.15

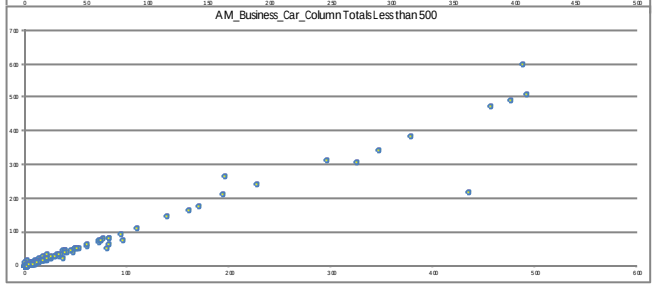












M11 Junction 7a Model Changes in Demand due to Matrix Estimation

Regression Analysis

Model: V3.15

Vehicle Class	Car
Purpose	Business
Time Period	AM

Regression		Full Matrix		
		A	B	R2
AM	Matrix	- 0.0	1.03	0.91
	Row Totals	0.2	0.99	0.98
	Column	- 0.8	1.02	0.98

Standard Error		Full Matrix	
		A	B
AM	Matrix	0.0	0.0
	Row	1.0	0.0
	Column	1.3	0.0

95% Confidence Interval		Full Matrix	
Students T-Statistic:		A	B
AM	Matrix	-0.01 - -0.01	1.03 - 1.03
	Row	0.23 - 0.23	0.99 - 0.99
	Column	-0.84 - -0.84	1.02 - 1.02

M11 Junction 7a Model Changes in Demand due to Matrix Estimation

Trip Length Distributions

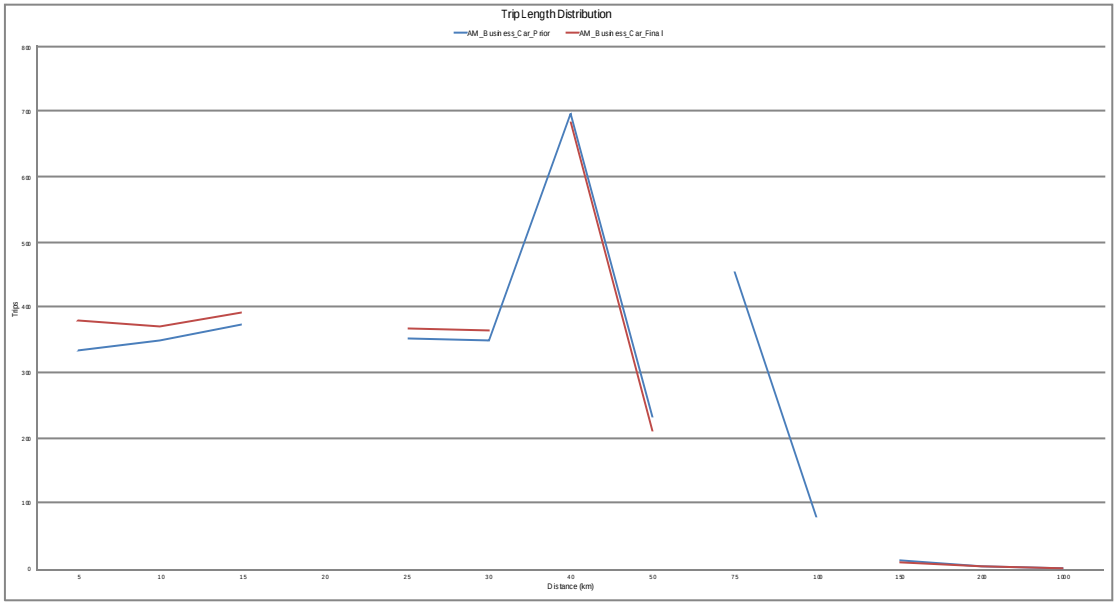
Model Version: V3.15

Vehicle Class Car

Purpose Business

Time Period AM

	Prior		Final		Differences Absolute		Differences Percentage	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
I-I	11.5	8.6	11.5	8.7	0.0	0.1	0%	1%
I-E	36.4	20.6	35.4	20.1	- 0.9	- 0.5	-3%	-2%
E-I	36.5	23.2	37.8	24.2	1.3	1.0	4%	4%
E-E	47.3	30.5	47.1	30.9	- 0.2	0.4	0%	1%
TOTAL	40.0	28.2	39.5	28.4	- 0.5	0.2	-1%	1%



M11 Junction 7a Model Changes in Demand due to Matrix Estimation

Sector Analysis

Model:	V3.15				
	AM_Other_Car		External Zone Start:	220	
Vehicle Class	Car	Threshold:	Percent Difference >	0%	
Purpose	Other		Absolute Flow Difference >	10	
Time Period	AM				
Result	Percent Difference				

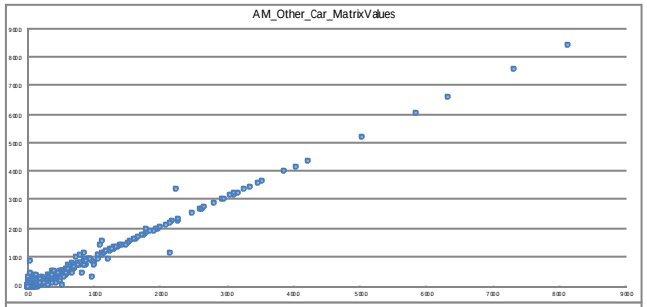
Green	Fully Observed - fully observed
Light Green	Fully Observed - partially observed
Yellow	Partially observed - partially observed
Orange	Partially observed - synthetic
Red	Synthetic - synthetic

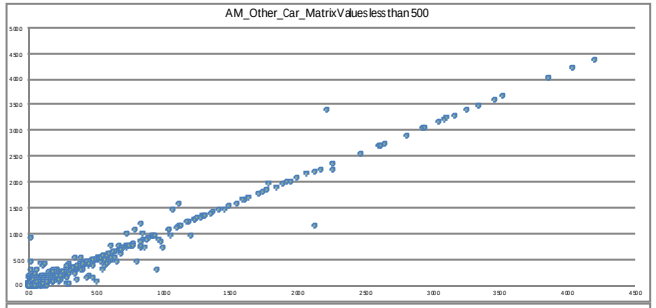
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Sum
1	0%	0%	0%	0%	0%	0%	0%	0%	0%	47%	70%	0%	-54%	-43%	0%	0%	-42%	0%	-55%	0%	0%	- 0
2	-32%	13%	0%	-60%	-21%	0%	0%	0%	85%	0%	0%	55%	-38%	0%	0%	0%	0%	0%	0%	0%	0%	0
3	0%	0%	0%	0%	0%	0%	0%	0%	0%	146%	131%	0%	0%	0%	0%	143%	0%	0%	0%	0%	0%	0
4	0%	0%	57%	27%	52%	123%	0%	0%	66%	0%	38%	44%	0%	0%	0%	41%	48%	0%	55%	35%	0%	0
5	0%	-33%	-30%	-2%	6%	0%	0%	0%	0%	0%	0%	0%	-31%	0%	0%	0%	0%	0%	-59%	0%	0%	- 0
6	0%	0%	0%	0%	-31%	0%	0%	0%	0%	0%	0%	0%	-25%	0%	0%	0%	0%	0%	0%	0%	0%	- 0
7	-81%	162%	0%	0%	0%	0%	-2%	19%	0%	0%	0%	0%	12%	0%	0%	0%	0%	0%	0%	0%	0%	0
8	0%	0%	0%	47%	0%	0%	0%	0%	0%	0%	0%	0%	10%	0%	0%	0%	0%	0%	0%	0%	0%	0
9	0%	73%	0%	0%	0%	0%	0%	0%	12%	0%	0%	0%	-16%	0%	0%	0%	-22%	0%	0%	0%	0%	0
10	0%	37%	0%	0%	0%	0%	0%	0%	0%	3%	0%	15%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0
11	0%	27%	69%	-32%	14%	0%	0%	0%	0%	0%	19%	43%	-20%	0%	0%	-4%	-10%	0%	0%	0%	0%	0
12	30%	98%	0%	19%	14%	44%	0%	0%	0%	32%	140%	8%	18%	6%	0%	0%	0%	0%	0%	0%	0%	0
13	-52%	0%	0%	0%	0%	38%	9%	6%	0%	0%	0%	22%	0%	7%	0%	0%	37%	39%	0%	0%	0%	0
14	0%	60%	0%	0%	0%	47%	0%	0%	0%	20%	90%	9%	2%	3%	0%	0%	0%	0%	0%	0%	0%	0
15	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
16	0%	0%	274%	0%	0%	56%	0%	0%	-8%	0%	0%	0%	10%	0%	0%	4%	0%	0%	0%	0%	0%	0
17	-49%	0%	214%	0%	31%	51%	0%	0%	-17%	0%	0%	0%	53%	0%	0%	0%	0%	0%	0%	0%	0%	0
18	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
19	-61%	0%	342%	0%	-35%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0
20	-40%	0%	0%	0%	0%	55%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0
21	0%	0%	0%	0%	0%	0%	0%	0%	0%	5%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0
Sum	- 0	0	0	- 0	0	0	0	0	0	0	0	0	- 0	- 0	-	0	0	0	- 0	0	-	0

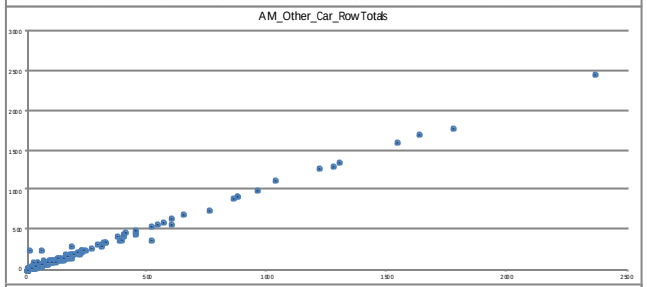
M11 Junction 7a Model Changes in Demand due to Matrix Estimation

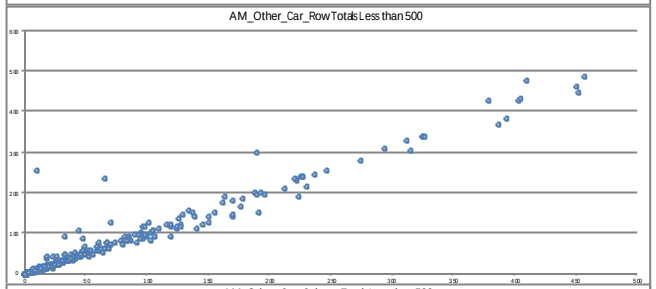
Regression Plots

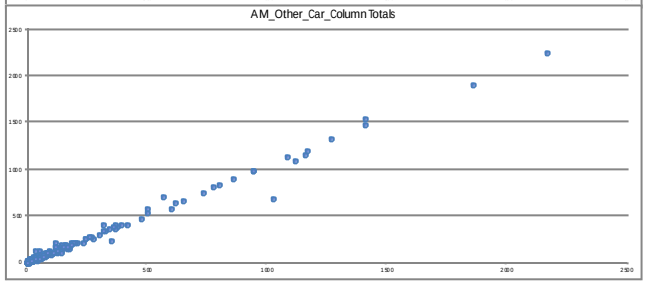
Model: V3.15

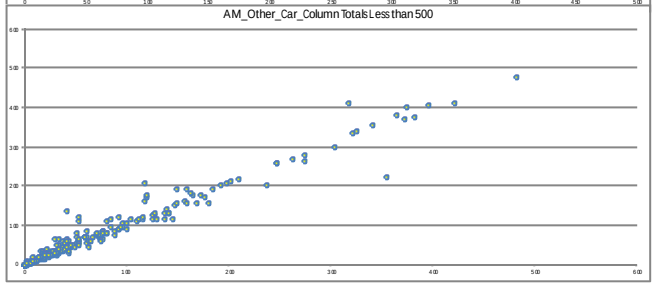












M11 Junction 7a Model Changes in Demand due to Matrix Estimation

Regression Analysis

Model: V3.15

Vehicle Class Car

Purpose Other

Time Period AM

Regression		Full Matrix		
		A	B	R2
AM	Matrix	0.0	0.95	0.99
	Row Totals	- 1.2	0.96	0.99
	Column	- 2.1	0.97	0.99

Standard Errors		Full Matrix	
		A	B
AM	Matrix	0.0	0.0
	Row	1.6	0.0
	Column	2.0	0.0

95% Confidence Interval		Full Matrix	
Students T-Statistic:		A	B
AM	Matrix	0 - 0	0.95 - 0.95
	Row	-0.96 - -1.4	0.96 - 0.96
	Column	-1.86 - -2.4	0.97 - 0.97

M11 Junction 7a Model Changes in Demand due to Matrix Estimation

Trip Length Distributions

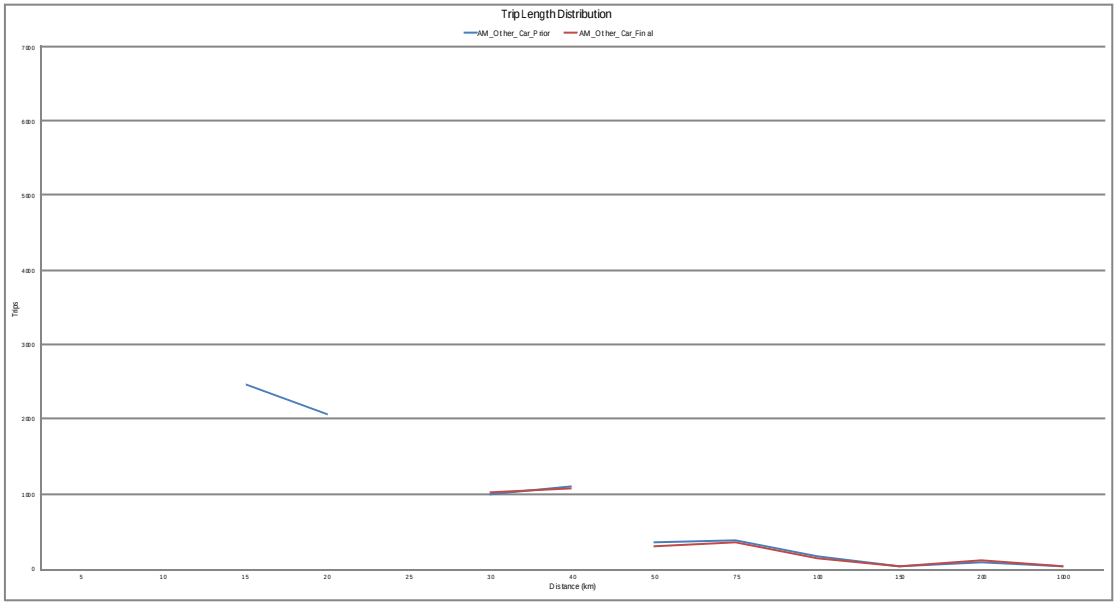
Model Version: V3.15

Vehicle Class Car

Purpose Other

Time Period AM

	Prior		Final		Differences Absolute		Differences Percentage	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
H	8.4	7.1	8.2	7.0	- 0.2	- 0.1	-2%	-2%
HE	28.9	32.5	28.5	33.7	- 0.4	1.2	-1%	4%
EH	33.1	38.6	32.5	38.5	- 0.6	- 0.2	-2%	0%
EE	20.9	24.6	21.7	27.3	0.8	2.6	4%	11%
TOTAL	20.1	26.9	19.9	27.7	- 0.2	0.8	-1%	3%



M11 Junction 7a Model Changes in Demand due to Matrix Estimation

Sector Analysis

Model:	V3.15				
	AM_Business_LGV		External Zone Start:	220	
Vehicle Class	LGV	Threshold:	Percent Difference >	0%	
Purpose	Business		Absolute Flow Difference >	10	
Time Period	AM				
Result	Percent Difference				

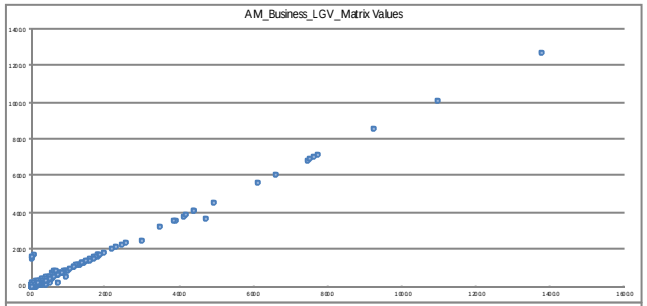
Green	Fully Observed - fully observed
Light Green	Fully Observed - partially observed
Yellow	Partially observed - partially observed
Orange	Partially observed - synthetic
Red	Synthetic - synthetic

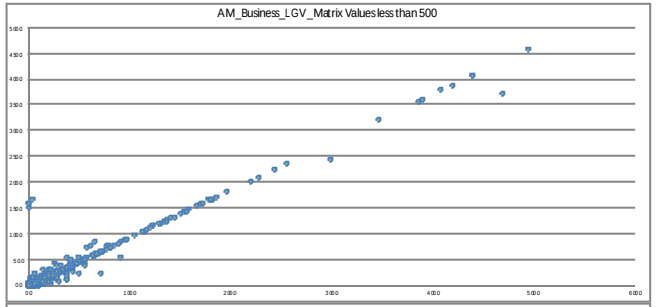
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Sum
1	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-46%	0%	0%	118%	0%	0%	0%	0%	0
2	0%	0%	0%	-42%	0%	0%	0%	0%	0%	0%	0%	73%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0
3	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
4	0%	-33%	0%	0%	-7%	77%	-55%	0%	-55%	0%	0%	0%	36%	0%	0%	0%	-46%	0%	0%	0%	0%	- 0
5	0%	0%	0%	-7%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	- 0
6	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
7	0%	0%	0%	-32%	0%	0%	-8%	19%	0%	0%	0%	0%	-20%	0%	0%	0%	-12%	0%	0%	0%	0%	- 0
8	0%	0%	0%	0%	0%	0%	-12%	0%	0%	0%	0%	0%	-7%	0%	0%	0%	-10%	0%	0%	0%	0%	- 0
9	0%	0%	0%	-35%	0%	0%	-15%	0%	27%	0%	0%	0%	-42%	0%	0%	13%	-22%	0%	0%	0%	0%	- 0
10	0%	0%	0%	0%	0%	0%	0%	0%	0%	-8%	0%	-14%	0%	-37%	0%	0%	0%	0%	0%	0%	0%	- 0
11	0%	0%	0%	-43%	0%	0%	0%	0%	0%	-33%	0%	0%	0%	0%	0%	-18%	-15%	0%	0%	0%	0%	- 0
12	0%	88%	0%	0%	0%	0%	0%	0%	0%	-15%	0%	0%	26%	0%	0%	0%	0%	0%	0%	0%	0%	0
13	120%	210%	0%	0%	0%	0%	-15%	-15%	-39%	84%	0%	37%	-7%	-4%	0%	0%	-18%	0%	0%	533333%	21909%	265
14	148%	0%	0%	0%	55%	0%	0%	0%	0%	-25%	0%	0%	-5%	-7%	0%	0%	0%	0%	0%	0%	75%	0
15	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
16	0%	0%	0%	-26%	0%	0%	0%	0%	0%	0%	-18%	0%	-12%	0%	0%	-8%	0%	0%	0%	0%	0%	- 0
17	205%	107%	0%	-46%	0%	0%	-9%	0%	-21%	0%	0%	0%	-20%	0%	0%	0%	0%	0%	0%	0%	0%	0
18	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
19	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
20	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	25376%	0%	0%	0%	0%	0%	0%	0%	0%	12
21	0%	0%	0%	0%	0%	0%	0%	0%	0%	-7%	0%	0%	2764%	-36%	0%	0%	0%	0%	0%	0%	0%	1
Sum	0	0	-	- 0	0	0	- 0	0	- 0	- 0	- 0	0	13	- 0	-	- 0	- 0	-	-	254	10	13

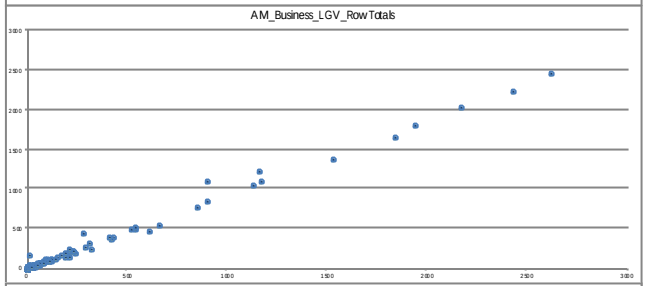
M11 Junction 7a Model Changes in Demand due to Matrix Estimation

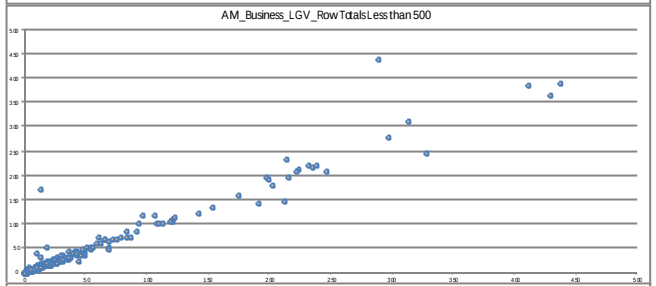
Regression Plots

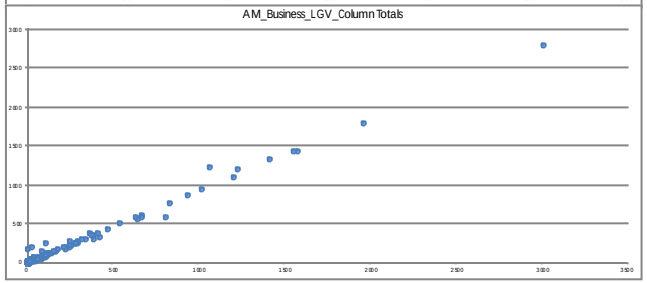
Model: V3.15

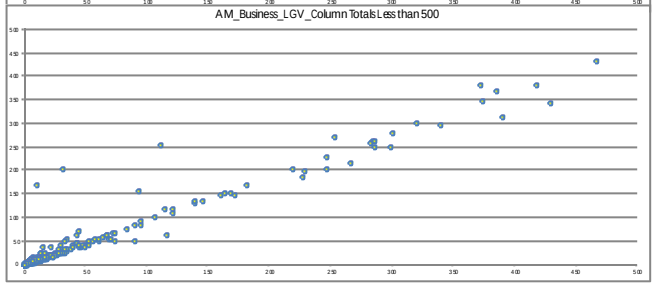












M11 Junction 7a Model Changes in Demand due to Matrix Estimation

Regression Analysis

Model: V3.15

Vehicle Class LGV

Purpose Business

Time Period AM

Regression		Full Matrix		
		A	B	R2
AM	Matrix	- 0.0	1.07	0.99
	Row Totals	- 1.2	1.07	0.99
	Column	- 1.2	1.07	0.99

Standard Error		Full Matrix	
		A	B
AM	Matrix	0.0	0.0
	Row	1.8	0.0
	Column	1.8	0.0

95% Confidence Interval		Full Matrix	
Students T-Statistic:		A	B
AM	Matrix	-0.01 - 0	1.07 - 1.07
	Row	-1.64 - -0.84	1.06 - 1.07
	Column	-1.65 - -0.83	1.06 - 1.07

M11 Junction 7a Model Changes in Demand due to Matrix Estimation

Trip Length Distributions

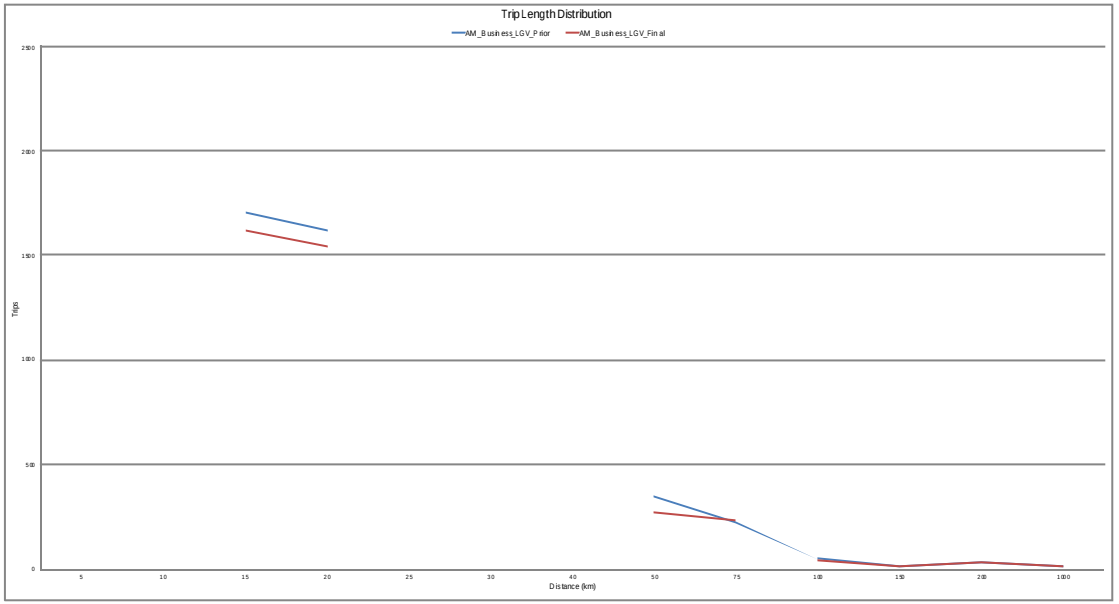
Model Version: V3.15

Vehicle Class LGV

Purpose Business

Time Period AM

	Prior		Final		Differences Absolute		Differences Percentage	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
I-I	11.2	8.0	11.2	7.9	- 0.0	- 0.1	0%	-1%
I-E	26.5	22.6	26.8	24.7	0.3	2.2	1%	10%
E-I	27.6	20.4	27.9	22.8	0.3	2.4	1%	12%
E-E	24.0	14.6	28.2	25.9	4.2	11.3	18%	78%
TOTAL	22.7	17.1	24.9	23.9	2.2	6.7	10%	39%



M11 Junction 7a Model Changes in Demand due to Matrix Estimation

Sector Analysis

Model:	V3.15				
	AM_Business_HGV		External Zone Start:	220	
Vehicle Class	HGV	Threshold:	Percent Difference >	0%	
Purpose	Business		Absolute Flow Difference >	10	
Time Period	AM				
Result	Percent Difference				

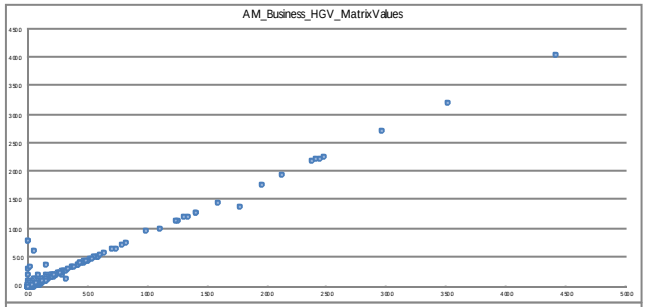
Green	Fully Observed - fully observed
Light Green	Fully Observed - partially observed
Yellow	Partially observed - partially observed
Orange	Partially observed - synthetic
Red	Synthetic - synthetic

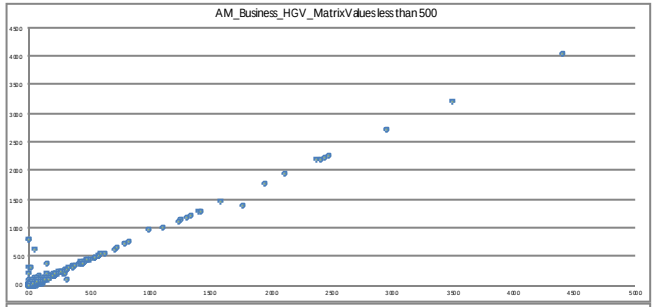
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Sum
1	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
2	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
3	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
4	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
5	0%	591%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0
6	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
7	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-20%	0%	0%	0%	0%	0%	0%	0%	0%	- 0
8	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
9	0%	0%	0%	0%	0%	0%	0%	0%	0%	132%	0%	0%	0%	0%	0%	0%	-14%	0%	0%	0%	0%	0
10	0%	0%	0%	0%	0%	0%	0%	0%	0%	-8%	0%	0%	-55%	-26%	0%	0%	0%	0%	0%	0%	0%	- 0
11	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
12	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
13	0%	0%	0%	0%	0%	0%	0%	0%	-29%	0%	0%	0%	0%	-7%	0%	77%	0%	0%	0%	500000%	685%	381
14	0%	0%	0%	0%	0%	0%	0%	0%	0%	-22%	0%	-12%	-6%	-8%	0%	0%	0%	0%	0%	0%	299%	0
15	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
16	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-29%	0%	0%	0%	0%	-8%	0%	0%	0%	0%	0%	- 0
17	0%	0%	0%	-65%	0%	0%	0%	0%	-29%	0%	0%	0%	-21%	0%	0%	0%	0%	0%	0%	0%	0%	- 0
18	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
19	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
20	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	34761%	0%	0%	0%	0%	0%	0%	0%	0%	17
21	0%	0%	0%	0%	0%	0%	0%	0%	0%	-8%	0%	0%	644%	202%	0%	0%	0%	0%	0%	0%	0%	0
Sum	-	0	-	- 0	-	-	-	-	- 0	0	- 0	- 0	17	0	-	0	- 0	-	-	381	0	19

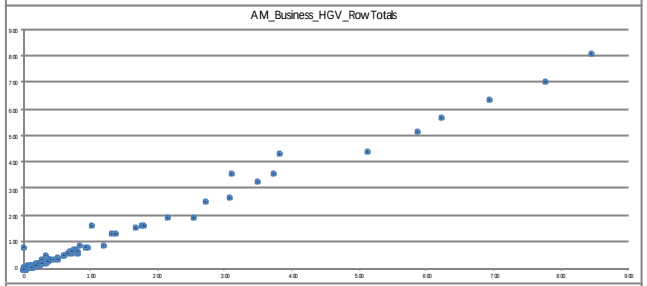
M11 Junction 7a Model Changes in Demand due to Matrix Estimation

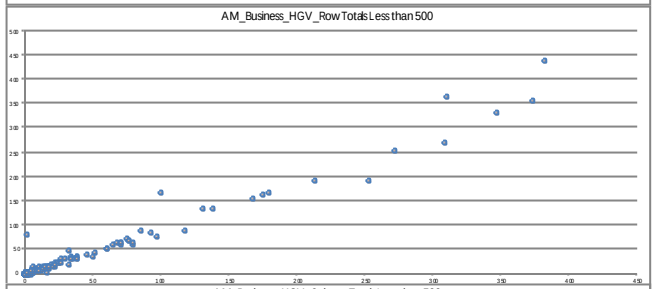
Regression Plots

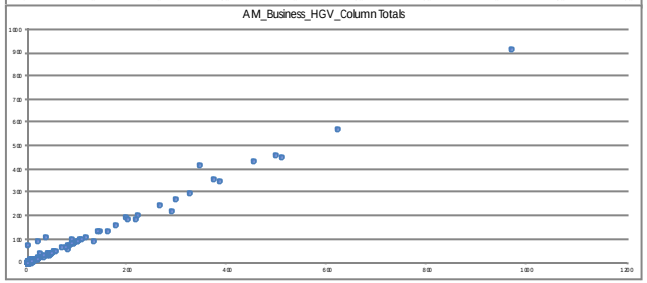
Model: V3.15

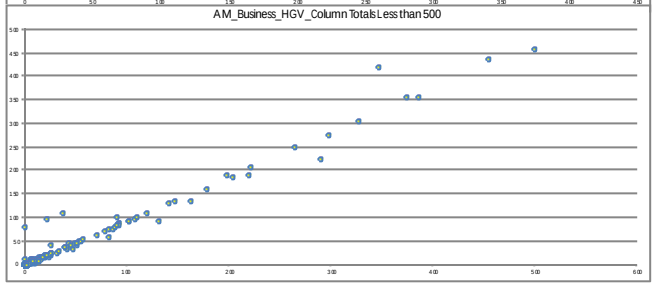












M11 Junction 7a Model Changes in Demand due to Matrix Estimation

Regression Analysis

Model: V3.15

Vehicle Class HGV

Purpose Business

Time Period AM

Regression		Full Matrix		
		A	B	R2
AM	Matrix	- 0.0	1.06	0.98
	Row Totals	- 0.2	1.06	0.99
	Column	- 0.1	1.05	0.99

Standard Error		Full Matrix	
		A	B
AM	Matrix	0.0	0.0
	Row	0.7	0.0
	Column	0.7	0.0

95% Confidence Interval		Full Matrix	
Students T-Statistic:		A	B
AM	Matrix	0 - 0	1.06 - 1.06
	Row	-0.23 - -0.23	1.06 - 1.06
	Column	-0.11 - -0.11	1.05 - 1.05

M11 Junction 7a Model Changes in Demand due to Matrix Estimation

Trip Length Distributions

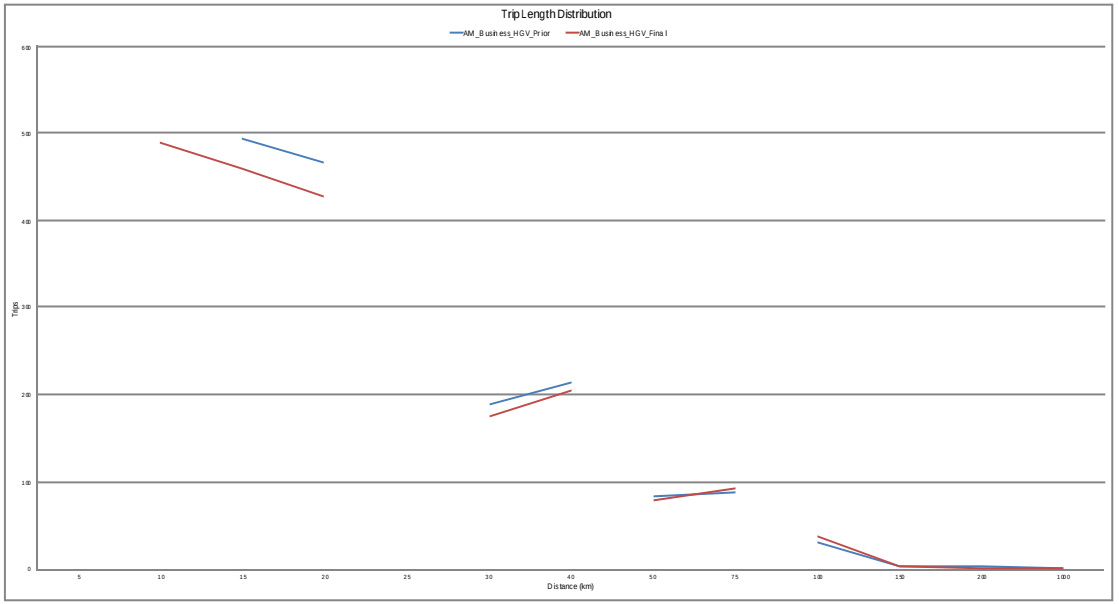
Model Version: V3.15

Vehicle Class HGV

Purpose Business

Time Period AM

	Prior		Final		Differences Absolute		Differences Percentage	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
H	11.4	7.7	11.6	7.8	0.2	0.1	2%	1%
HE	25.8	18.2	26.5	18.9	0.7	0.6	3%	4%
EH	27.3	17.3	27.8	19.2	0.5	1.9	2%	11%
EE	25.1	16.5	30.9	29.9	5.9	13.4	23%	82%
TOTAL	23.6	16.7	27.1	25.6	3.5	8.8	15%	53%



M11 Junction 7a Model Changes in Demand due to Matrix Estimation

Sector Analysis

Model:	V3.15				
	IP_Commute_Car		External Zone Start:	220	
Vehicle Class	Car	Threshold:	Percent Difference >	0%	
Purpose	Commute		Absolute Flow Difference >	10	
Time Period	IP				
Result	Percent Difference				

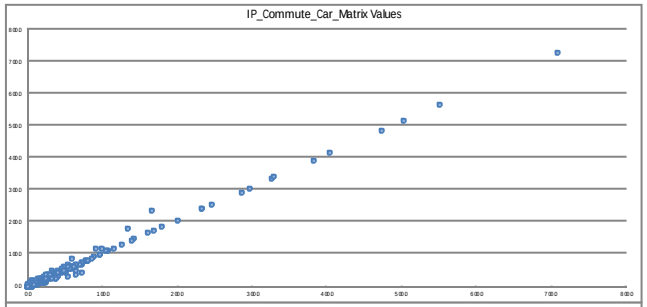
Green	Fully Observed - fully observed
Light Green	Fully Observed - partially observed
Yellow	Partially observed - partially observed
Orange	Partially observed - synthetic
Red	Synthetic - synthetic

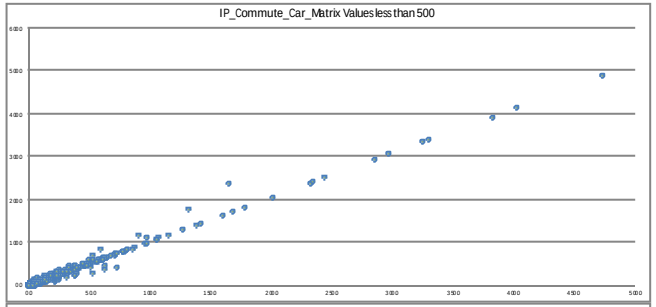
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Sum
1	0%	-34%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-47%	0%	0%	0%	0%	0%	0%	0%	0%	- 0
2	-14%	0%	0%	-35%	-13%	0%	0%	0%	0%	0%	0%	67%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0
3	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
4	0%	-40%	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%	-31%	0%	0%	0%	0%	0%	0%	0%	0%	- 0
5	0%	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%	0%	-22%	-21%	0%	0%	0%	0%	0%	0%	0%	- 0
6	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	36%	0%	0%	0%	0%	0
7	0%	0%	0%	0%	0%	0%	0%	15%	7%	0%	0%	0%	0%	0%	-20%	0%	0%	0%	0%	0%	0%	0
8	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
9	0%	0%	0%	0%	0%	0%	0%	0%	17%	69%	16%	0%	0%	0%	0%	0%	-11%	0%	0%	0%	0%	0
10	30%	0%	0%	0%	0%	0%	0%	0%	66%	2%	0%	0%	0%	10%	0%	0%	0%	0%	0%	0%	0%	0
11	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	46%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0
12	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	13%	10%	0%	0%	0%	52%	0%	0%	0%	0
13	0%	0%	0%	0%	0%	28%	0%	0%	0%	0%	0%	21%	0%	4%	0%	0%	0%	17%	0%	17%	5%	0
14	0%	0%	0%	0%	0%	19%	0%	0%	0%	10%	0%	11%	3%	3%	0%	0%	0%	0%	0%	0%	16%	0
15	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
16	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	5%	0%	0%	3%	0%	0%	0%	0%	0%	0
17	0%	0%	0%	0%	0%	31%	0%	0%	-11%	0%	-15%	0%	0%	0%	-14%	0%	0%	0%	0%	0%	0%	- 0
18	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	45%	31%	0%	0%	0%	0%	0%	0%	0%	0%	0
19	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	14%	0%	0%	0%	0%	0%	0%	0
20	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	32%	0%	0%	0%	0%	0%	0%	0%	0%	0
21	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	0%	19%	0%	0%	0%	0%	0%	0%	0%	0
Sum	0 -	0	- -	0 -	0	0	-	0	0	0	0	0 -	0	0 -	0	0	0	0	-	0	0	0

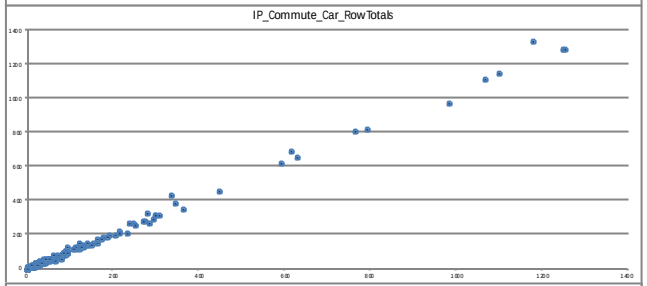
M11 Junction 7a Model Changes in Demand due to Matrix Estimation

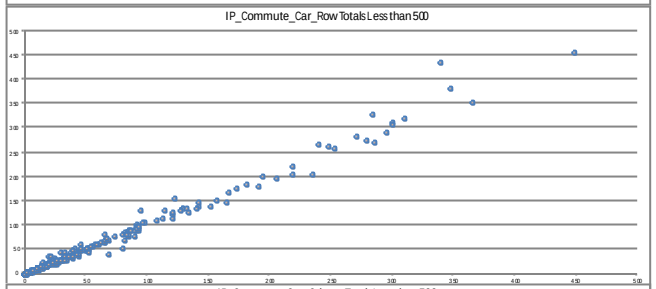
Regression Plots

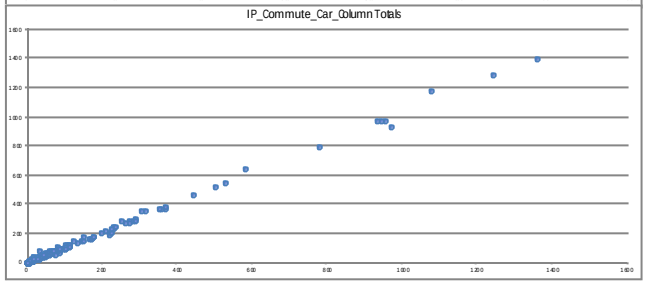
Model: V3.15

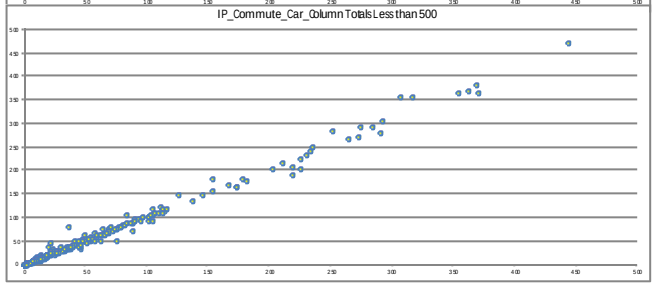












M11 Junction 7a Model Changes in Demand due to Matrix Estimation

Regression Analysis

Model: V3.15

Vehicle Class Car

Purpose Commute

Time Period IP

Regression		Full Matrix		
		A	B	R2
IP	Matrix	0.0	0.96	0.99
	Row Totals	1.3	0.96	1.00
	Column	0.4	0.96	1.00

Standard Error		Full Matrix	
		A	B
IP	Matrix	0.0	0.0
	Row	0.7	0.0
	Column	0.6	0.0

95% Confidence Interval		Full Matrix	
Students T-Statistic:		A	B
IP	Matrix	0 - 0	0.96 - 0.96
	Row	1.33 - 1.34	0.96 - 0.96
	Column	0.42 - 0.43	0.96 - 0.96

M11 Junction 7a Model Changes in Demand due to Matrix Estimation

Trip Length Distributions

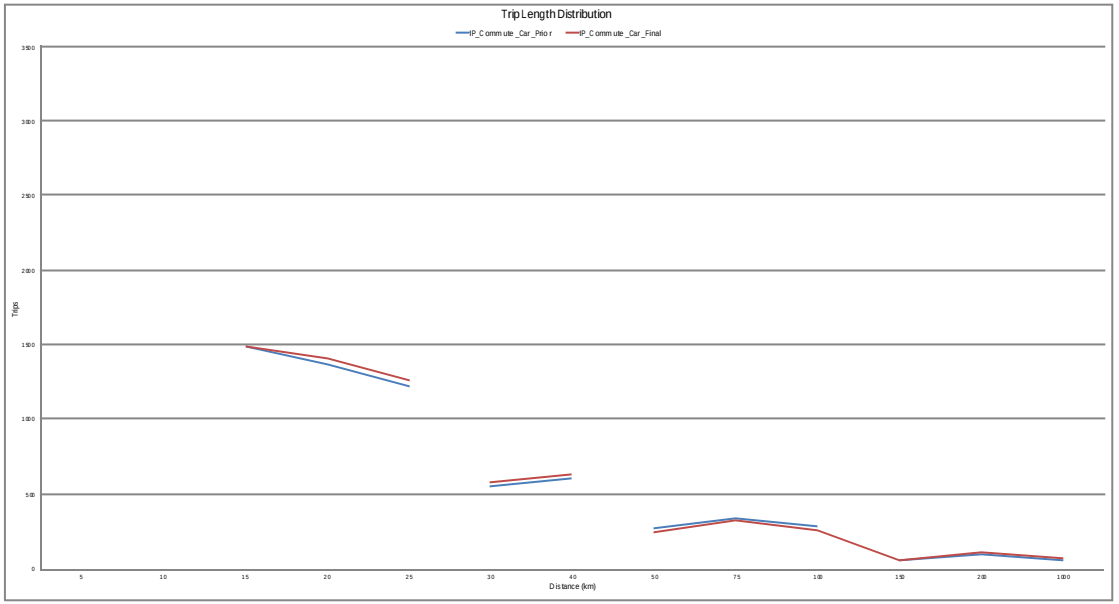
Model Version: V3.15

Vehicle Class Car

Purpose Commute

Time Period IP

	Prior		Final		Differences Absolute		Differences Percentage	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
H	8.8	7.2	8.8	7.3	0.0	0.1	0%	1%
HE	36.9	41.8	37.3	44.1	0.4	2.3	1%	5%
EH	36.9	42.9	37.8	44.9	0.9	2.0	2%	5%
EE	38.9	46.4	40.4	49.1	1.5	2.7	4%	6%
TOTAL	29.7	40.1	30.6	42.3	0.8	2.1	3%	5%



M11 Junction 7a Model Changes in Demand due to Matrix Estimation

Sector Analysis

Model:	V3.15				
	IP_Business_Car		External Zone Start:	220	
Vehicle Class	Car	Threshold:	Percent Difference >	0%	
Purpose	Business		Absolute Flow Difference >	10	
Time Period	IP				
Result	Percent Difference				

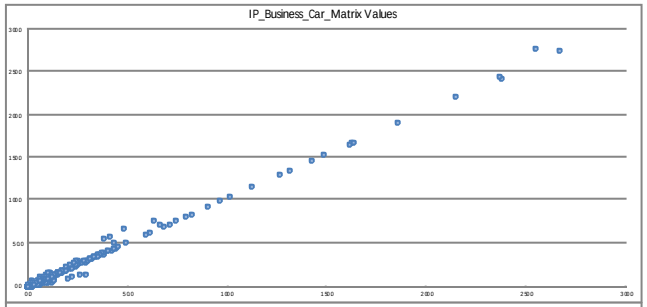
Green	Fully Observed - fully observed
Light Green	Fully Observed - partially observed
Yellow	Partially observed - partially observed
Orange	Partially observed - synthetic
Red	Synthetic - synthetic

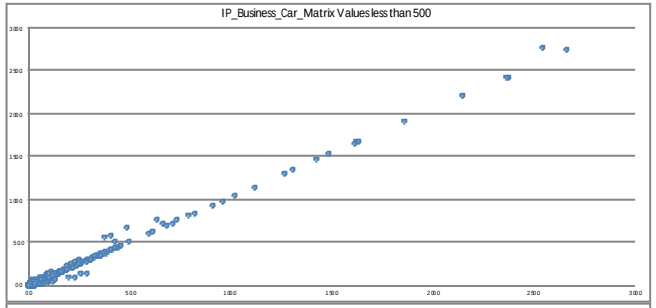
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Sum
1	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
2	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
3	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
4	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
5	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
6	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
7	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
8	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
9	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
10	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	-45%	22%	0%	0%	0%	0%	0%	0%	0%	- 0
11	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
12	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
13	0%	0%	0%	0%	0%	0%	0%	0%	18%	-10%	0%	0%	0%	4%	0%	0%	0%	0%	0%	0%	0%	0
14	0%	0%	0%	0%	0%	0%	0%	0%	0%	26%	0%	0%	4%	3%	0%	0%	0%	0%	0%	0%	28%	0
15	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
16	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	4%	0%	0%	3%	0%	0%	0%	0%	0%	0
17	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	9%	0%	0%	0%	0%	0%	0%	0%	0%	0
18	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
19	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
20	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
21	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
Sum	-	-	-	-	-	-	-	-	0	0	-	-	- 0	0	-	0	-	-	-	-	0	0

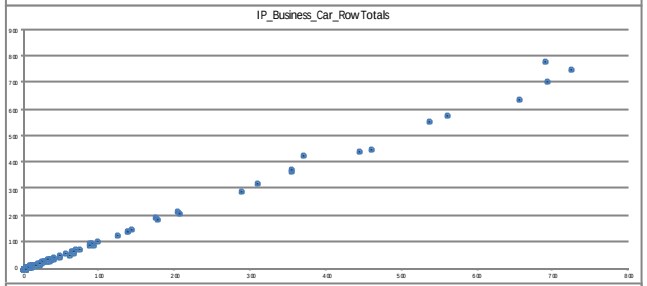
M11 Junction 7a Model Changes in Demand due to Matrix Estimation

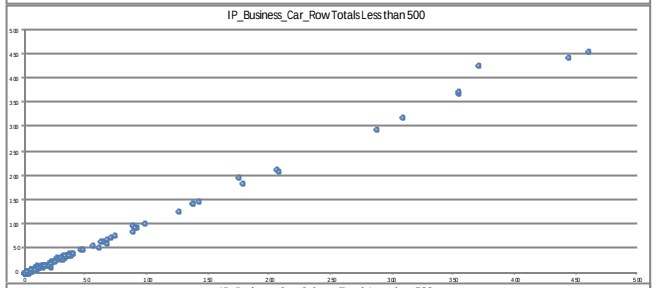
Regression Plots

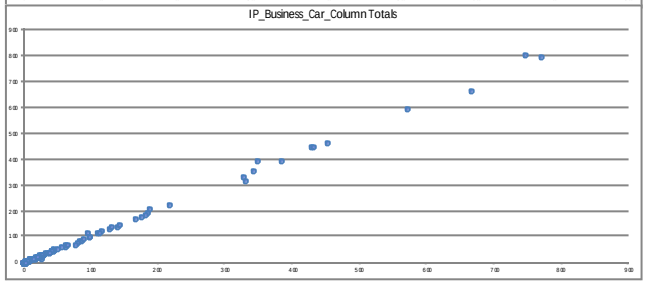
Model: V3.15

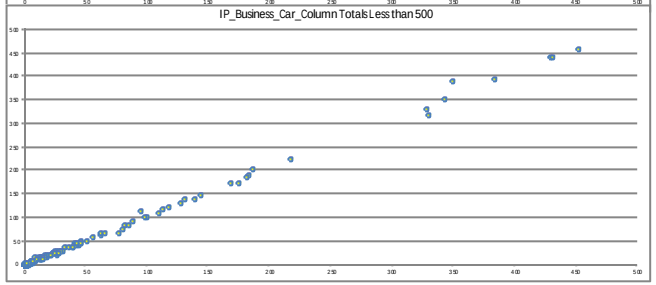












M11 Junction 7a Model Changes in Demand due to Matrix Estimation

Regression Analysis

Model: V3.15

Vehicle Class Car

Purpose Business

Time Period IP

Regression		Full Matrix		
		A	B	R2
IP	Matrix	0.0	0.96	1.00
	Row Totals	0.3	0.96	1.00
	Column	0.2	0.96	1.00

Standard Error		Full Matrix	
		A	B
IP	Matrix	0.0	0.0
	Row	0.4	0.0
	Column	0.2	0.0

95% Confidence Interval		Full Matrix	
Students T-Statistic:		A	B
IP	Matrix	0 - 0	0.96 - 0.96
	Row	0.34 - 0.34	0.96 - 0.96
	Column	0.18 - 0.18	0.96 - 0.96

M11 Junction 7a Model Changes in Demand due to Matrix Estimation

Trip Length Distributions

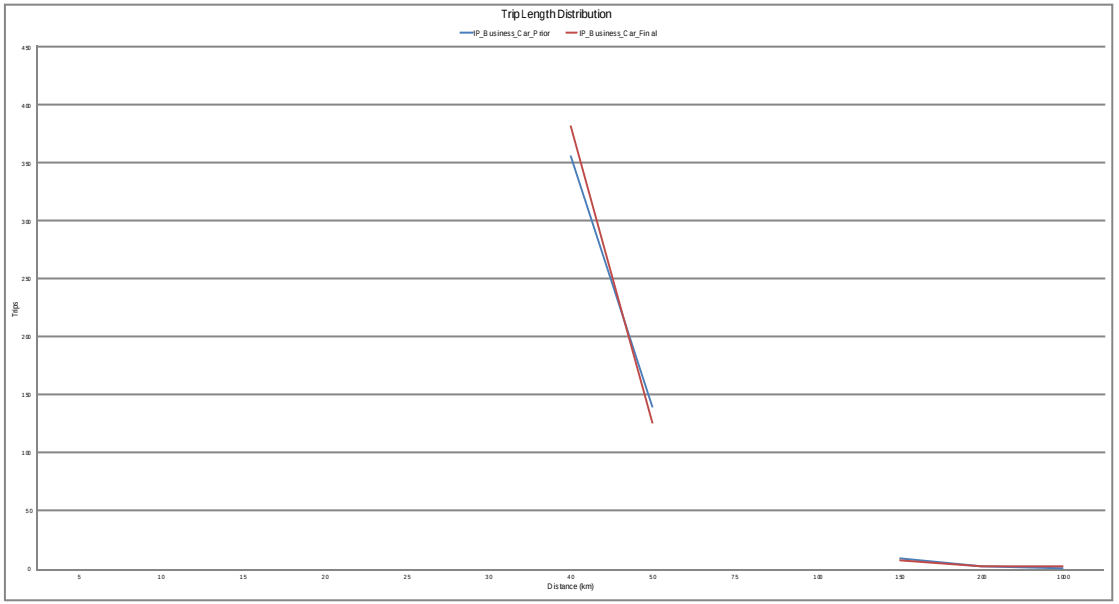
Model Version: V3.15

Vehicle Class Car

Purpose Business

Time Period IP

	Prior		Final		Differences Absolute		Differences Percentage	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
H	11.0	8.1	11.1	8.1	0.1	0.0	1%	0%
HE	33.1	21.0	32.9	21.2	-0.2	0.1	-1%	1%
EH	32.4	20.4	32.7	20.7	0.2	0.3	1%	1%
EE	42.4	30.8	42.1	30.3	-0.3	-0.5	-1%	-2%
TOTAL	36.1	27.9	35.9	27.6	-0.2	-0.3	-1%	-1%



M11 Junction 7a Model Changes in Demand due to Matrix Estimation

Sector Analysis

Model:	V3.15			
	IP_Other_Car		External Zone Start:	220
Vehicle Class	Car	Threshold:	Percent Difference >	0%
Purpose	Other		Absolute Flow Difference >	10
Time Period	IP			
Result	Percent Difference			

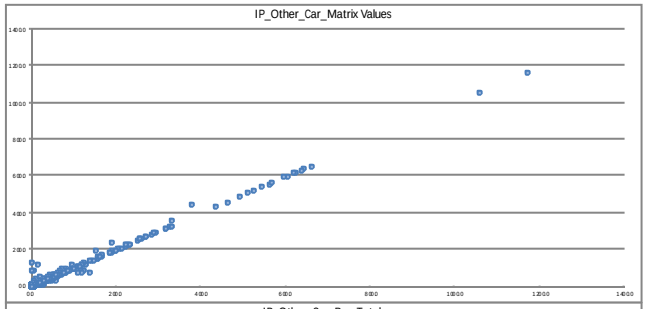
Green	Fully Observed - fully observed
Light Green	Fully Observed - partially observed
Yellow	Partially observed - partially observed
Orange	Partially observed - synthetic
Red	Synthetic - synthetic

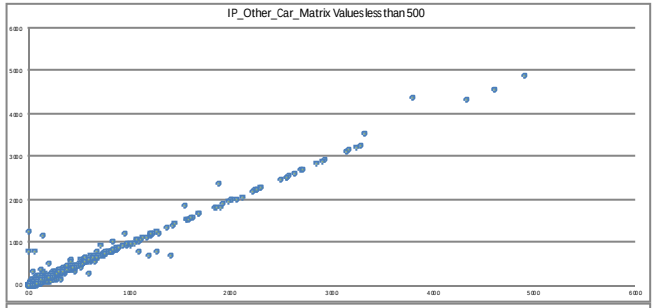
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Sum
1	0%	-34%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-39%	-30%	0%	0%	-17%	0%	0%	0%	0%	- 0
2	-17%	0%	0%	-46%	-23%	0%	0%	0%	0%	0%	0%	25%	0%	0%	0%	0%	0%	0%	0%	0%	0%	- 0
3	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	42%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0
4	0%	-37%	0%	0%	0%	0%	0%	0%	0%	0%	-16%	0%	-27%	-23%	0%	0%	0%	0%	0%	0%	0%	- 0
5	-29%	-20%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-12%	-22%	-16%	0%	0%	0%	0%	0%	0%	0%	- 0
6	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	36%	0%	0%	41%	0%	0
7	0%	0%	0%	0%	0%	0%	-2%	12%	0%	0%	0%	0%	0%	0%	0%	0%	-3%	0%	0%	0%	0%	0
8	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	3%	0%	0%	0%	0%	0%	0%	0%	0%	0
9	0%	31%	0%	49%	0%	0%	0%	0%	7%	0%	16%	0%	0%	0%	0%	0%	-12%	0%	0%	0%	0%	0
10	0%	25%	0%	0%	0%	0%	0%	0%	0%	-1%	0%	0%	0%	-19%	0%	0%	0%	0%	0%	0%	0%	0
11	19%	12%	68%	-15%	0%	0%	0%	0%	10%	0%	23%	48%	0%	0%	0%	-10%	-16%	0%	0%	0%	0%	0
12	0%	58%	0%	0%	-13%	0%	0%	0%	0%	0%	57%	-13%	10%	10%	0%	0%	0%	0%	0%	0%	0%	0
13	-25%	0%	0%	0%	0%	13%	0%	0%	0%	0%	0%	11%	0%	1%	0%	0%	6%	0%	0%	4723%	311%	2
14	0%	0%	0%	0%	0%	0%	0%	0%	0%	50%	0%	7%	1%	-1%	0%	0%	0%	0%	0%	0%	0%	0
15	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
16	0%	0%	0%	0%	0%	0%	-21%	0%	-8%	0%	-11%	0%	0%	0%	0%	-1%	0%	0%	0%	0%	0%	- 0
17	0%	0%	0%	0%	49%	30%	-2%	0%	-17%	0%	-14%	0%	16%	0%	0%	0%	0%	0%	0%	0%	0%	0
18	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
19	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
20	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	2232%	0%	0%	0%	0%	0%	0%	0%	0%	1
21	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	732%	0%	0%	0%	0%	0%	0%	0%	0%	0
Sum	- 0	0	0	- 0	0	0	- 0	0	- 0	0	0	0	1	- 0	-	- 0	- 0	-	-	2	0	0

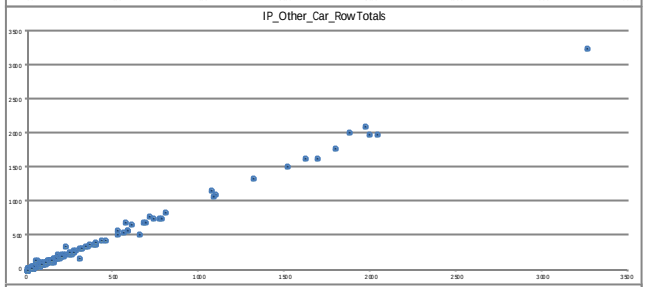
M11 Junction 7a Model Changes in Demand due to Matrix Estimation

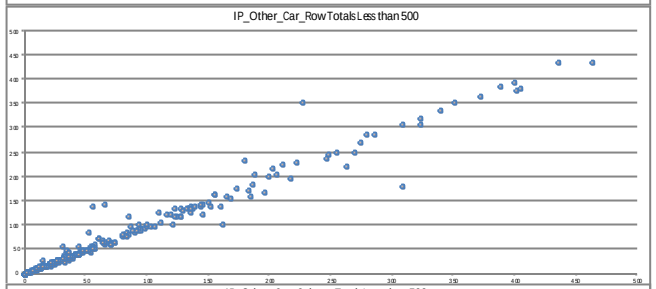
Regression Plots

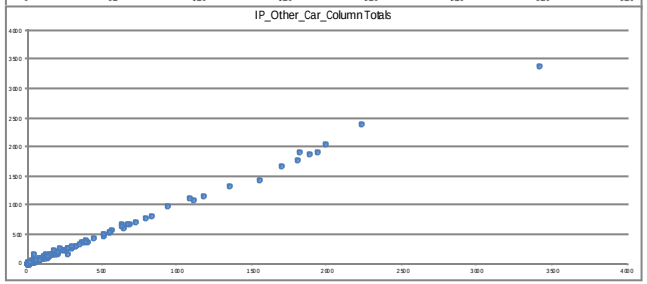
Model: V3.15

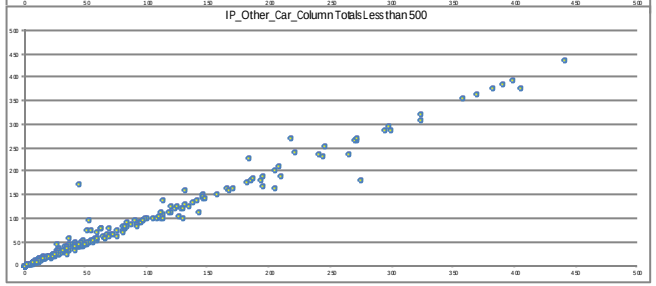












M11 Junction 7a Model Changes in Demand due to Matrix Estimation

Regression Analysis

Model: V3.15

Vehicle Class Car

Purpose Other

Time Period IP

Regression		Full Matrix		
		A	B	R2
IP	Matrix	0.0	0.99	0.99
	Row Totals	0.7	0.99	1.00
	Column	0.6	0.99	1.00

Standard Errors		Full Matrix	
		A	B
IP	Matrix	0.0	0.0
	Row	1.5	0.0
	Column	1.3	0.0

95% Confidence Interval		Full Matrix	
Students T-Statistic:		A	B
IP	Matrix	0 - 0	0.99 - 0.99
	Row	0.75 - 0.67	0.99 - 0.99
	Column	0.61 - 0.54	0.99 - 0.99

M11 Junction 7a Model Changes in Demand due to Matrix Estimation

Trip Length Distributions

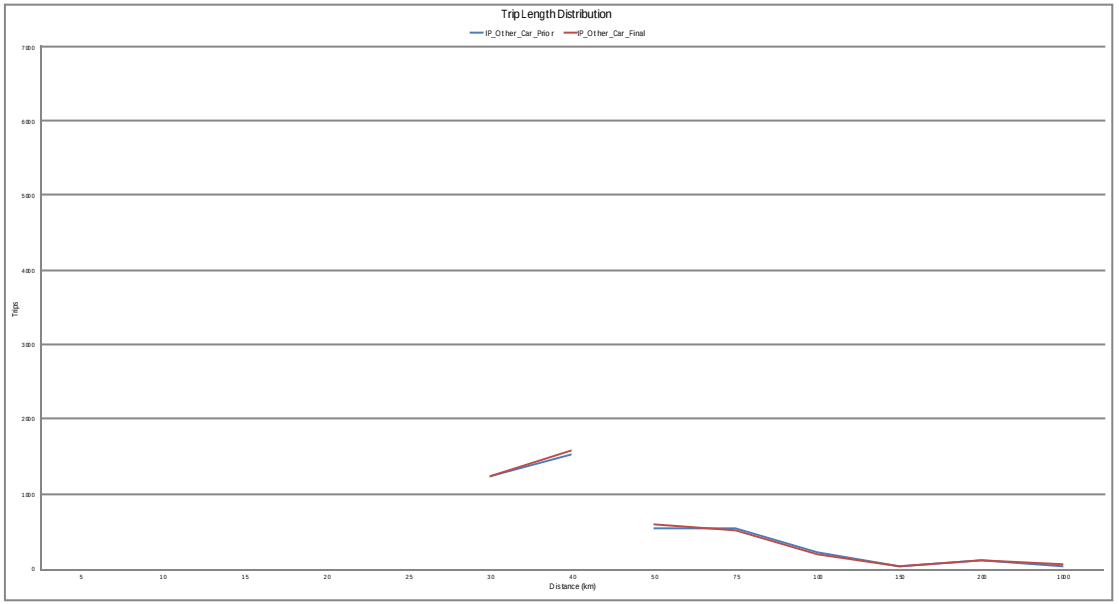
Model Version: V3.15

Vehicle Class Car

Purpose Other

Time Period IP

	Prior		Final		Differences Absolute		Differences Percentage	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
H	8.5	7.1	8.6	7.1	0.0	0.0	0%	0%
HE	29.9	31.8	30.2	32.7	0.3	0.9	1%	3%
EH	29.2	31.2	29.9	32.7	0.8	1.5	3%	5%
EE	22.7	22.5	24.7	27.1	2.0	4.6	9%	20%
TOTAL	20.8	24.5	21.8	26.9	1.0	2.3	5%	10%



M11 Junction 7a Model Changes in Demand due to Matrix Estimation

Sector Analysis

Model:	V3.15			
	IP_Business_LGV		External Zone Start:	220
Vehicle Class	LGV	Threshold:	Percent Difference >	0%
Purpose	Business		Absolute Flow Difference >	10
Time Period	IP			
Result	Percent Difference			

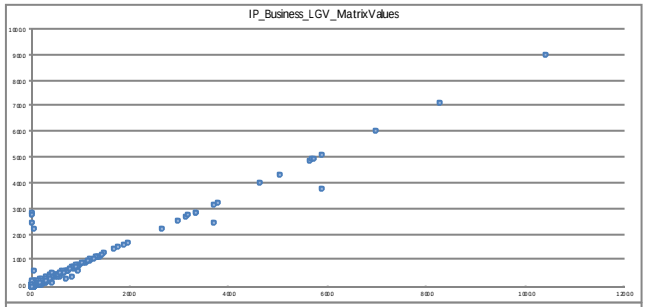
Green	Fully Observed - fully observed
Light Green	Fully Observed - partially observed
Yellow	Partially observed - partially observed
Orange	Partially observed - synthetic
Red	Synthetic - synthetic

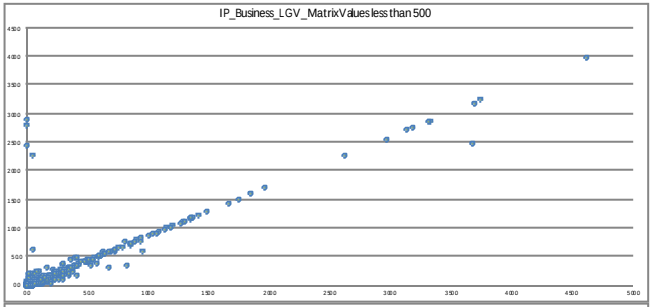
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Sum
1	0%	-43%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	128%	0%	0%	0%	0%	0
2	0%	0%	0%	-37%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	- 0
3	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
4	0%	-33%	0%	-13%	-13%	0%	0%	0%	-44%	0%	0%	0%	0%	0%	0%	0%	-38%	0%	0%	0%	0%	- 0
5	0%	0%	0%	-13%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	- 0
6	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
7	0%	0%	0%	0%	0%	0%	-10%	0%	0%	0%	0%	0%	-24%	0%	0%	0%	-15%	0%	0%	0%	0%	- 0
8	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-21%	0%	0%	0%	0%	0%	0%	0%	0%	- 0
9	0%	0%	0%	-48%	0%	0%	-14%	0%	0%	124%	57%	0%	-23%	0%	0%	0%	-28%	0%	0%	0%	0%	0
10	0%	0%	0%	0%	0%	0%	-37%	0%	0%	-14%	-24%	-19%	0%	-39%	0%	0%	68%	0%	0%	0%	0%	- 0
11	0%	0%	0%	0%	0%	0%	0%	0%	0%	-36%	0%	0%	0%	0%	0%	-27%	-29%	0%	0%	0%	0%	- 0
12	0%	0%	0%	0%	0%	0%	0%	0%	0%	-24%	0%	0%	0%	16%	0%	0%	0%	0%	0%	0%	0%	- 0
13	314%	0%	0%	54%	0%	0%	-29%	-22%	-29%	181%	0%	35%	-13%	-10%	0%	0%	-33%	0%	0%	966633%	14662%	467
14	0%	0%	0%	-44%	0%	0%	0%	0%	0%	-42%	0%	0%	-14%	-13%	0%	0%	0%	0%	0%	0%	-51%	- 0
15	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
16	0%	0%	0%	0%	0%	0%	-32%	0%	-31%	0%	-27%	0%	-20%	0%	0%	-14%	0%	0%	0%	0%	0%	- 0
17	471%	0%	0%	-41%	0%	0%	-13%	-12%	-31%	216%	0%	0%	-38%	0%	0%	0%	0%	0%	0%	0%	0%	0
18	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
19	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
20	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	35860%	0%	0%	0%	0%	0%	0%	0%	0%	17
21	0%	0%	0%	0%	0%	0%	0%	0%	0%	-13%	0%	0%	2380%	-40%	0%	0%	0%	0%	0%	0%	0%	1
Sum	0	- 0	-	- 0	- 0	-	- 0	- 0	- 0	0	0	0	18	- 0	-	- 0	0	-	-	460	7	23

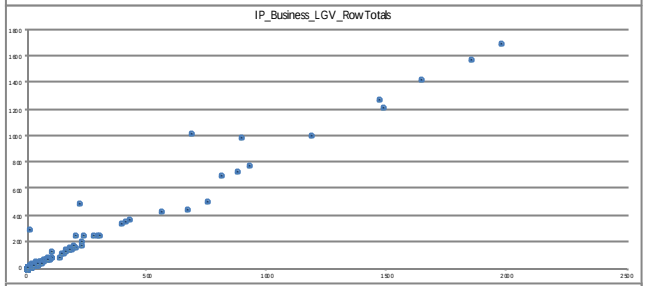
M11 Junction 7a Model Changes in Demand due to Matrix Estimation

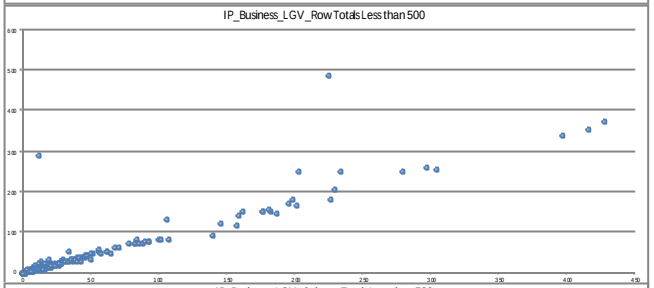
Regression Plots

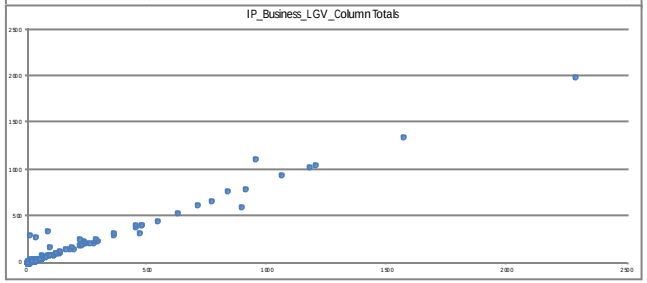
Model: V3.15

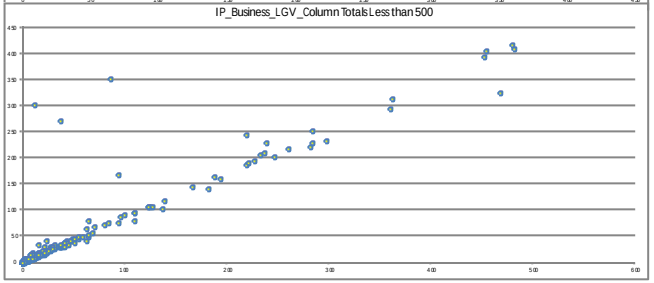












M11 Junction 7a Model Changes in Demand due to Matrix Estimation

Regression Analysis

Model: V3.15

Vehicle Class LGV

Purpose Business

Time Period IP

Regression		Full Matrix		
		A	B	R2
IP	Matrix	0.0	1.10	0.93
	Row Totals	- 1.1	1.12	0.97
	Column	- 1.2	1.12	0.97

Standard Error		Full Matrix	
		A	B
IP	Matrix	0.0	0.0
	Row	2.9	0.0
	Column	2.6	0.0

95% Confidence Interval		Full Matrix	
Students T-Statistic:		A	B
IP	Matrix	0 - 0	1.1 - 1.1
	Row	-2.14 - 0.03	1.11 - 1.12
	Column	-2.15 - -0.21	1.11 - 1.12

M11 Junction 7a Model Changes in Demand due to Matrix Estimation

Trip Length Distributions

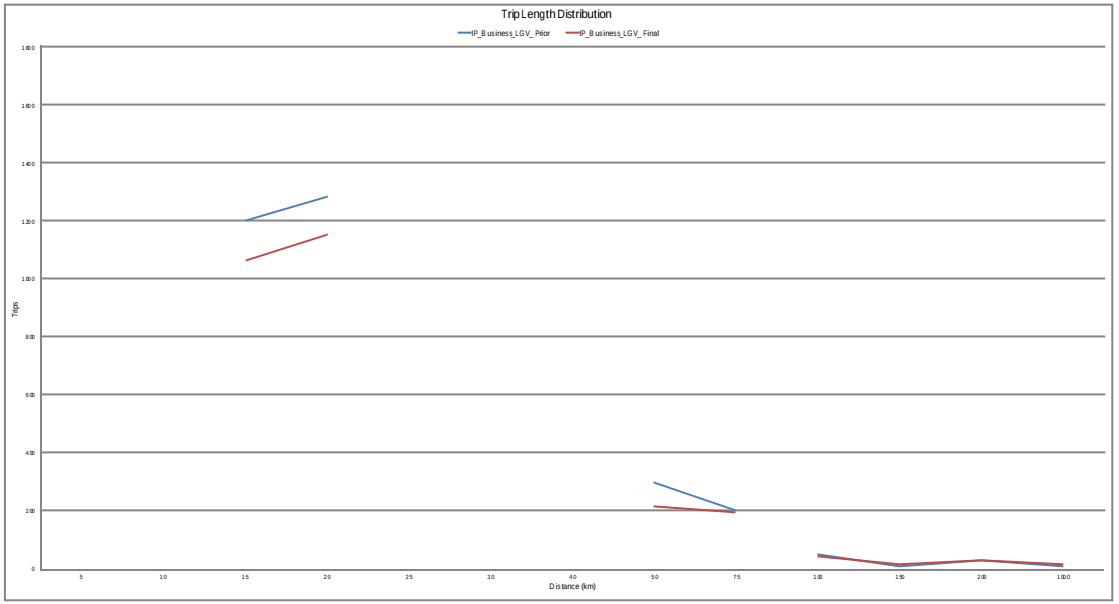
Model Version: V3.15

Vehicle Class LGV

Purpose Business

Time Period IP

	Prior		Final		Differences Absolute		Differences Percentage	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
H	10.5	7.9	10.7	7.9	0.1	0.1	1%	-1%
HE	27.6	24.4	28.7	28.9	1.1	4.4	4%	18%
EH	28.9	22.7	29.7	25.8	0.8	3.1	3%	14%
EE	25.1	16.3	34.2	35.0	9.2	18.7	37%	114%
TOTAL	23.6	19.0	28.7	30.8	5.0	11.8	21%	62%



M11 Junction 7a Model Changes in Demand due to Matrix Estimation

Sector Analysis

Model:	V3.15				
	IP_Business_HGV		External Zone Start:	220	
Vehicle Class	HGV	Threshold:	Percent Difference >	0%	
Purpose	Business		Absolute Flow Difference >	10	
Time Period	IP				
Result	Percent Difference				

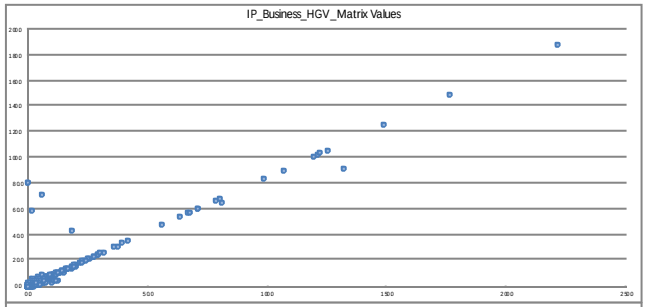
Green	Fully Observed - fully observed
Light Green	Fully Observed - partially observed
Yellow	Partially observed - partially observed
Orange	Partially observed - synthetic
Red	Synthetic - synthetic

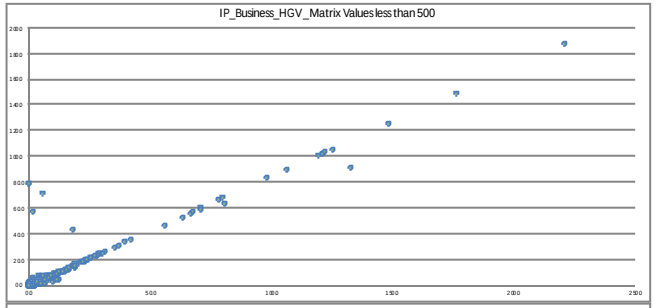
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Sum
1	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
2	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
3	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
4	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
5	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
6	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
7	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-28%	0%	0%	0%	-19%	0%	0%	0%	0%	- 0
8	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
9	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-33%	0%	0%	0%	0%	- 0
10	0%	0%	0%	0%	0%	0%	0%	0%	0%	-16%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	- 0
11	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
12	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
13	0%	0%	0%	0%	0%	0%	-20%	0%	0%	29%	0%	0%	0%	-14%	0%	0%	-20%	0%	0%	900000%	737%	381
14	0%	0%	0%	0%	0%	0%	0%	0%	0%	-40%	0%	-22%	-16%	-15%	0%	0%	0%	0%	0%	0%	0%	- 0
15	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
16	0%	0%	0%	0%	0%	0%	0%	0%	-38%	0%	0%	0%	0%	0%	0%	-15%	0%	0%	0%	0%	0%	- 0
17	0%	0%	0%	0%	0%	0%	-17%	0%	-39%	0%	0%	0%	-30%	0%	0%	0%	0%	0%	0%	0%	0%	- 0
18	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
19	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
20	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	47029%	0%	0%	0%	0%	0%	0%	0%	0%	22
21	0%	0%	0%	0%	0%	0%	0%	0%	0%	-15%	0%	0%	656%	0%	0%	0%	0%	0%	0%	0%	0%	0
Sum	-	-	-	-	-	-	- 0	-	- 0	- 0	-	- 0	23	- 0	-	- 0	- 0	-	-	381	0	19

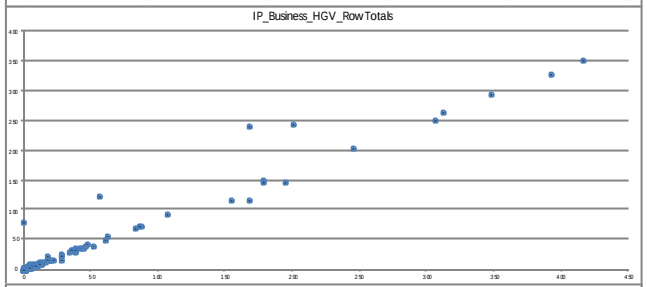
M11 Junction 7a Model Changes in Demand due to Matrix Estimation

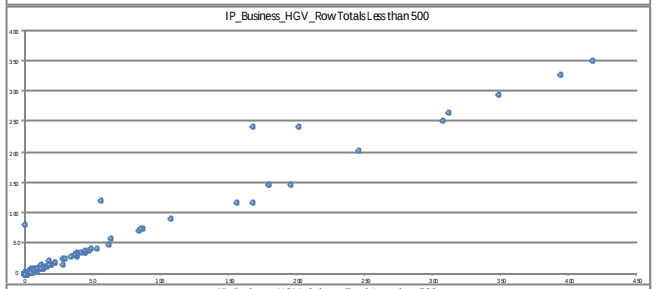
Regression Plots

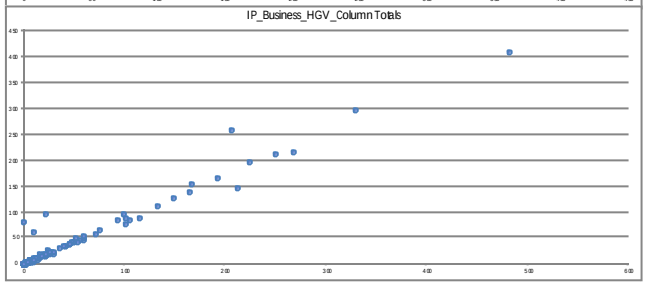
Model: V3.15

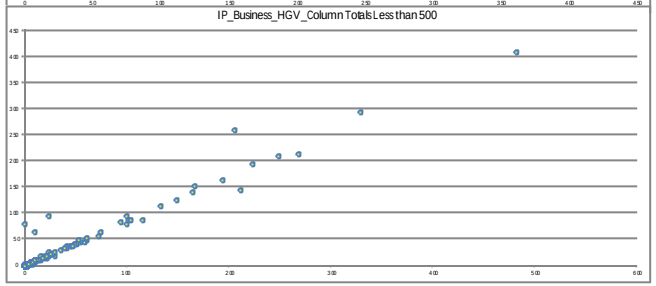












M11 Junction 7a Model Changes in Demand due to Matrix Estimation

Regression Analysis

Model: V3.15

Vehicle Class HGV

Purpose Business

Time Period IP

Regression		Full Matrix		
		A	B	R2
IP	Matrix	0.0	1.07	0.96
	Row Totals	- 0.0	1.11	0.96
	Column	- 0.0	1.11	0.96

Standard Error		Full Matrix	
		A	B
IP	Matrix	0.0	0.0
	Row	0.7	0.0
	Column	0.7	0.0

95% Confidence Interval		Full Matrix	
Students T-Statistic:		A	B
IP	Matrix	0 - 0	1.07 - 1.07
	Row	-0.05 - -0.05	1.11 - 1.11
	Column	-0.01 - -0.01	1.11 - 1.11

M11 Junction 7a Model Changes in Demand due to Matrix Estimation

Trip Length Distributions

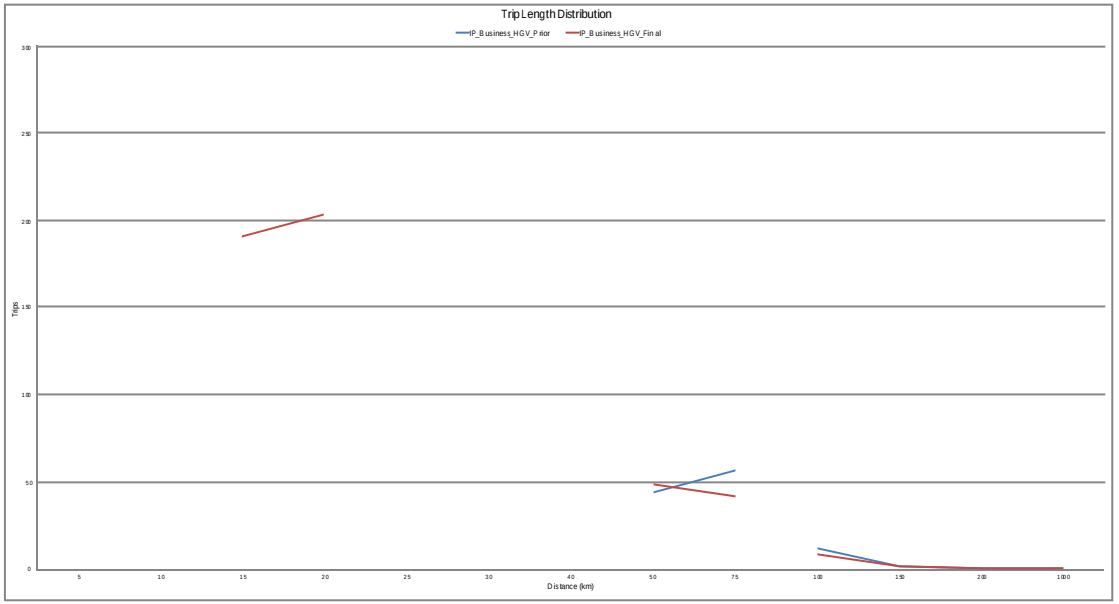
Model Version: V3.15

Vehicle Class HGV

Purpose Business

Time Period IP

	Prior		Final		Differences Absolute		Differences Percentage	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
H	11.2	7.7	11.4	7.8	0.2	0.0	2%	0%
HE	26.0	17.7	26.1	18.5	0.1	0.8	0%	5%
EH	27.5	17.8	28.4	19.9	0.9	2.1	3%	12%
EE	26.3	18.0	37.5	38.3	11.2	20.2	43%	112%
TOTAL	24.5	17.7	31.1	32.1	6.6	14.4	27%	81%



M11 Junction 7a Model Changes in Demand due to Matrix Estimation

Sector Analysis

Model:	V3.15			
	PM_Commute_Car		External Zone Start:	220
Vehicle Class	Car	Threshold:	Percent Difference >	0%
Purpose	Commute		Absolute Flow Difference >	10
Time Period	PM			
Result	Percent Difference			

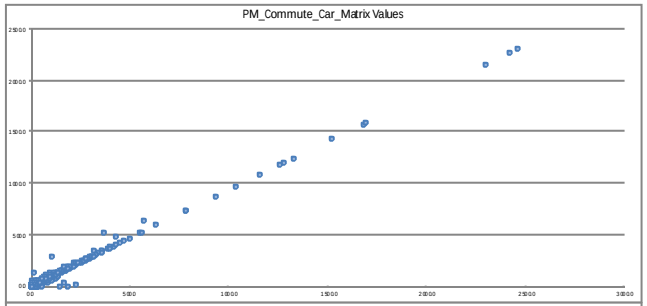
Green	Fully Observed - fully observed
Light Green	Fully Observed - partially observed
Yellow	Partially observed - partially observed
Orange	Partially observed - synthetic
Red	Synthetic - synthetic

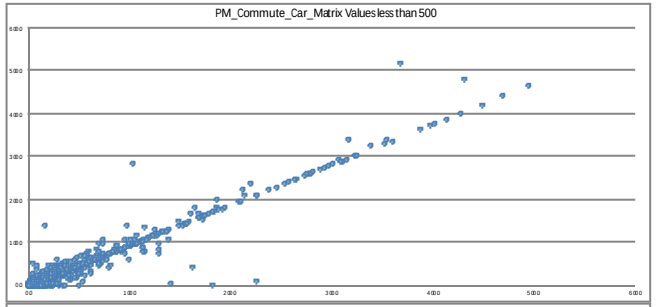
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Sum
1	-23%	-10%	39%	0%	-15%	0%	0%	0%	0%	30%	39%	22%	0%	17%	0%	0%	0%	0%	0%	0%	0%	0
2	-8%	0%	0%	-51%	-25%	0%	154%	0%	54%	31%	13%	122%	0%	88%	0%	0%	52%	0%	0%	0%	0%	0
3	0%	0%	0%	0%	-27%	0%	340%	0%	0%	0%	68%	0%	0%	0%	0%	0%	223%	0%	0%	0%	0%	0
4	0%	-41%	-17%	-8%	-10%	26%	20%	143%	0%	0%	-11%	-16%	-21%	-15%	0%	17%	-25%	0%	0%	-18%	0%	0
5	-18%	-33%	-37%	-8%	-6%	0%	0%	272%	0%	0%	0%	-12%	-16%	0%	0%	0%	0%	0%	-28%	0%	0%	0
6	0%	0%	0%	123%	37%	0%	0%	73%	0%	0%	0%	78%	40%	19%	0%	116%	68%	0%	0%	78%	0%	0
7	0%	0%	0%	0%	0%	0%	-11%	14%	-5%	0%	-14%	0%	-5%	0%	0%	-7%	-9%	0%	0%	0%	0%	-0
8	0%	0%	0%	44%	0%	0%	-15%	0%	-14%	0%	0%	0%	-7%	17%	0%	0%	-8%	0%	0%	0%	0%	0
9	0%	56%	0%	30%	0%	0%	-7%	0%	-2%	21%	0%	0%	-9%	0%	0%	-3%	-23%	0%	0%	0%	0%	0
10	0%	0%	0%	0%	-30%	0%	0%	0%	-18%	-7%	-10%	10%	-40%	-11%	0%	0%	-12%	0%	0%	0%	0%	-0
11	0%	-18%	43%	0%	-17%	0%	-21%	0%	-10%	-12%	10%	84%	0%	0%	0%	-23%	-20%	0%	0%	0%	0%	0
12	0%	19%	0%	13%	0%	0%	0%	76%	0%	0%	67%	0%	13%	-8%	0%	0%	0%	0%	0%	0%	0%	0
13	-53%	-52%	0%	-18%	-15%	-39%	-8%	-9%	-11%	-24%	0%	0%	-6%	-5%	0%	-5%	7%	7%	0%	7%	-35%	-0
14	-38%	-19%	0%	-39%	-38%	-38%	0%	0%	0%	12%	0%	-14%	-5%	-5%	0%	0%	0%	0%	0%	-9%	0%	-0
15	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-21%	0%	0%	0%	0%	-0
16	0%	-30%	148%	-12%	-17%	0%	-20%	0%	-15%	0%	-21%	0%	-4%	0%	-6%	-7%	0%	0%	0%	0%	0%	0
17	-39%	-19%	97%	0%	23%	-20%	-11%	-6%	-28%	-33%	-25%	21%	11%	0%	-14%	0%	0%	0%	0%	0%	0%	-0
18	0%	0%	0%	0%	0%	0%	-26%	0%	-44%	0%	0%	32%	12%	0%	0%	0%	0%	0%	0%	0%	0%	-0
19	-42%	-23%	137%	18%	-42%	0%	0%	0%	-27%	-18%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0
20	-48%	0%	110%	-22%	-38%	0%	0%	0%	-42%	0%	0%	-45%	12%	-31%	0%	0%	0%	0%	0%	0%	0%	-0
21	0%	0%	0%	0%	0%	0%	0%	0%	0%	-6%	0%	0%	23%	0%	0%	0%	0%	0%	0%	0%	0%	-0
Sum	-0	0	0	0	-0	-0	0	0	-0	0	0	-0	0	-0	0	0	0	-0	0	-0	0	0

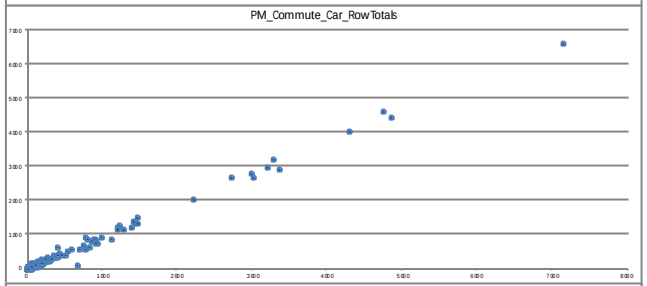
M11 Junction 7a Model Changes in Demand due to Matrix Estimation

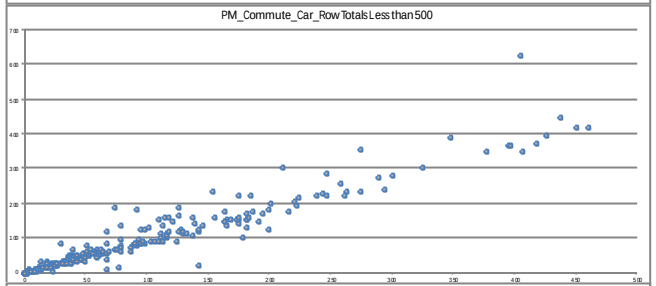
Regression Plots

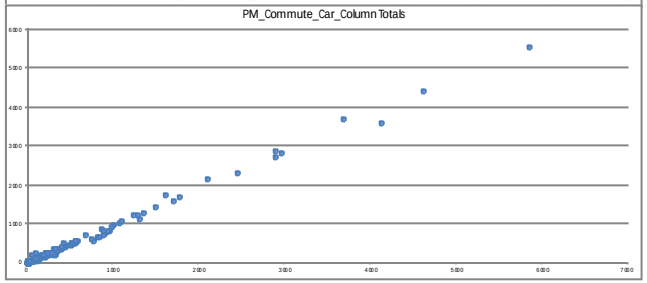
Model: V3.15

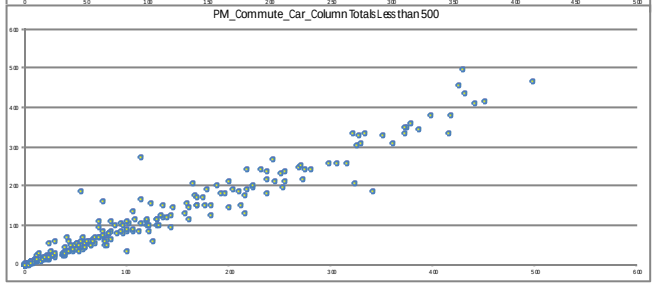












M11 Junction 7a Model Changes in Demand due to Matrix Estimation

Regression Analysis

Model: V3.15

Vehicle Class Car

Purpose Commute

Time Period PM

Regression		Full Matrix		
		A	B	R2
PM	Matrix	0.0	1.05	0.99
	Row Totals	- 1.3	1.07	0.99
	Column	4.0	1.05	1.00

Standard Error		Full Matrix	
		A	B
PM	Matrix	0.0	0.0
	Row	3.9	0.0
	Column	3.0	0.0

95% Confidence Interval		Full Matrix	
Students T-Statistic:		A	B
PM	Matrix	0.01 - 0.01	1.05 - 1.05
	Row	-0.78 - -1.77	1.07 - 1.07
	Column	4.39 - 3.62	1.05 - 1.05

M11 Junction 7a Model Changes in Demand due to Matrix Estimation

Trip Length Distributions

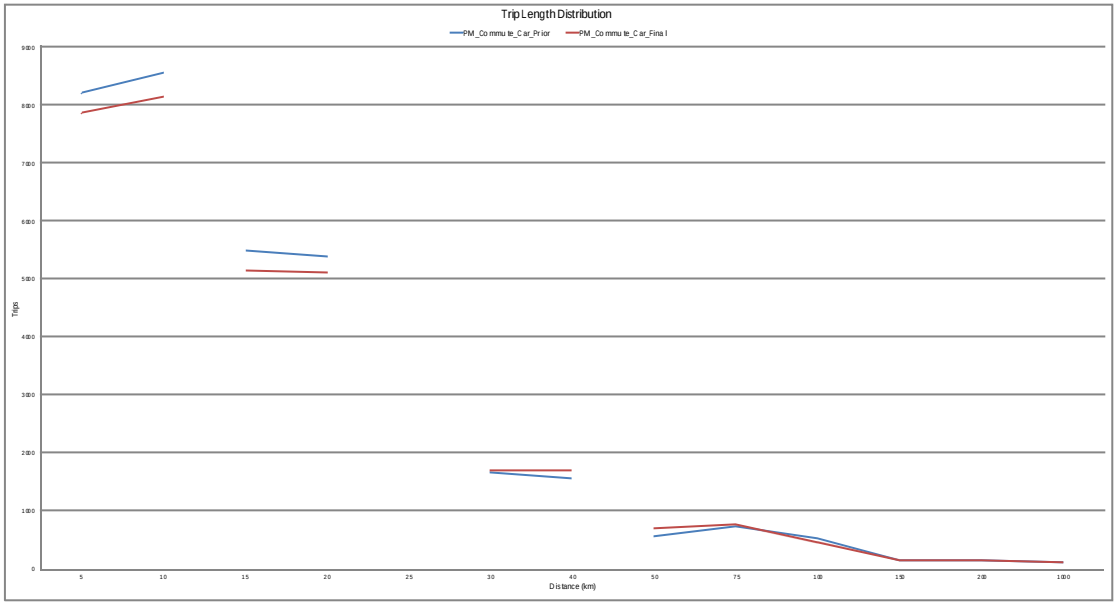
Model Version: V3.15

Vehicle Class Car

Purpose Commute

Time Period PM

	Prior		Final		Differences Absolute		Differences Percentage	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
I-I	9.8	7.5	9.8	7.5	0.0	0.0	0%	0%
I-E	28.1	32.9	29.7	35.9	1.6	2.9	6%	9%
E-I	39.2	43.7	38.0	43.6	- 1.2	- 0.1	-3%	0%
E-E	38.4	46.5	39.3	48.8	0.8	2.3	2%	5%
TOTAL	29.7	39.5	29.9	40.9	0.1	1.3	0%	3%



M11 Junction 7a Model Changes in Demand due to Matrix Estimation

Sector Analysis

Model:	V3.15				
	PM_Business_Car		External Zone Start:	220	
Vehicle Class	Car	Threshold:	Percent Difference >	0%	
Purpose	Business		Absolute Flow Difference >	10	
Time Period	PM				
Result	Percent Difference				

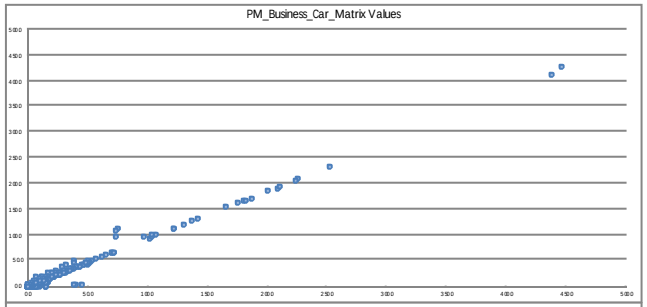
Green	Fully Observed - fully observed
Light Green	Fully Observed - partially observed
Yellow	Partially observed - partially observed
Orange	Partially observed - synthetic
Red	Synthetic - synthetic

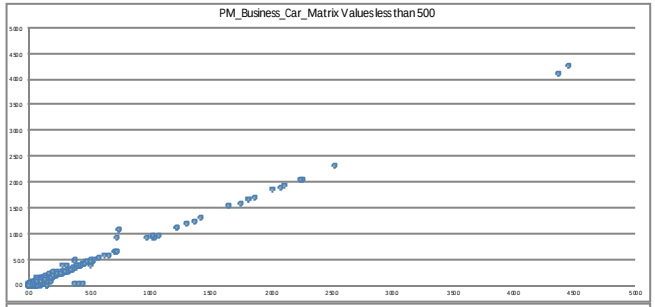
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Sum
1	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
2	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
3	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
4	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
5	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
6	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
7	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-8%	0%	0%	0%	0%	- 0
8	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
9	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-17%	0%	0%	0%	0%	- 0
10	0%	0%	0%	0%	0%	0%	0%	0%	0%	-8%	0%	0%	-45%	0%	0%	0%	0%	0%	0%	0%	0%	- 0
11	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
12	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	28%	0%	0%	0%	0%	0%	0%	0%	0%	0
13	0%	0%	0%	0%	0%	0%	-27%	-9%	-26%	-29%	-38%	0%	0%	-5%	0%	-10%	-5%	0%	0%	0%	-15%	- 0
14	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-28%	-1%	-7%	0%	0%	0%	0%	0%	0%	0%	- 0
15	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
16	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-7%	0%	0%	-8%	0%	0%	0%	0%	0%	- 0
17	0%	0%	0%	0%	0%	0%	-12%	0%	-28%	-19%	-22%	0%	-3%	0%	0%	0%	0%	0%	0%	0%	0%	- 0
18	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
19	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
20	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
21	0%	0%	0%	0%	0%	0%	0%	0%	0%	-8%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	- 0
Sum	-	-	-	-	-	-	- 0	- 0	- 0	- 0	- 0	- 0	- 0	- 0	- -	0	- 0	-	-	- -	0	- 0

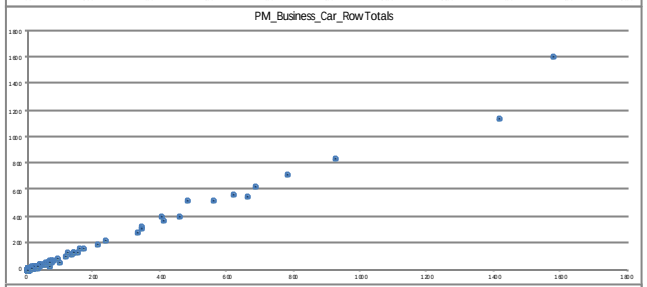
M11 Junction 7a Model Changes in Demand due to Matrix Estimation

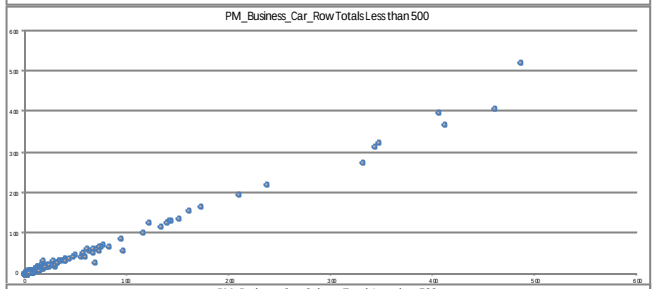
Regression Plots

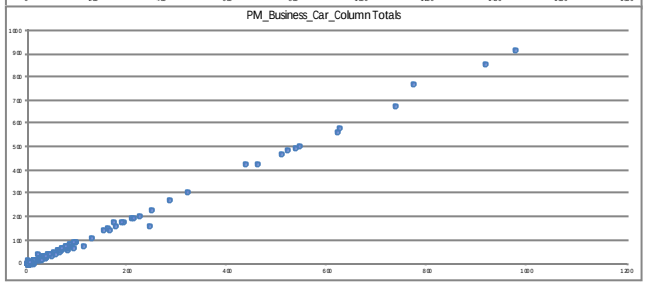
Model: V3.15

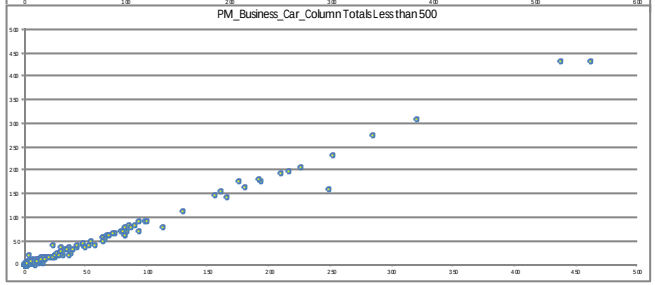












M11 Junction 7a Model Changes in Demand due to Matrix Estimation

Regression Analysis

Model: V3.15

Vehicle Class	Car
Purpose	Business
Time Period	PM

Regression		Full Matrix		
		A	B	R2
PM	Matrix	0.0	1.05	0.99
	Row Totals	0.4	1.08	0.99
	Column	1.0	1.06	1.00

Standard Error		Full Matrix	
		A	B
PM	Matrix	0.0	0.0
	Row	1.0	0.0
	Column	0.5	0.0

95% Confidence Interval		Full Matrix	
Students T-Statistic:		A	B
PM	Matrix	0.01 - 0.01	1.05 - 1.05
	Row	0.37 - 0.37	1.08 - 1.08
	Column	1.04 - 1.04	1.06 - 1.06

M11 Junction 7a Model Changes in Demand due to Matrix Estimation

Trip Length Distributions

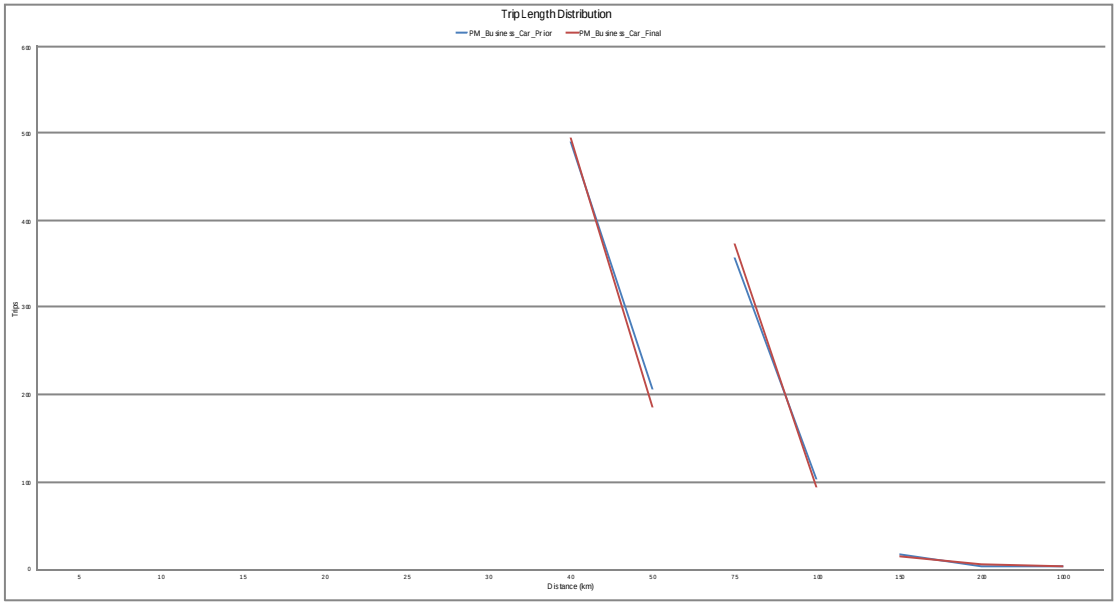
Model Version: V3.15

Vehicle Class Car

Purpose Business

Time Period PM

	Prior		Final		Differences Absolute		Differences Percentage	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
I-I	11.2	8.5	11.0	8.2	- 0.2	- 0.2	-2%	-3%
I-E	34.9	23.2	35.7	24.2	0.8	1.0	2%	4%
E-I	36.1	25.0	35.2	25.0	- 0.9	0.1	-3%	0%
E-E	48.4	33.1	48.1	32.7	- 0.3	- 0.4	-1%	-1%
TOTAL	40.1	30.7	39.8	30.6	- 0.3	- 0.1	-1%	0%



M11 Junction 7a Model Changes in Demand due to Matrix Estimation

Sector Analysis

Model:	V3.15				
	PM_Other_Car		External Zone Start:	220	
Vehicle Class	Car	Threshold:	Percent Difference >	0%	
Purpose	Other		Absolute Flow Difference >	10	
Time Period	PM				
Result	Percent Difference				

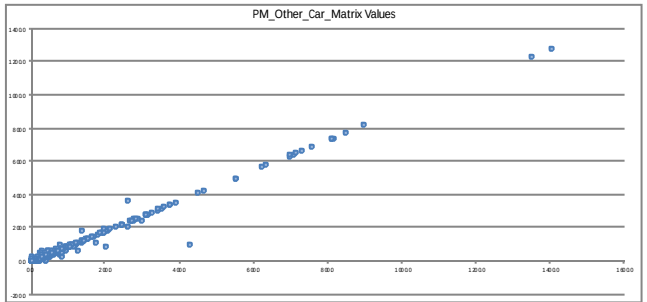
Green	Fully Observed - fully observed
Light Green	Fully Observed - partially observed
Yellow	Partially observed - partially observed
Orange	Partially observed - synthetic
Red	Synthetic - synthetic

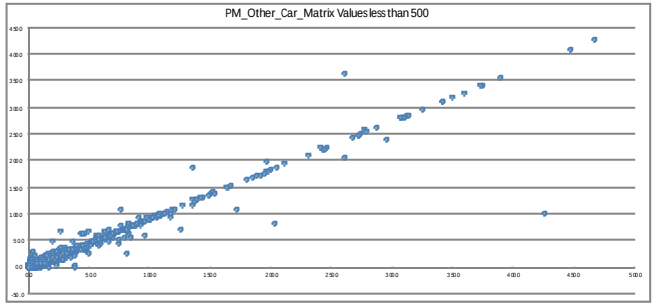
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Sum
1	0%	-27%	0%	0%	-37%	0%	0%	0%	0%	0%	28%	0%	0%	15%	0%	0%	0%	0%	0%	0%	0%	0
2	0%	0%	0%	-38%	-36%	0%	141%	0%	69%	33%	11%	67%	0%	56%	0%	0%	0%	0%	0%	0%	0%	0
3	0%	0%	0%	0%	-40%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	335%	0%	0%	0%	293%	0%	0
4	0%	-61%	-27%	24%	-10%	0%	0%	110%	0%	0%	-23%	0%	-20%	0%	0%	0%	0%	0%	0%	0%	0%	0
5	0%	-35%	-38%	3%	-9%	0%	0%	90%	0%	0%	-25%	-14%	0%	0%	0%	0%	0%	0%	-59%	-39%	0%	0
6	0%	0%	0%	115%	41%	0%	0%	0%	0%	0%	0%	66%	21%	28%	0%	82%	72%	0%	0%	64%	0%	0
7	0%	0%	0%	121%	0%	0%	-12%	13%	-9%	0%	0%	0%	-9%	0%	0%	-17%	-12%	0%	0%	0%	0%	0
8	0%	0%	0%	68%	0%	0%	-16%	0%	-18%	0%	0%	0%	-12%	0%	0%	0%	-12%	0%	0%	0%	0%	0
9	0%	87%	0%	0%	0%	0%	-8%	0%	-5%	29%	0%	0%	-16%	0%	0%	-12%	-28%	0%	0%	0%	0%	0
10	0%	0%	0%	0%	0%	0%	0%	0%	0%	-9%	-12%	0%	0%	-9%	0%	0%	-24%	0%	0%	0%	0%	0
11	0%	-23%	0%	-31%	-37%	0%	0%	0%	0%	-17%	0%	61%	-23%	0%	0%	-28%	-26%	0%	0%	0%	0%	0
12	0%	0%	0%	28%	-19%	0%	0%	0%	0%	0%	84%	-19%	36%	-9%	0%	0%	0%	0%	0%	0%	0%	0
13	0%	0%	0%	-28%	-20%	-56%	-11%	-9%	-27%	0%	-15%	0%	-8%	-7%	0%	-9%	-18%	0%	0%	0%	0%	0
14	-46%	0%	0%	0%	-42%	-50%	0%	0%	0%	-18%	0%	-22%	-4%	-8%	0%	0%	0%	0%	0%	0%	0%	0
15	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
16	0%	0%	0%	-43%	0%	0%	-23%	0%	-14%	0%	-19%	0%	-8%	0%	0%	-9%	0%	0%	0%	0%	0%	0
17	0%	0%	0%	0%	0%	-25%	-12%	-7%	-29%	-32%	-23%	0%	-74%	0%	0%	0%	0%	0%	0%	0%	0%	0
18	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
19	0%	0%	0%	0%	-48%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0
20	0%	0%	0%	-37%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0
21	0%	0%	0%	0%	0%	0%	0%	0%	0%	-8%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0
Sum	0	0	0	0	0	0	0	0	0	0	0	0	0	0	-	0	0	-	0	0	-	0

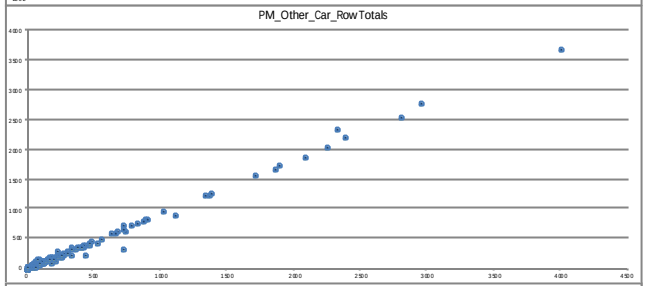
M11 Junction 7a Model Changes in Demand due to Matrix Estimation

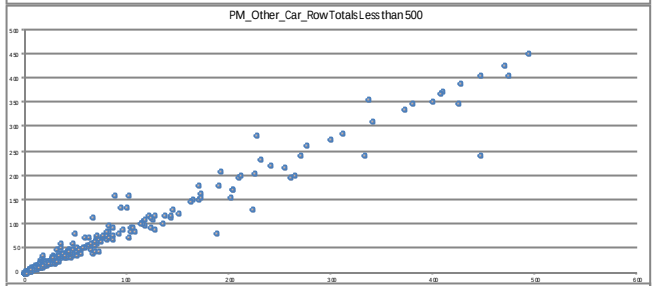
Regression Plots

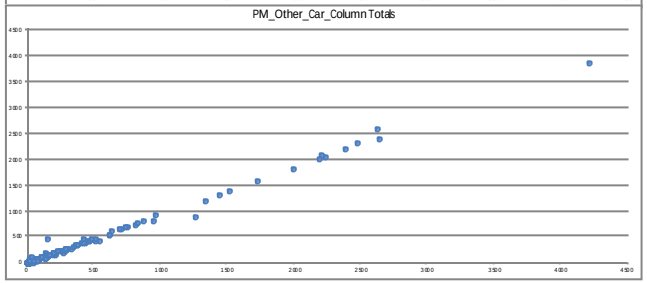
Model: V3.15

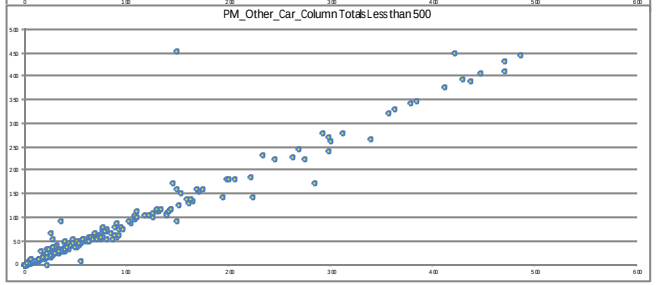












M11 Junction 7a Model Changes in Demand due to Matrix Estimation

Regression Analysis

Model: V3.15

Vehicle Class	Car
Purpose	Other
Time Period	PM

Regression		Full Matrix		
		A	B	R2
PM	Matrix	0.0	1.09	0.99
	Row Totals	2.1	1.09	1.00
	Column	3.5	1.08	1.00

Standard Error		Full Matrix	
		A	B
PM	Matrix	0.0	0.0
	Row	2.3	0.0
	Column	2.3	0.0

95% Confidence Interval		Full Matrix	
Students T-Statistic:		A	B
PM	Matrix	0.01 - 0.01	1.09 - 1.09
	Row	2.14 - 2.04	1.09 - 1.09
	Column	3.51 - 3.41	1.08 - 1.08

M11 Junction 7a Model Changes in Demand due to Matrix Estimation

Trip Length Distributions

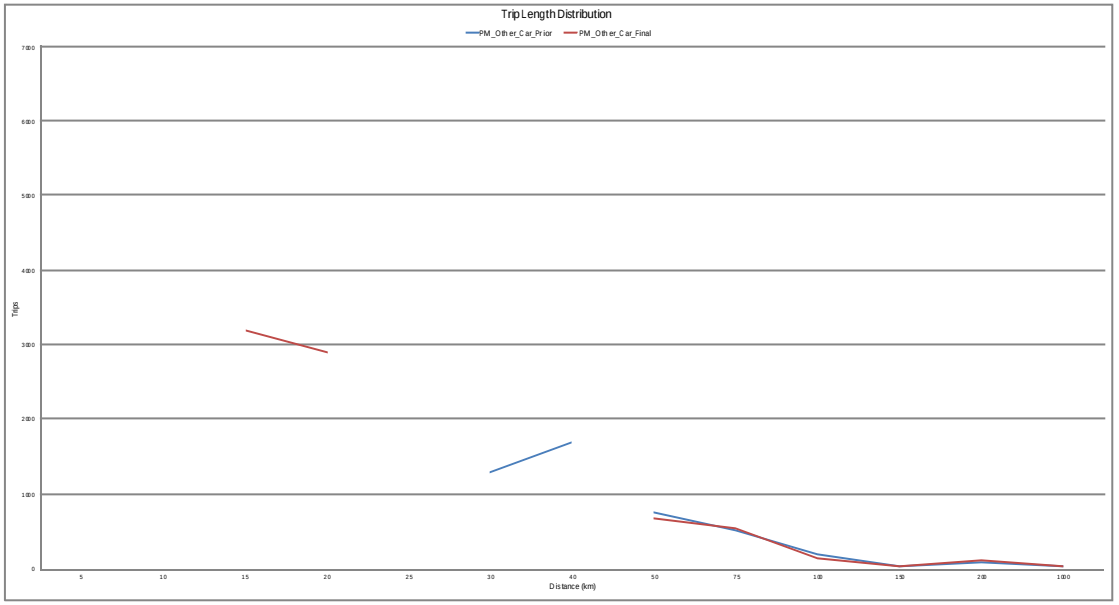
Model Version: V3.15

Vehicle Class Car

Purpose Other

Time Period PM

	Prior		Final		Differences Absolute		Differences Percentage	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
I-I	8.7	6.9	8.8	7.0	0.1	0.1	1%	2%
I-E	27.3	26.8	28.3	28.8	1.0	1.9	4%	7%
E-I	26.2	24.1	25.7	23.9	-0.6	-0.1	-2%	-1%
E-E	22.2	18.4	22.0	18.7	-0.2	0.3	-1%	2%
TOTAL	20.5	20.5	20.4	21.1	-0.1	0.5	0%	3%



M11 Junction 7a Model Changes in Demand due to Matrix Estimation

Sector Analysis

Model:	V3.15				
	PM_Business_LGV		External Zone Start:	220	
Vehicle Class	LGV	Threshold:	Percent Difference >	0%	
Purpose	Business		Absolute Flow Difference >	10	
Time Period	PM				
Result	Percent Difference				

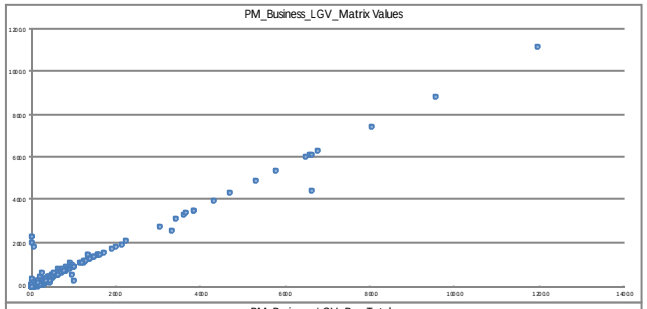
Green	Fully Observed - fully observed
Light Green	Fully Observed - partially observed
Yellow	Partially observed - partially observed
Orange	Partially observed - synthetic
Red	Synthetic - synthetic

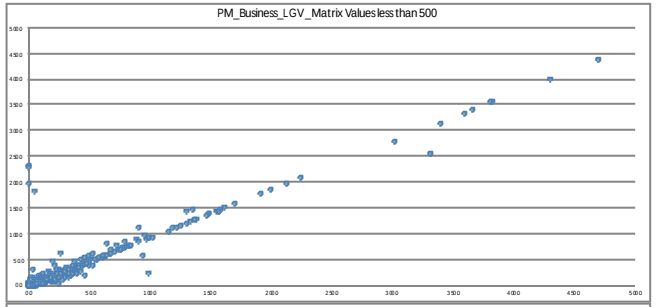
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Sum
1	0%	-39%	0%	0%	0%	0%	0%	0%	0%	0%	0%	106%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0
2	0%	0%	0%	-59%	-29%	0%	0%	0%	0%	0%	0%	106%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0
3	0%	0%	0%	0%	-56%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	- 0
4	0%	-42%	0%	0%	-7%	0%	-31%	0%	-29%	0%	0%	0%	-24%	0%	0%	0%	-44%	0%	0%	0%	0%	- 0
5	0%	0%	0%	-7%	0%	0%	0%	0%	0%	0%	0%	0%	0%	83%	0%	93%	0%	0%	0%	0%	0%	0
6	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	75%	0%	115%	0%	0%	86%	0%	0%	0%	0%	0
7	0%	0%	0%	0%	0%	0%	0%	35%	0%	0%	56%	0%	-25%	0%	0%	0%	-7%	0%	0%	0%	0%	0
8	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-18%	0%	0%	0%	0%	0%	0%	0%	0%	- 0
9	0%	0%	0%	0%	0%	0%	0%	0%	0%	35%	42%	0%	-26%	0%	0%	14%	-18%	0%	0%	0%	0%	0
10	0%	0%	0%	0%	0%	0%	0%	0%	0%	-7%	0%	-26%	0%	-27%	0%	0%	0%	0%	0%	0%	0%	- 0
11	0%	-29%	0%	-44%	-35%	0%	0%	0%	0%	-59%	0%	0%	0%	0%	0%	-16%	-32%	0%	0%	0%	0%	- 0
12	0%	0%	0%	0%	0%	0%	0%	0%	0%	-30%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	- 0
13	338%	0%	0%	72%	0%	0%	-29%	-12%	-24%	97%	70%	39%	-7%	-2%	0%	0%	-22%	0%	0%	666633%	26354%	330
14	0%	0%	0%	-42%	0%	0%	0%	0%	0%	-38%	0%	-9%	-4%	-5%	0%	0%	0%	0%	0%	0%	0%	- 0
15	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
16	0%	0%	0%	0%	0%	0%	-22%	0%	-14%	0%	-21%	0%	-13%	0%	0%	-7%	0%	0%	0%	0%	0%	- 0
17	334%	55%	0%	0%	0%	0%	-8%	0%	-24%	93%	0%	0%	-32%	0%	0%	0%	0%	0%	0%	0%	0%	0
18	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
19	817%	305%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	1
20	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	26405%	0%	0%	0%	0%	0%	0%	0%	0%	13
21	0%	0%	0%	0%	0%	0%	0%	0%	0%	-7%	0%	0%	2505%	-33%	0%	0%	0%	0%	0%	0%	0%	1
Sum	1	0	-	-	0	- 0	-	- 0	0	- 0	0	0	0	14	0	-	0	- 0	-	-	317	13	16

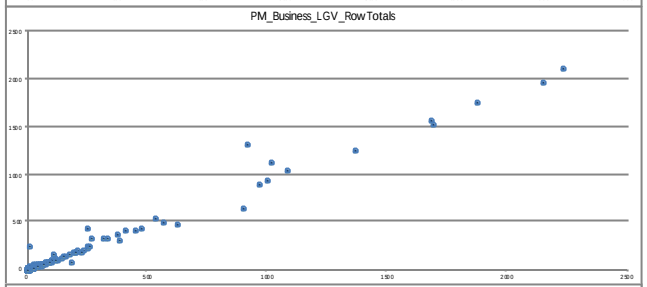
M11 Junction 7a Model Changes in Demand due to Matrix Estimation

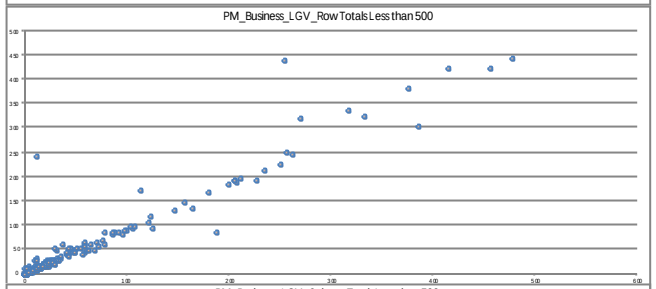
Regression Plots

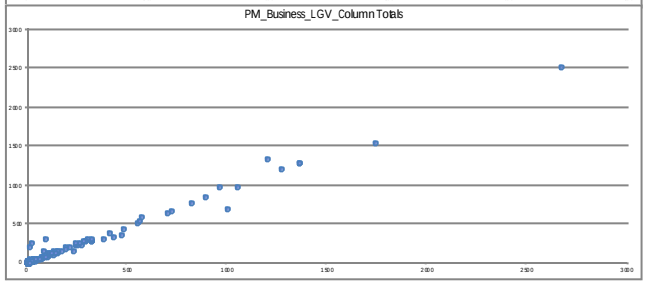
Model: V3.15

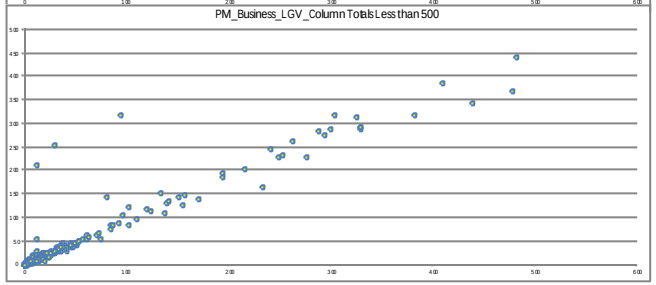












M11 Junction 7a Model Changes in Demand due to Matrix Estimation

Regression Analysis

Model: V3.15

Vehicle Class LGV

Purpose Business

Time Period PM

Regression		Full Matrix		
		A	B	R2
PM	Matrix	- 0.0	1.05	0.97
	Row Totals	- 0.5	1.04	0.98
	Column	- 1.6	1.06	0.99

Standard Errors		Full Matrix	
		A	B
PM	Matrix	0.0	0.0
	Row	2.6	0.0
	Column	2.2	0.0

95% Confidence Interval		Full Matrix	
Students T-Statistic:		A	B
PM	Matrix	-0.01 - 0	1.05 - 1.05
	Row	-2.39 - 1.35	1.04 - 1.05
	Column	-3.16 - -0.03	1.05 - 1.06

M11 Junction 7a Model Changes in Demand due to Matrix Estimation

Trip Length Distributions

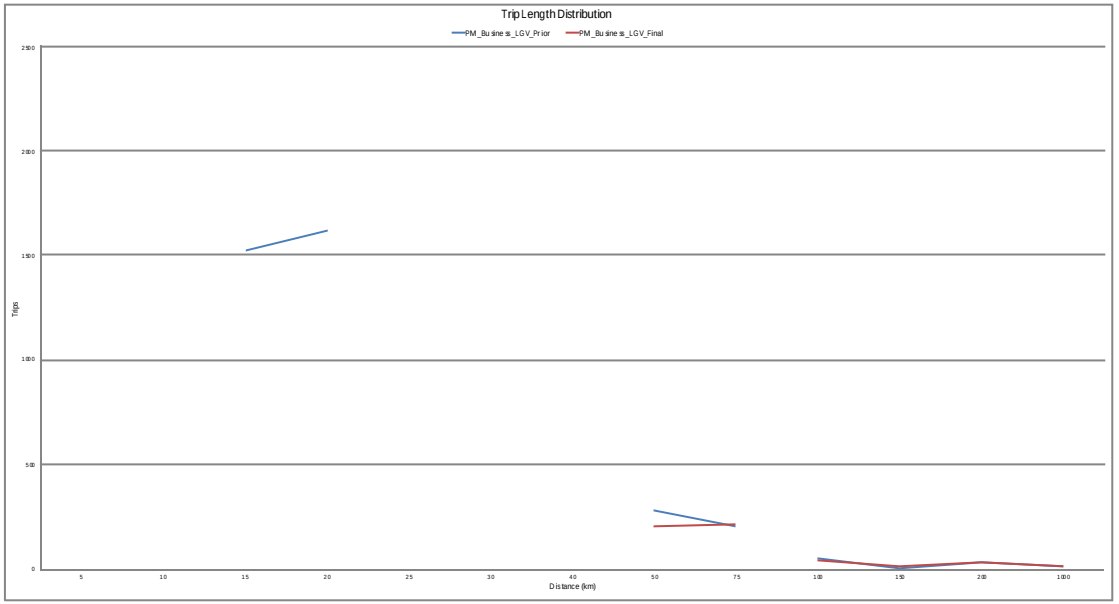
Model Version: V3.15

Vehicle Class LGV

Purpose Business

Time Period PM

	Prior		Final		Differences Absolute		Differences Percentage	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
I-I	11.0	7.9	11.1	7.8	0.1	-0.1	1%	-1%
I-E	26.2	22.6	26.8	26.7	0.6	4.1	2%	18%
E-I	27.8	20.5	28.6	25.3	0.7	4.7	3%	23%
E-E	24.7	14.9	30.5	29.5	5.9	14.6	24%	97%
TOTAL	23.1	17.5	26.2	26.7	3.1	9.2	14%	53%



M11 Junction 7a Model Changes in Demand due to Matrix Estimation

Sector Analysis

Model:	V3.15				
	PM_Business_HGV		External Zone Start:	220	
Vehicle Class	HGV	Threshold:	Percent Difference >	0%	
Purpose	Business		Absolute Flow Difference >	10	
Time Period	PM				
Result	Percent Difference				

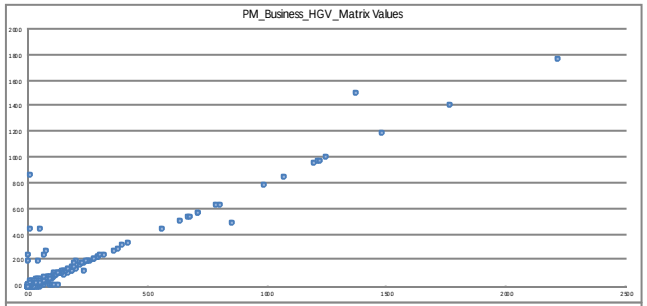
Green	Fully Observed - fully observed
Light Green	Fully Observed - partially observed
Yellow	Partially observed - partially observed
Orange	Partially observed - synthetic
Red	Synthetic - synthetic

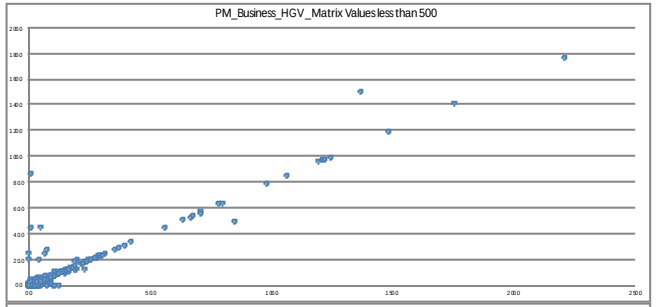
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	Sum
1	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
2	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
3	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
4	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
5	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
6	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
7	0%	0%	0%	0%	0%	0%	0%	0%	0%	-43%	0%	0%	104%	0%	0%	0%	-24%	0%	0%	0%	0%	0
8	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	52%	0%	0%	0%	0%	0%	0%	0%	0%	0
9	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-42%	0%	0%	0%	0%	- 0
10	0%	0%	0%	0%	0%	0%	0%	0%	0%	-20%	0%	-56%	-95%	-37%	0%	0%	0%	0%	0%	0%	0%	- 0
11	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
12	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
13	0%	0%	0%	0%	0%	0%	-22%	0%	0%	-55%	0%	0%	0%	-19%	0%	0%	-41%	0%	0%	0%	813%	0
14	0%	0%	0%	0%	0%	0%	0%	0%	0%	-60%	0%	-28%	23%	-20%	0%	0%	0%	0%	0%	0%	1332%	1
15	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
16	0%	0%	0%	0%	0%	0%	0%	0%	-34%	0%	0%	0%	0%	0%	0%	-21%	0%	0%	0%	0%	0%	- 0
17	0%	0%	0%	0%	0%	0%	-21%	0%	-40%	0%	0%	0%	73%	0%	0%	0%	0%	0%	0%	0%	0%	0
18	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
19	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
20	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	0%	-
21	0%	0%	0%	0%	0%	0%	0%	0%	0%	-20%	0%	0%	425%	195%	0%	0%	0%	0%	0%	0%	0%	0
Sum	-	-	-	-	-	-	-	0	-	-	0	-	0	-	-	0	-	0	0	-	-	1	0

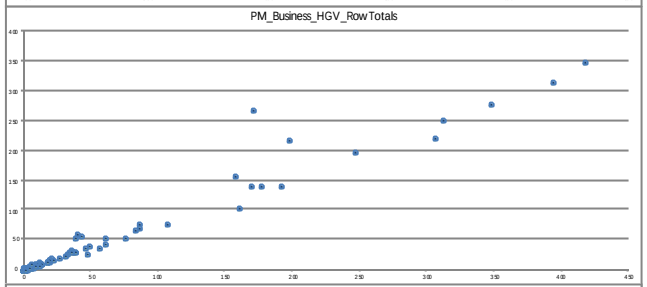
M11 Junction 7a Model Changes in Demand due to Matrix Estimation

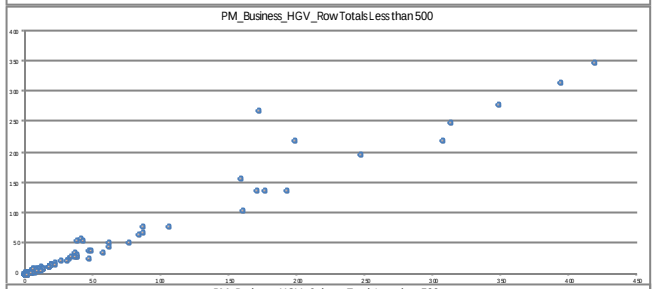
Regression Plots

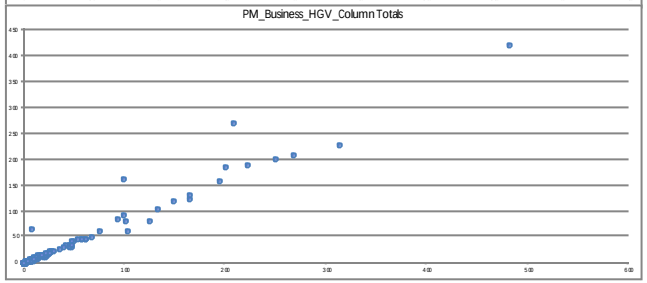
Model: V3.15

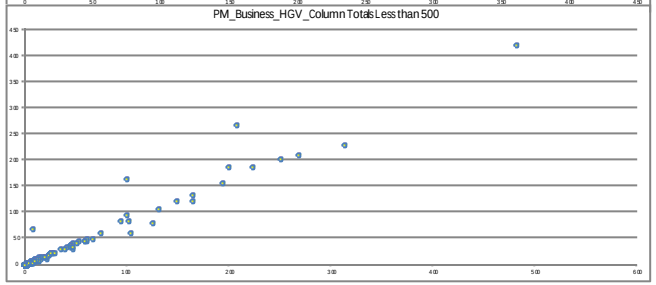












M11 Junction 7a Model Changes in Demand due to Matrix Estimation

Regression Analysis

Model: V3.15

Vehicle Class HGV

Purpose Business

Time Period PM

Regression		Full Matrix		
		A	B	R2
PM	Matrix	0.0	1.13	0.92
	Row Totals	0.5	1.16	0.96
	Column	0.9	1.13	0.96

Standard Error		Full Matrix	
		A	B
PM	Matrix	0.0	0.0
	Row	0.7	0.0
	Column	0.7	0.0

95% Confidence Interval		Full Matrix	
Students T-Statistic:		A	B
PM	Matrix	0 - 0	1.13 - 1.13
	Row	0.45 - 0.45	1.16 - 1.16
	Column	0.9 - 0.9	1.13 - 1.13

M11 Junction 7a Model Changes in Demand due to Matrix Estimation

Trip Length Distributions

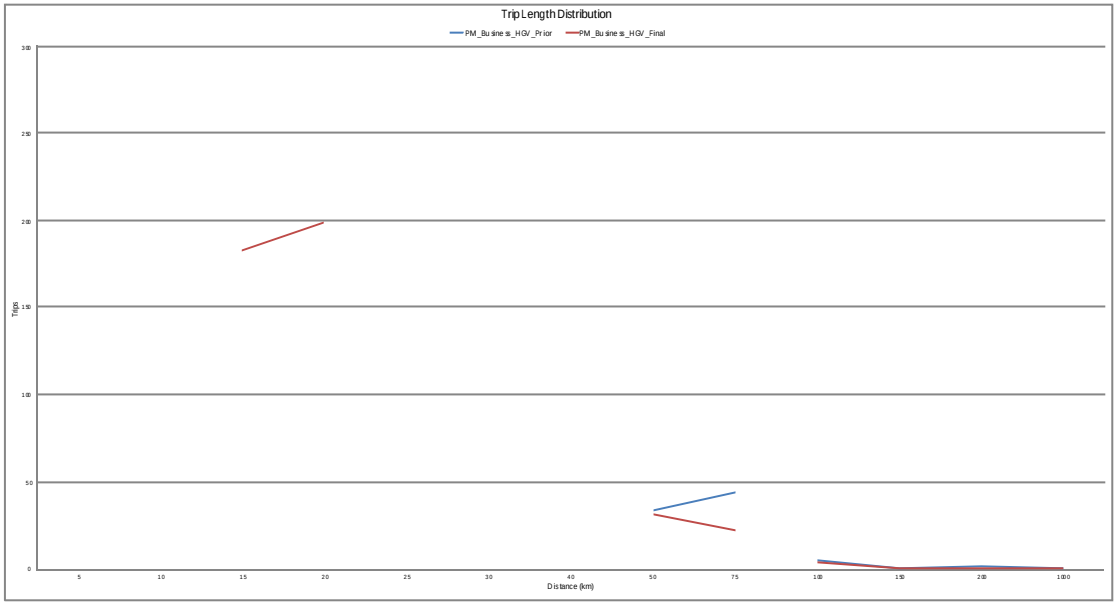
Model Version: V3.15

Vehicle Class HGV

Purpose Business

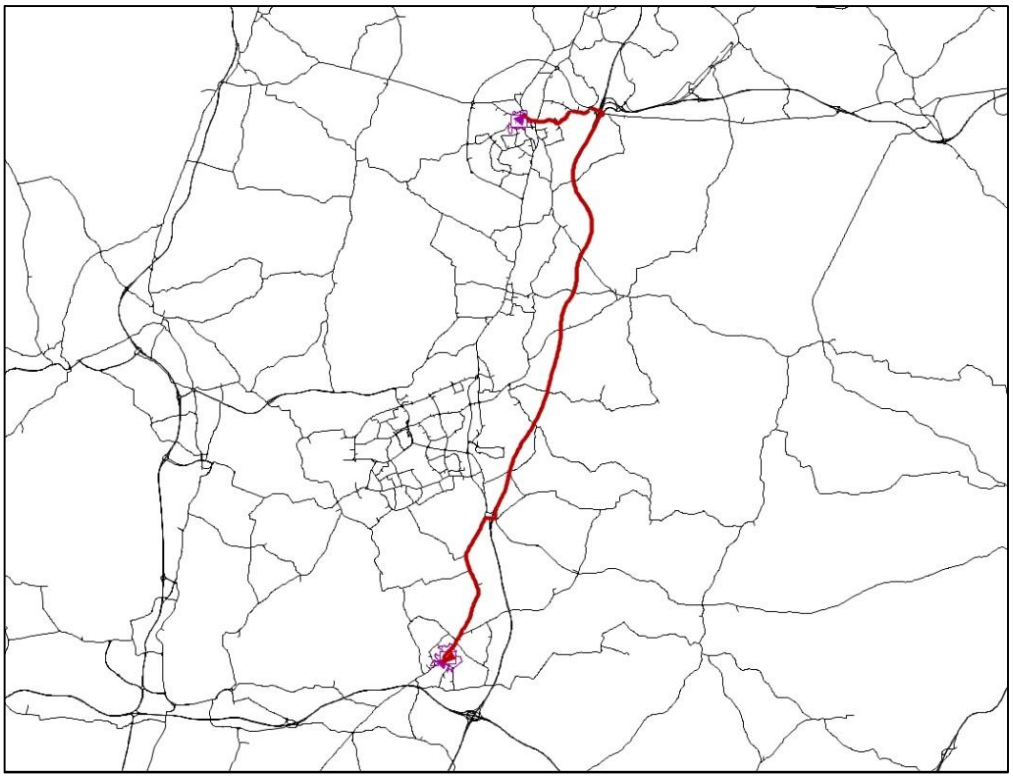
Time Period PM

	Prior		Final		Differences Absolute		Differences Percentage	
	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation	Mean	Standard Deviation
H	11.4	8.1	11.5	7.6	0.1	-0.5	1%	-6%
HE	24.9	18.1	24.8	16.4	-0.1	-1.6	0%	-9%
EH	28.1	18.5	27.2	18.4	-0.9	-0.1	-3%	-1%
EE	26.0	17.3	30.5	22.9	4.5	5.6	17%	33%
TOTAL	24.3	17.5	26.7	20.9	2.4	3.4	10%	19%

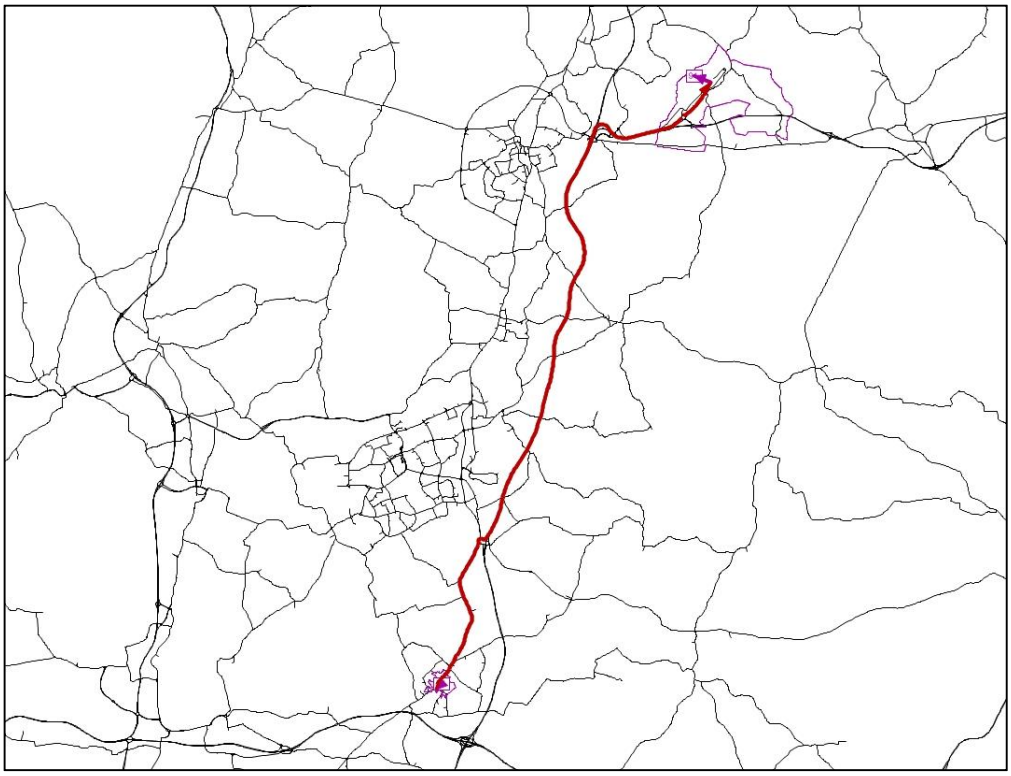


Appendix G. Routing Checks

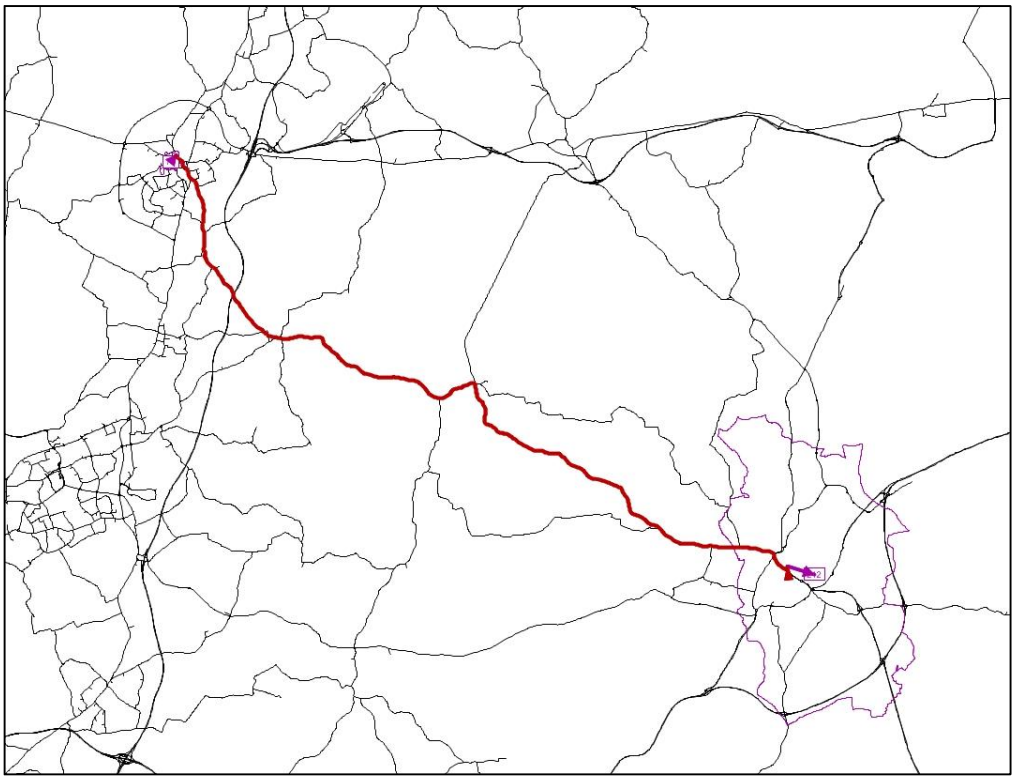
Car Routing: Bishop’s Stortford to Epping:



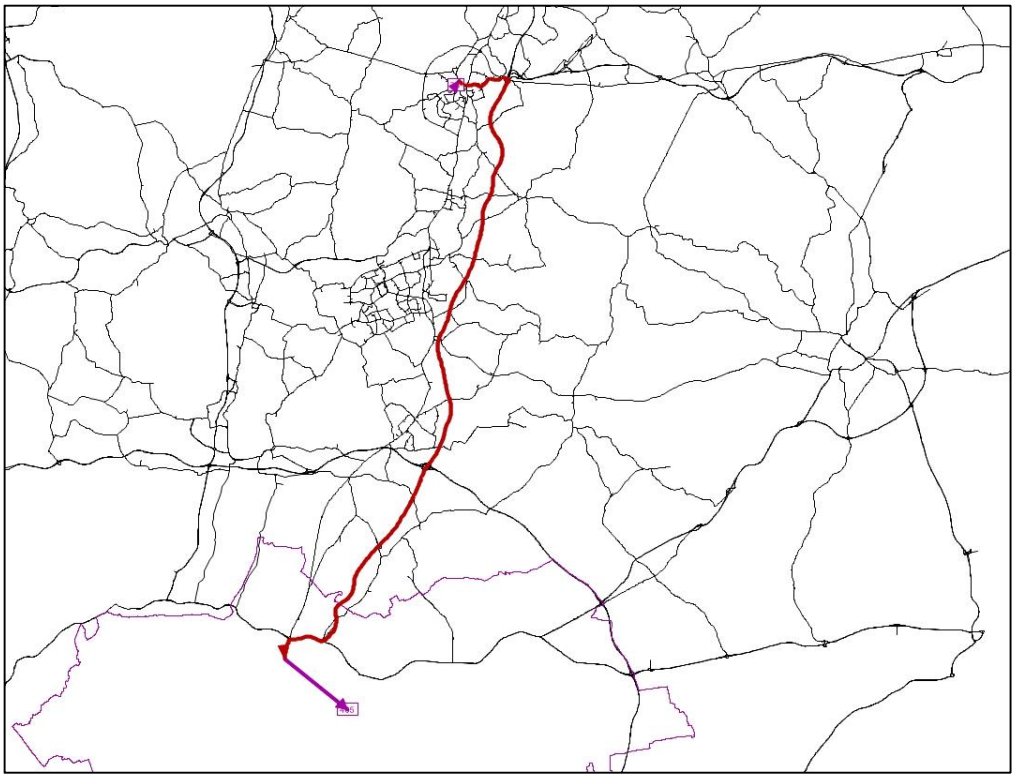
Car Routing: Epping to Stansted Airport:



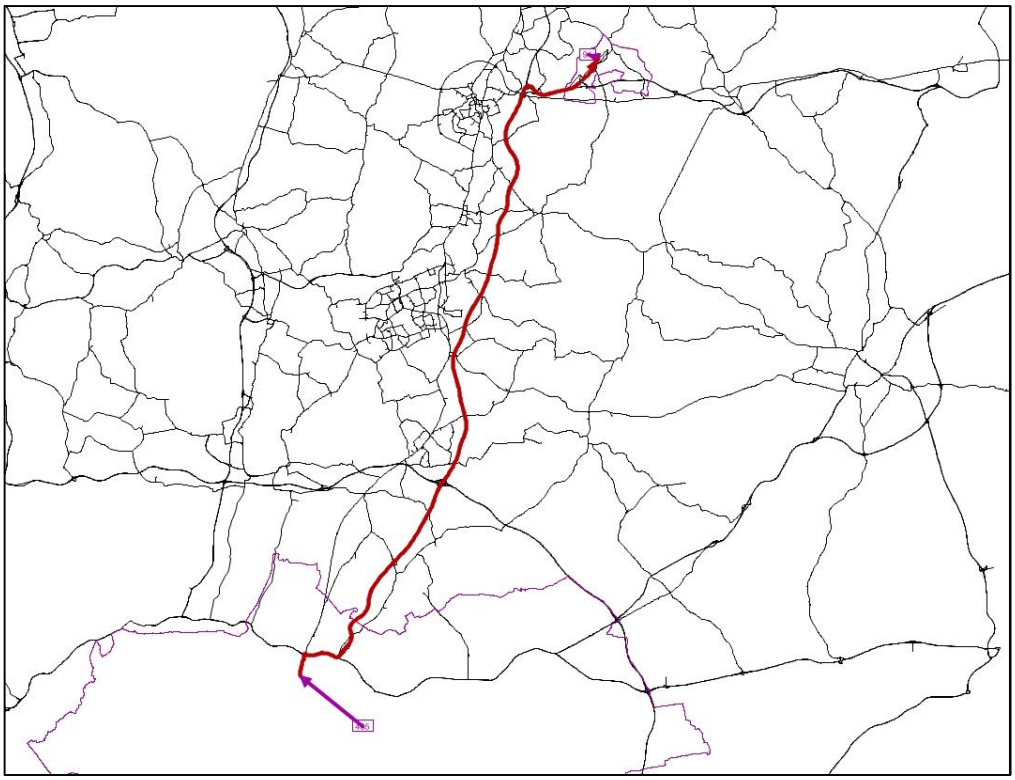
Car Routing: Bishop’s Stortford to Chelmsford:



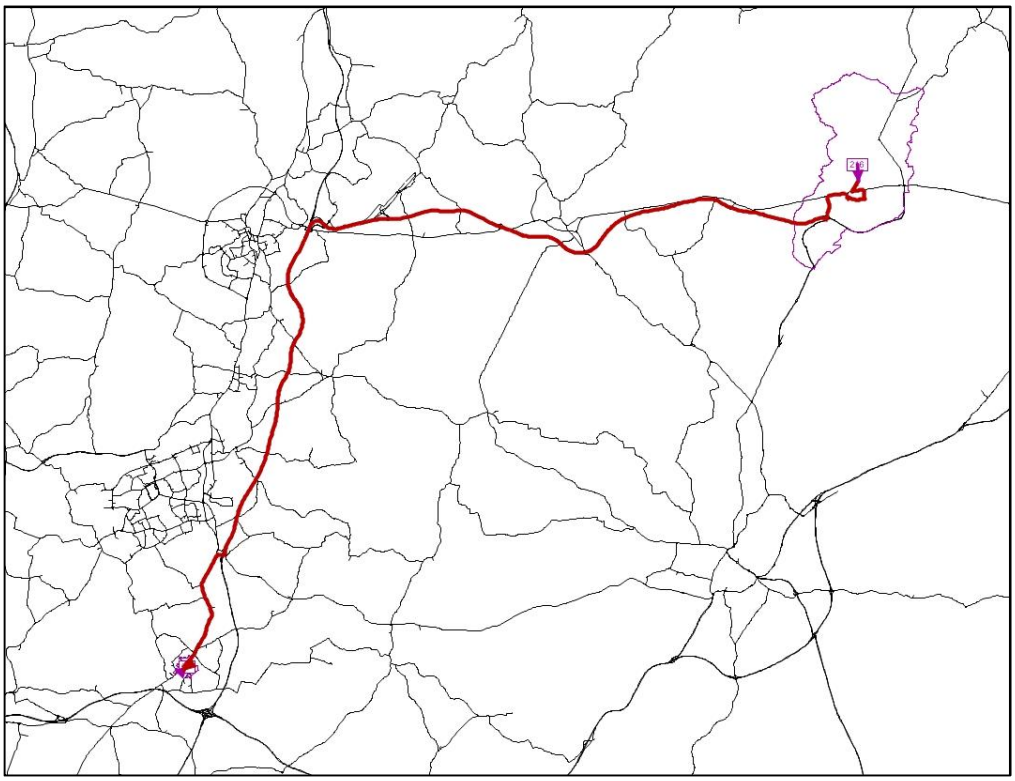
Car Routing: Bishop’s Stortford to London:



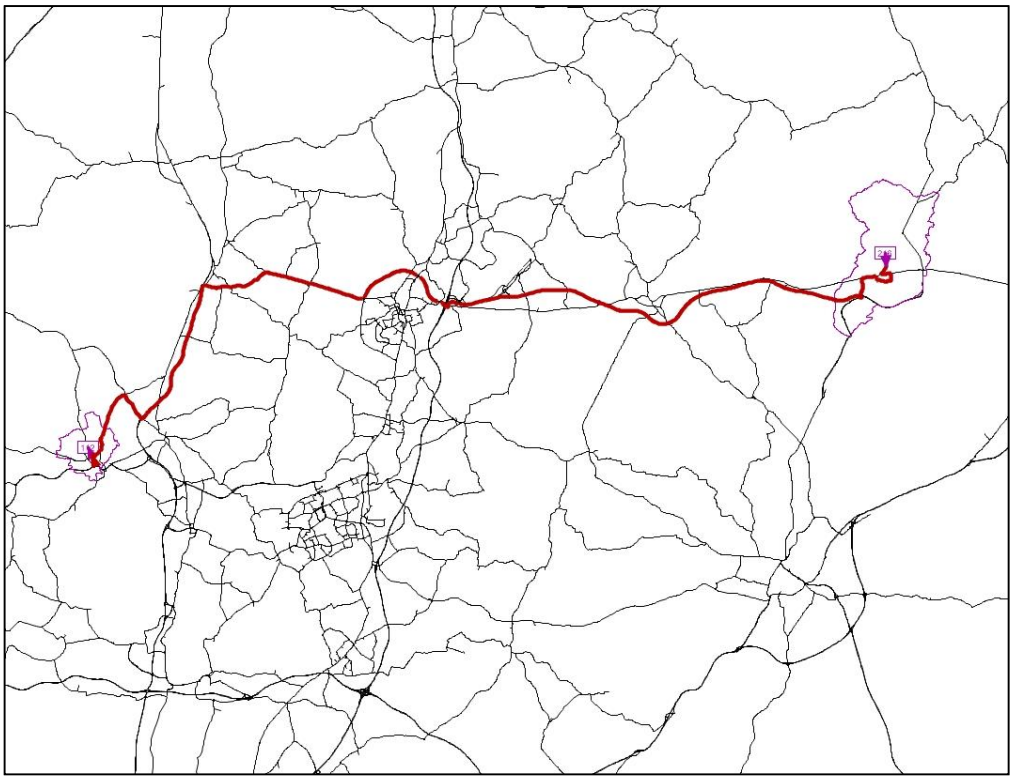
Car Routing: London to Stansted Airport:



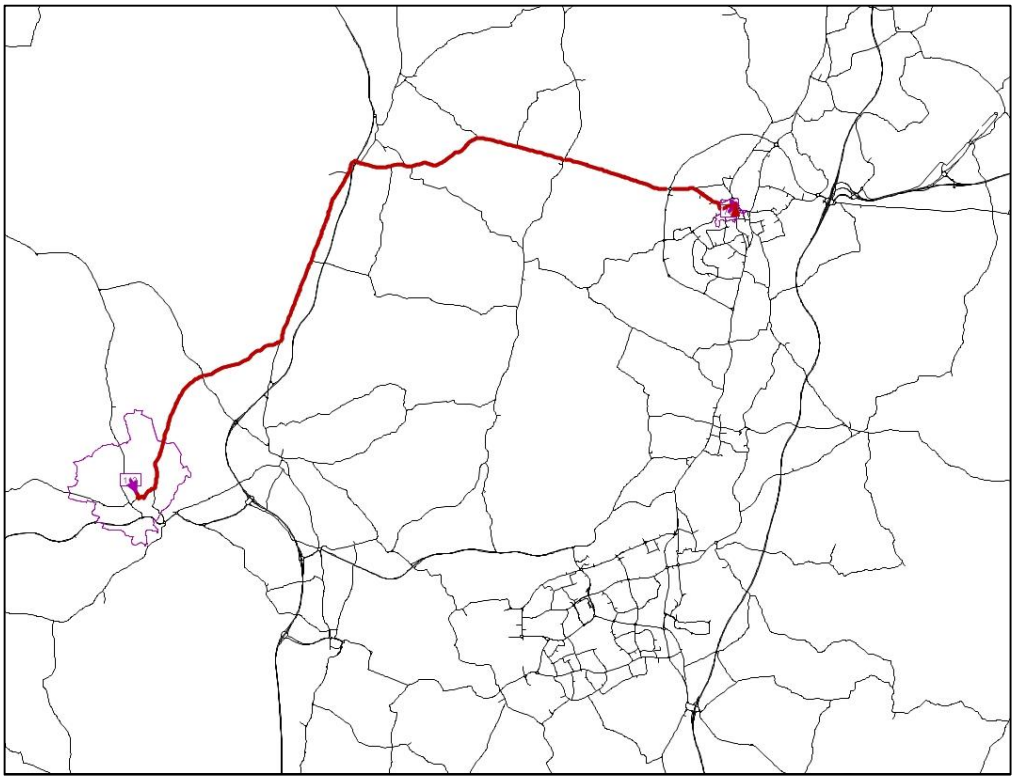
Car Routing: Braintree to Epping:



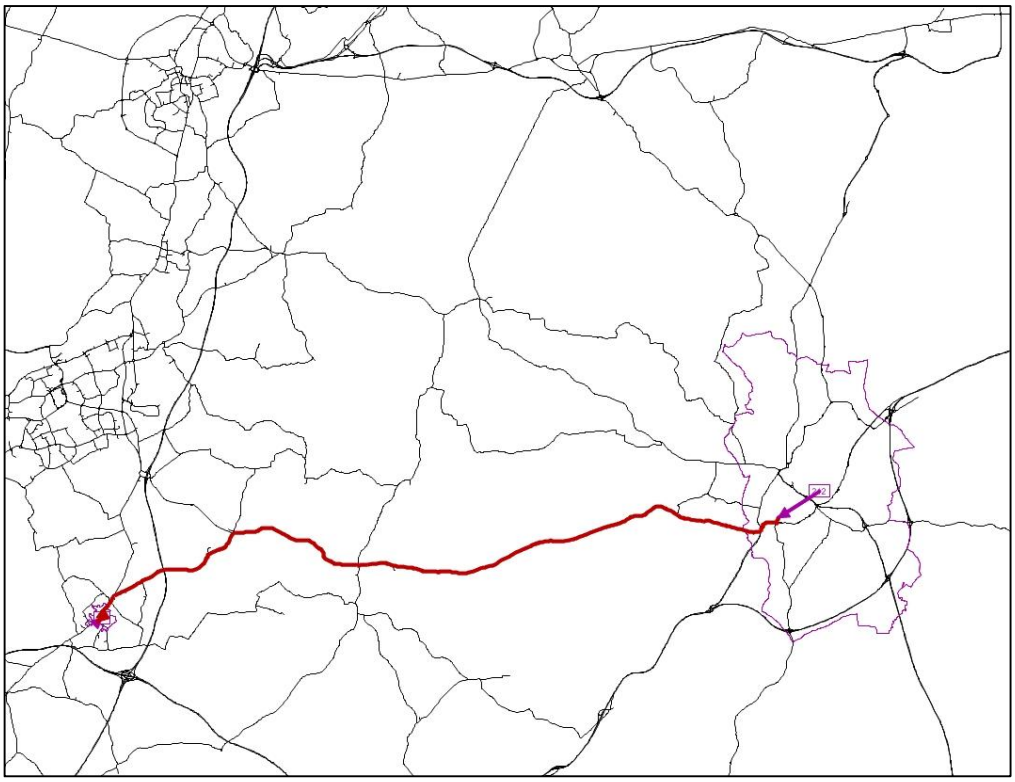
Car Routing: Braintree to Hertford:



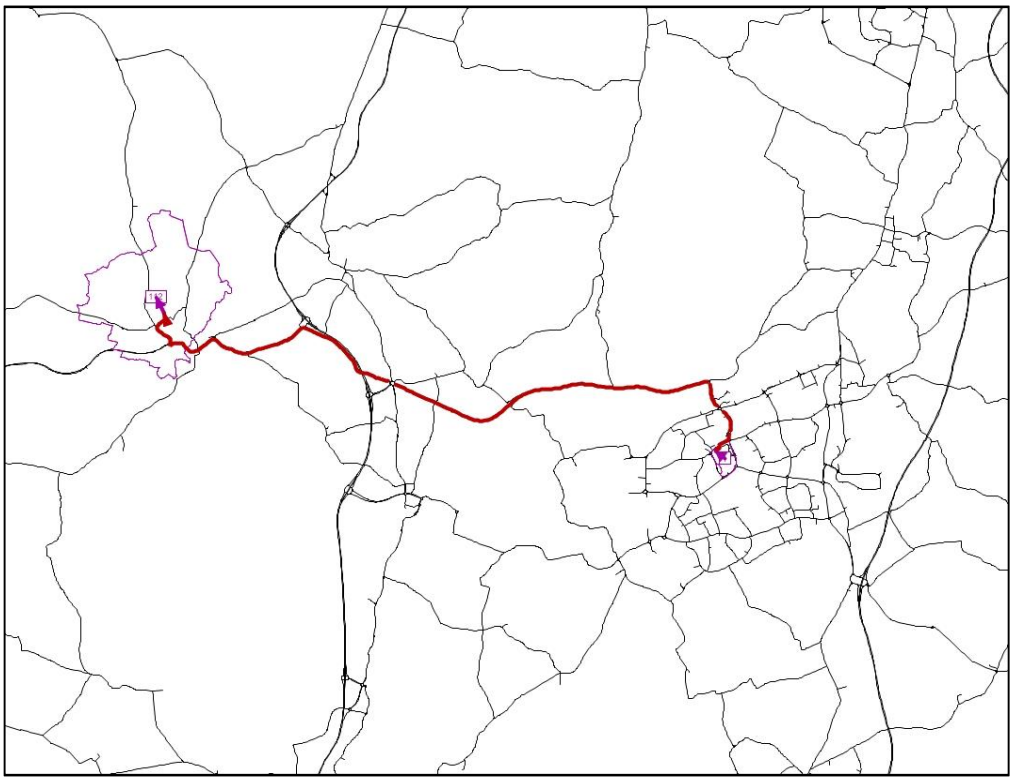
Car Routing: Hertford to Bishop’s Stortford:



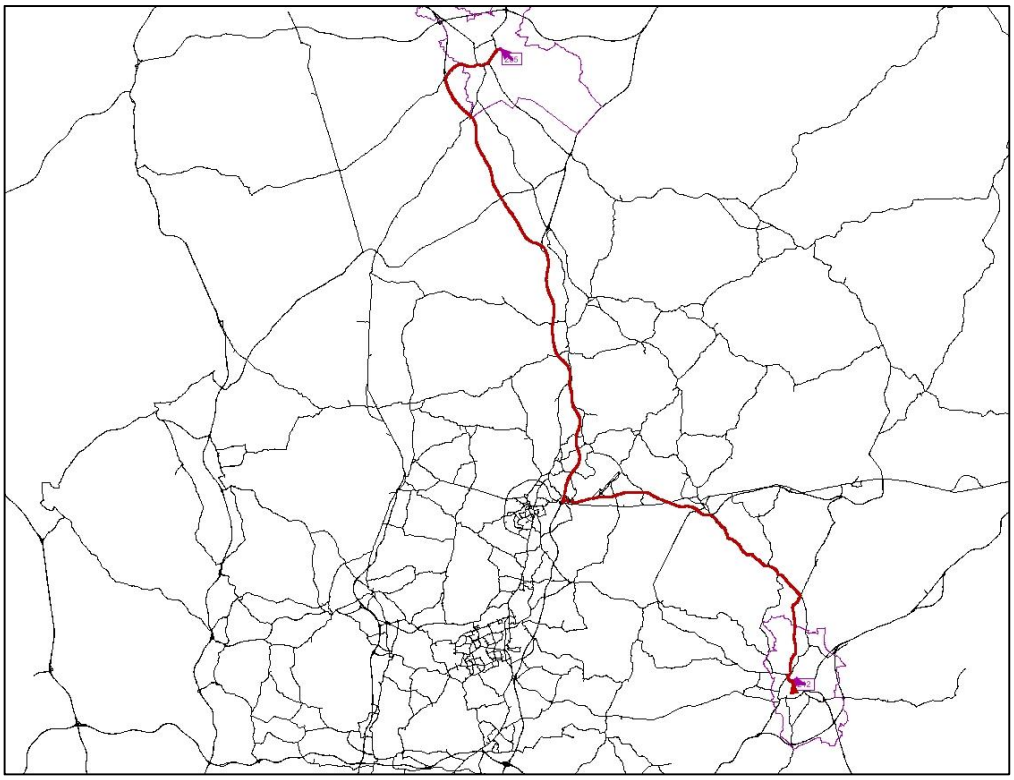
Car Routing: Chelmsford to Epping:



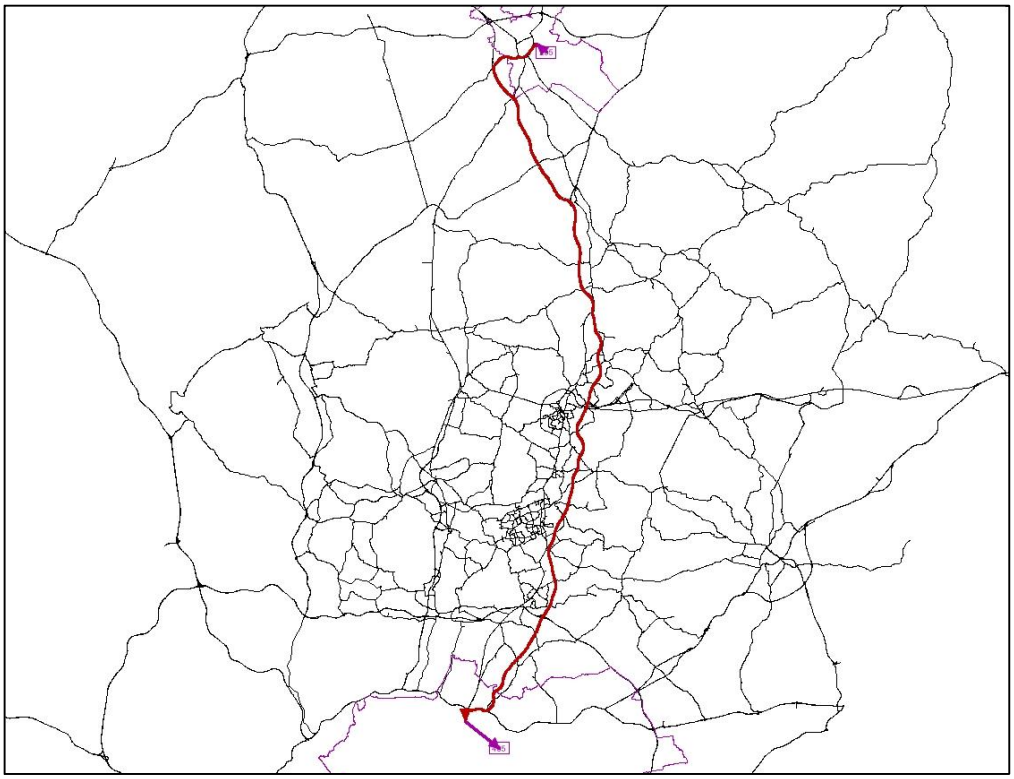
Car Routing: Harlow to Hertford:



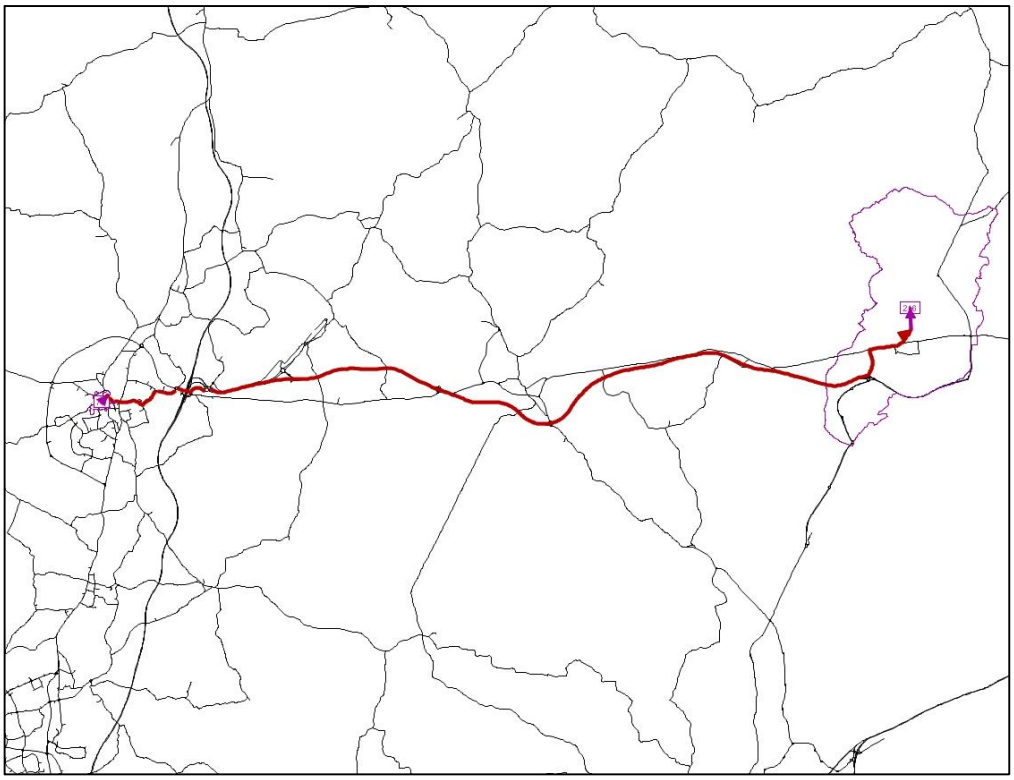
Car Routing: Cambridge to Chelmsford:



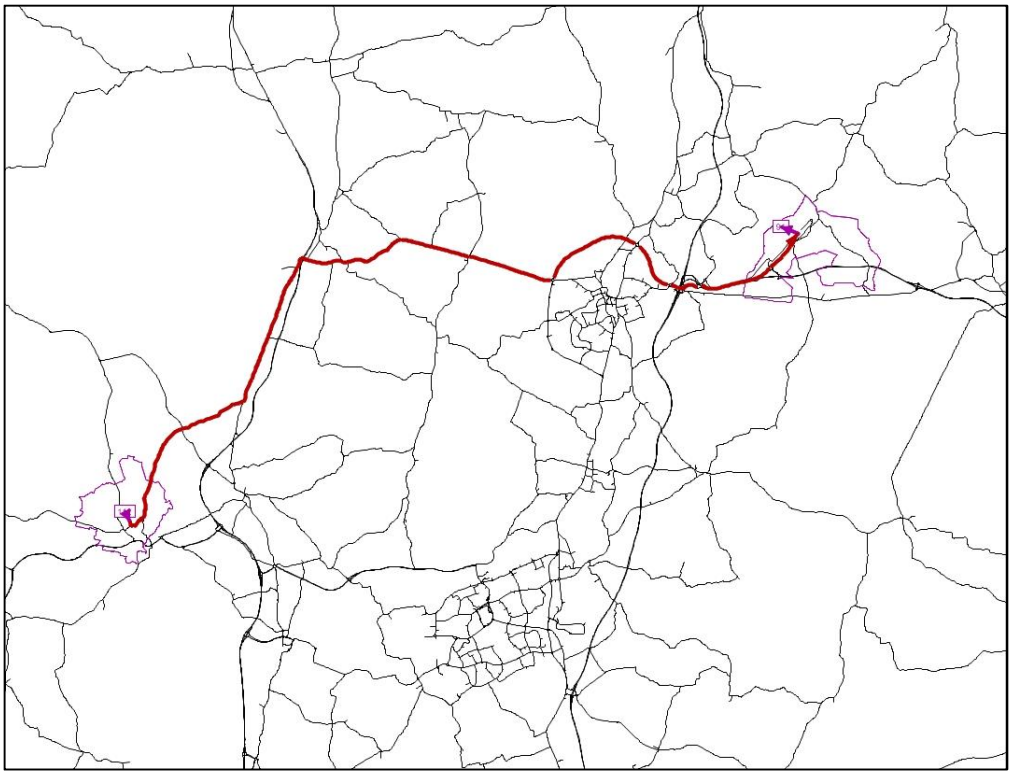
Car Routing: Cambridge to London:



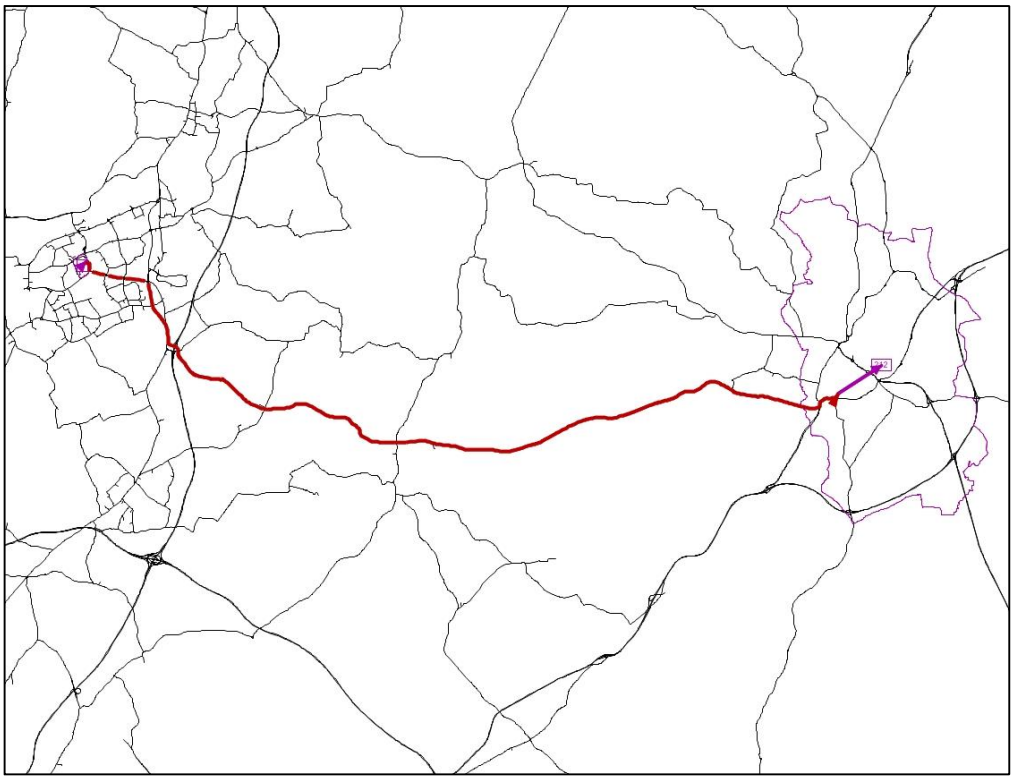
Car Routing: Bishop’s Stortford to Braintree:



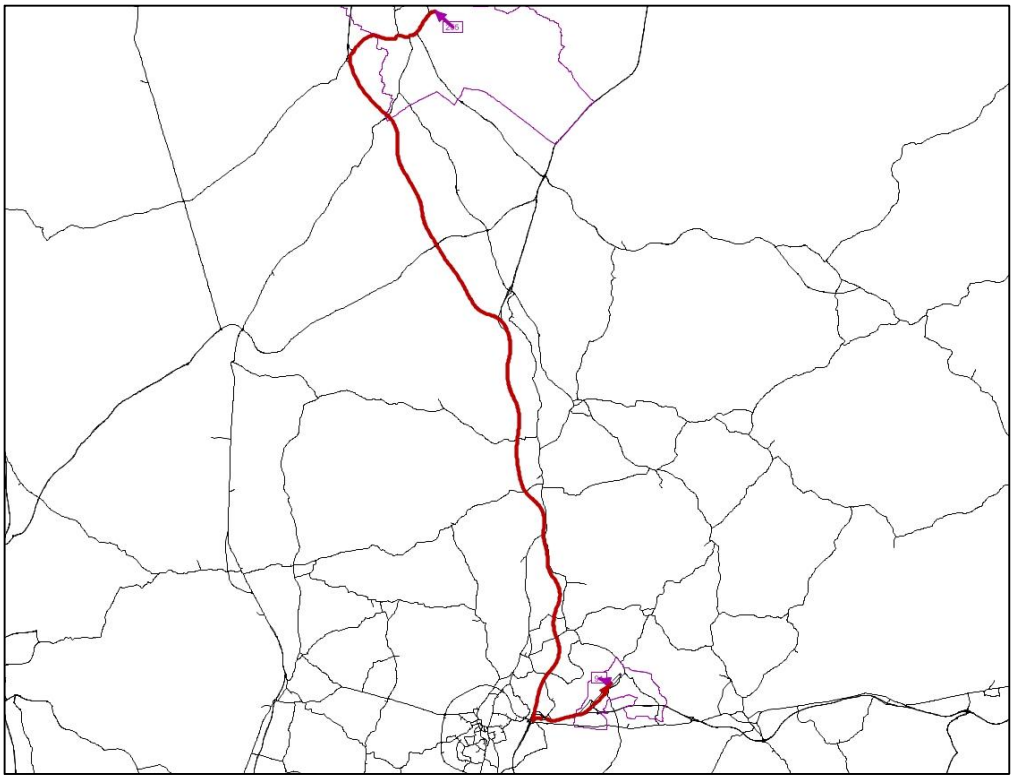
Car Routing: Hertford to Stansted Airport:



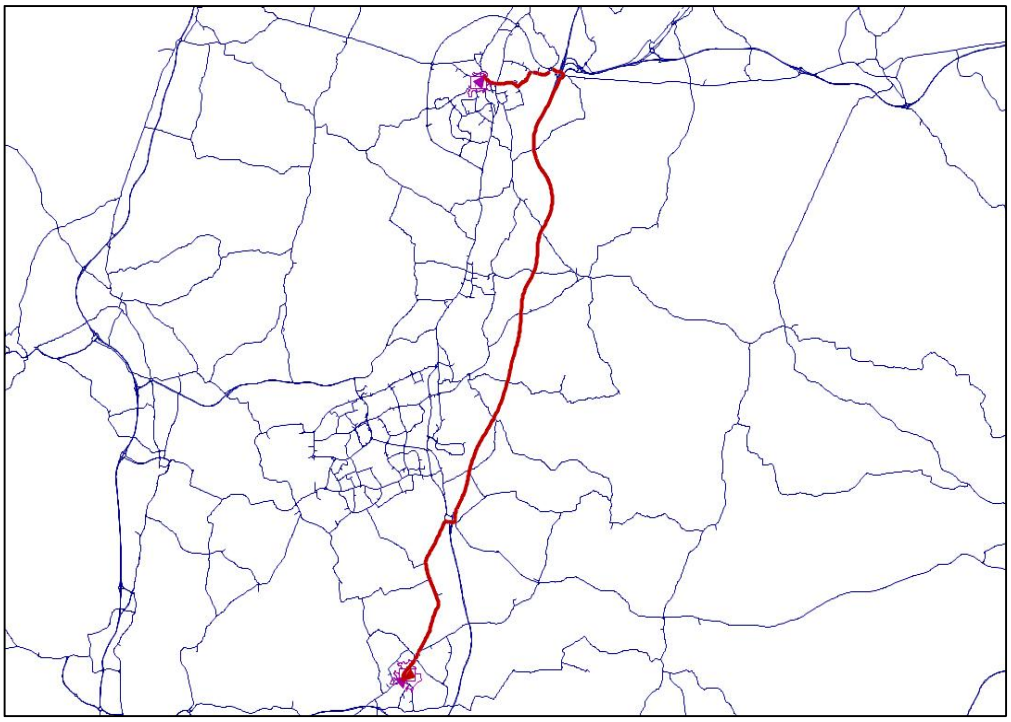
Car Routing: Harlow to Chelmsford:



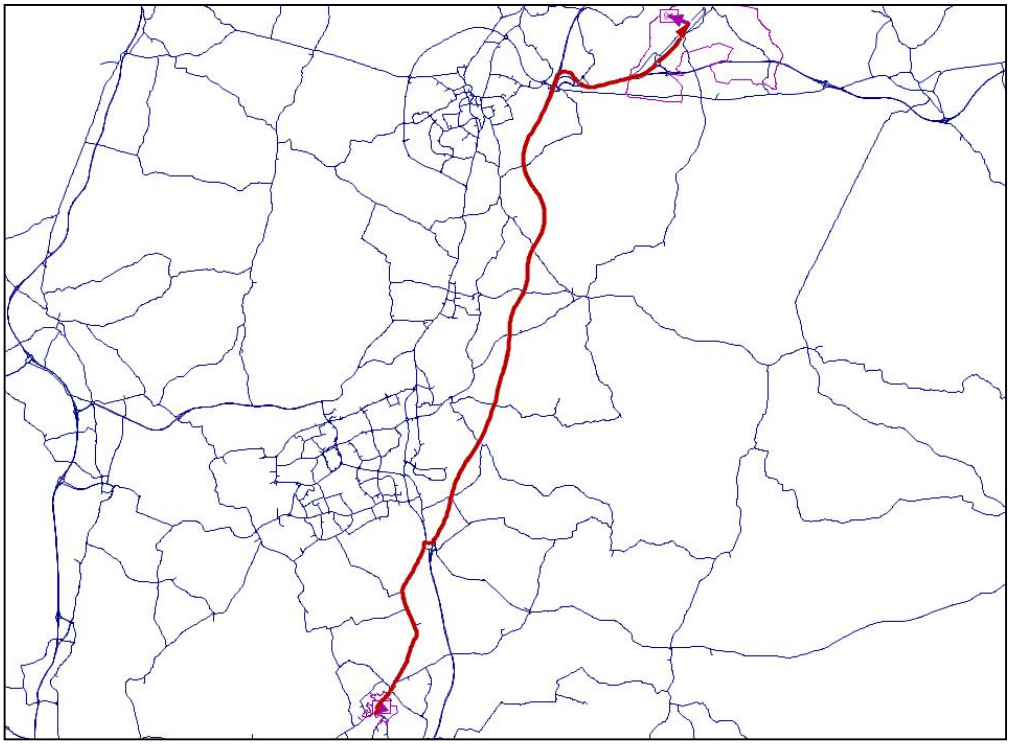
Car Routing: Cambridge to Stansted Airport:



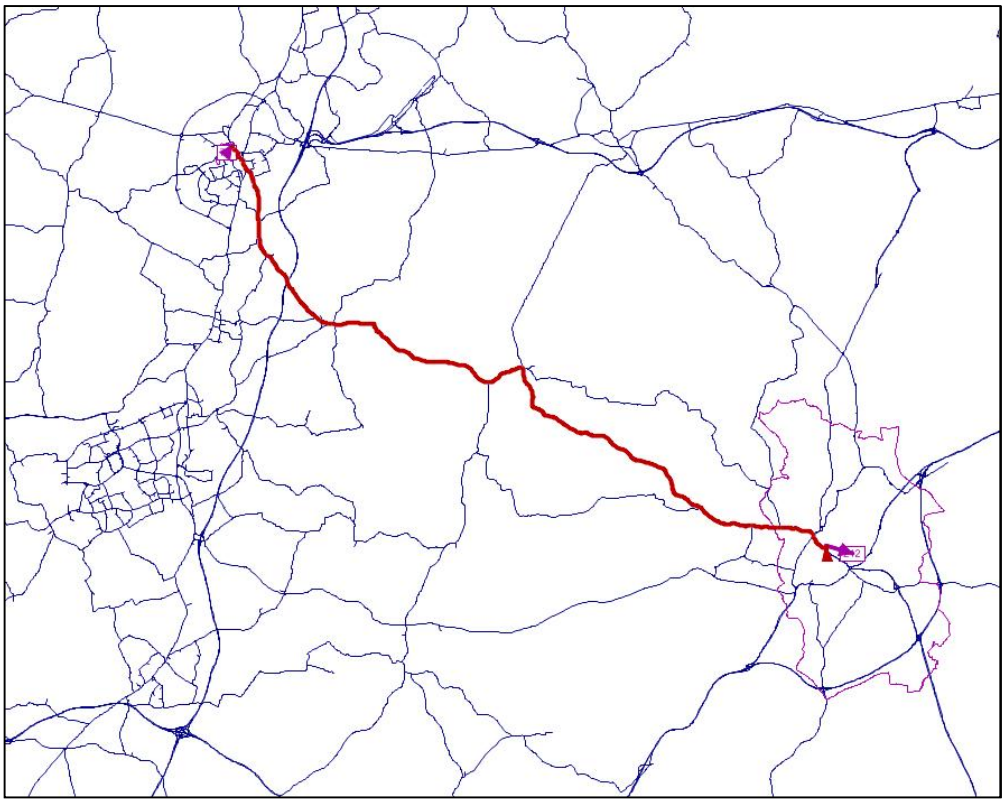
HGV Routing: Bishop's Stortford to Epping:



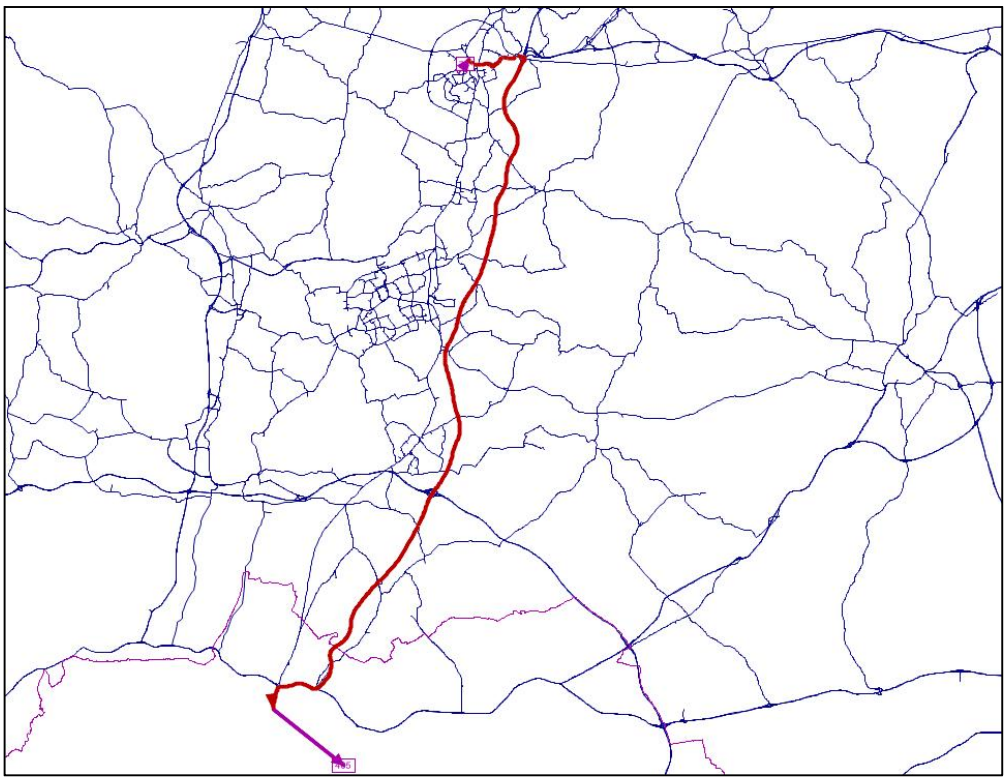
HGV Routing: Epping to Stansted Airport:



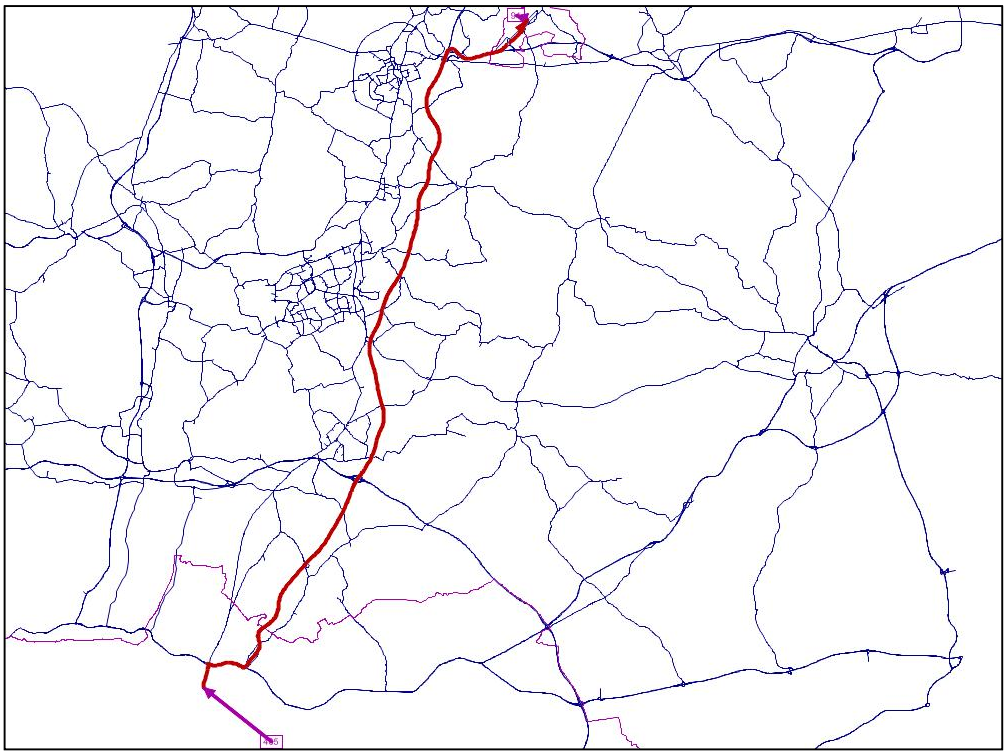
HGV Routing: Bishop’s Stortford to Chelmsford:



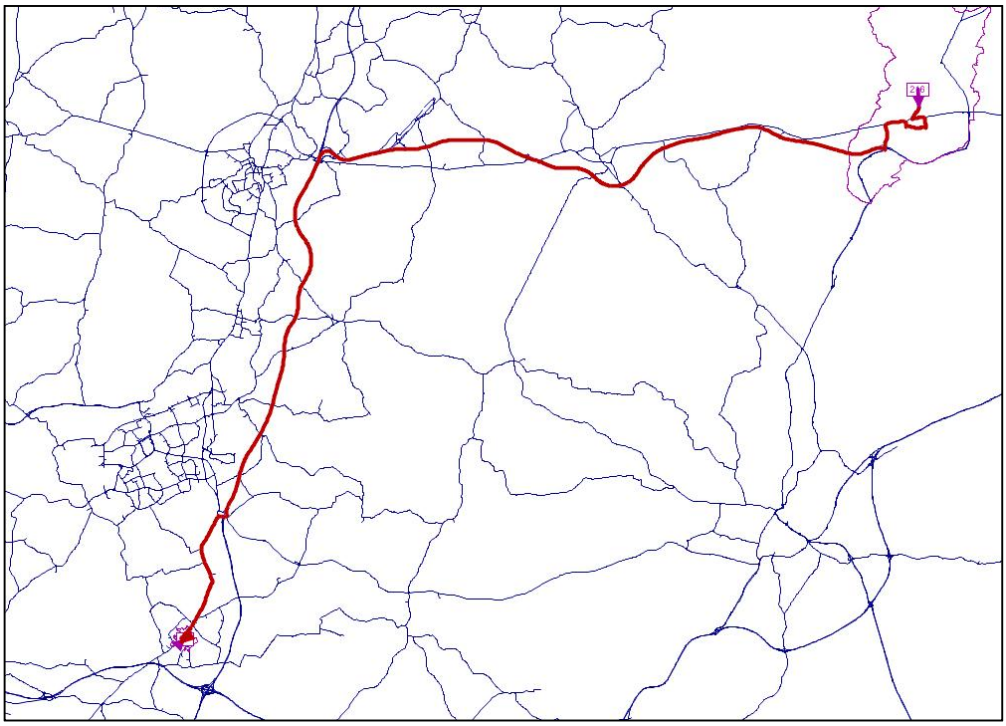
HGV Routing: Bishop’s Stortford to London:



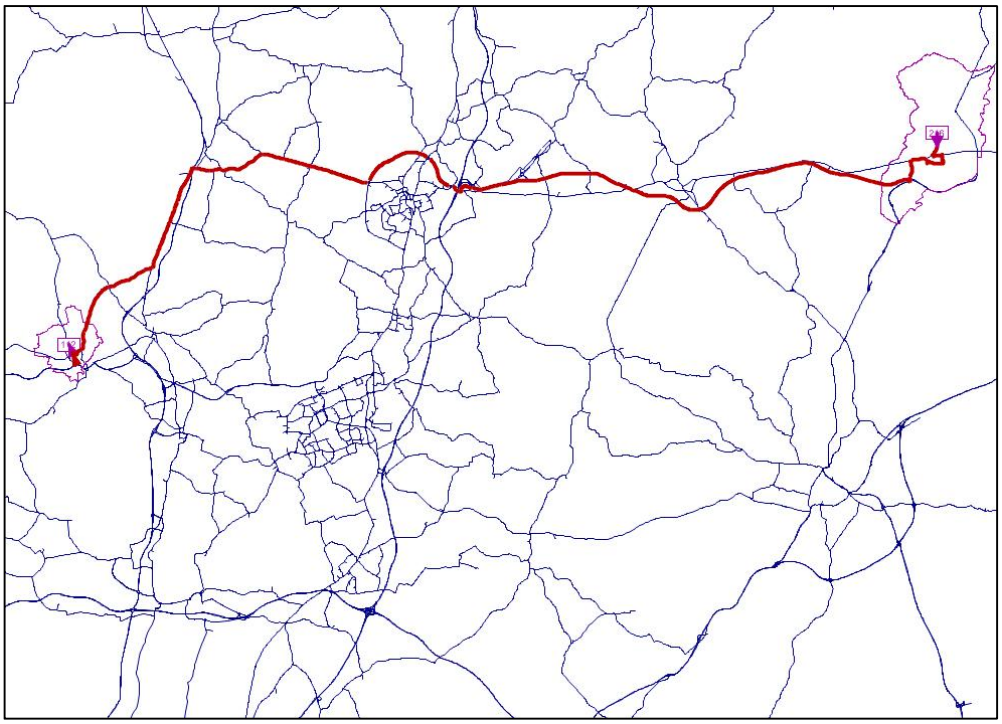
HGV Routing: London to Stansted Airport:



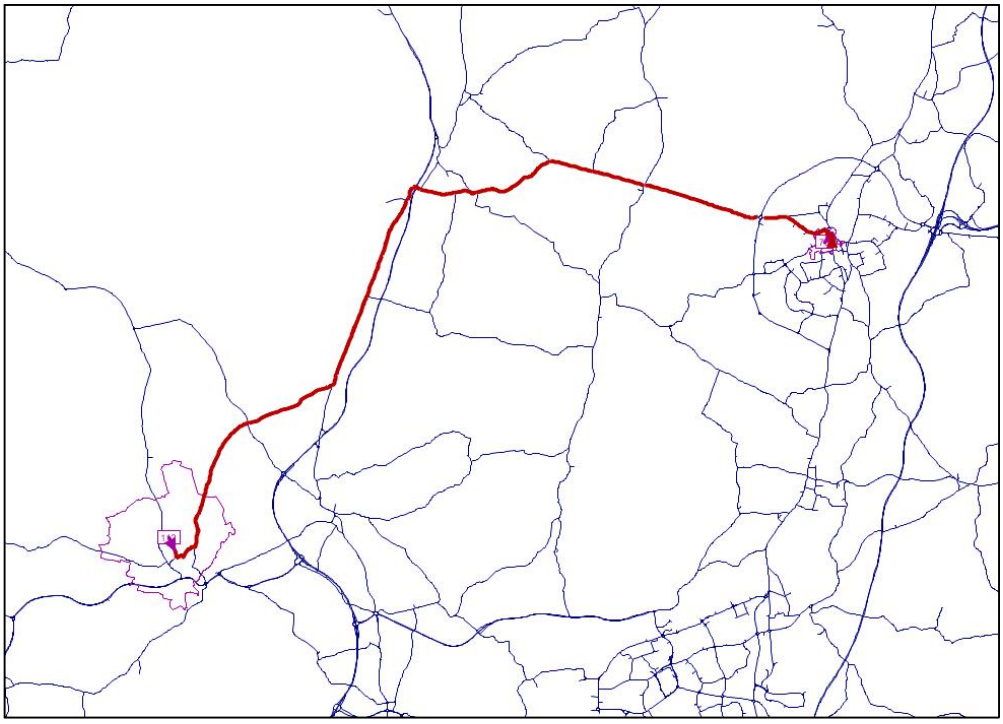
HGV Routing: Braintree to Epping:



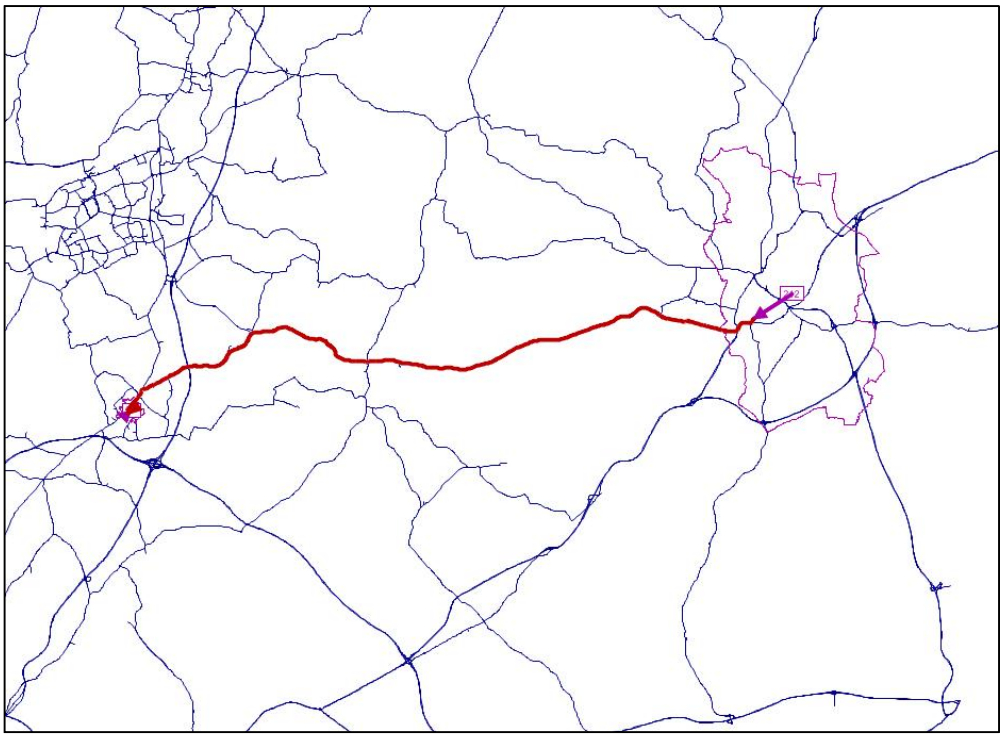
HGV Routing: Braintree to Hertford:



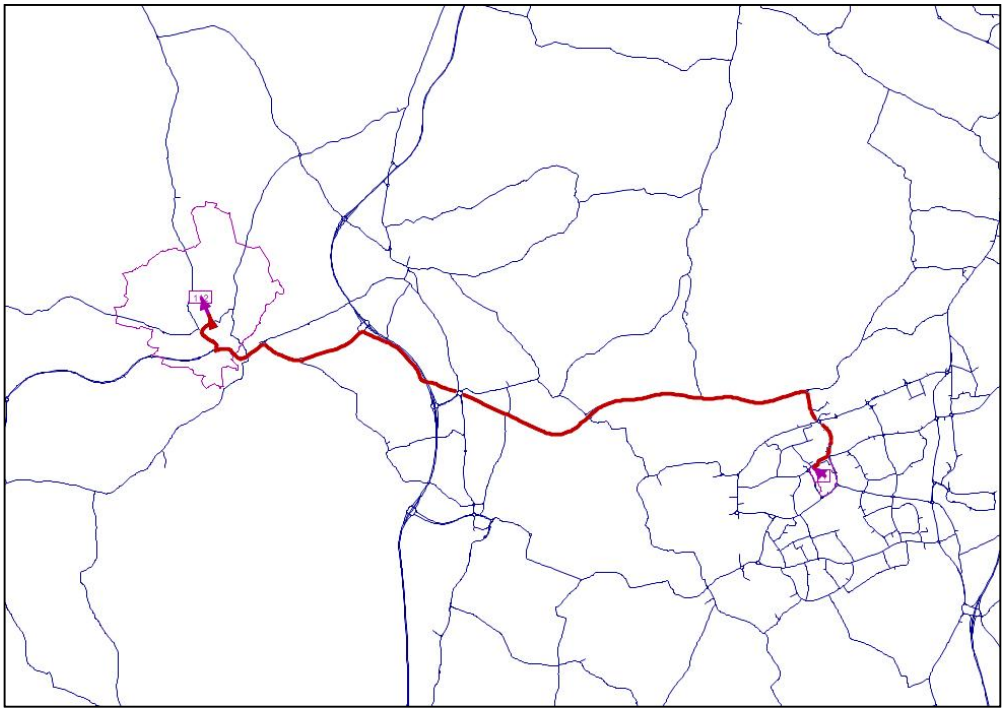
HGV Routing: Hertford to Bishop's Stortford:



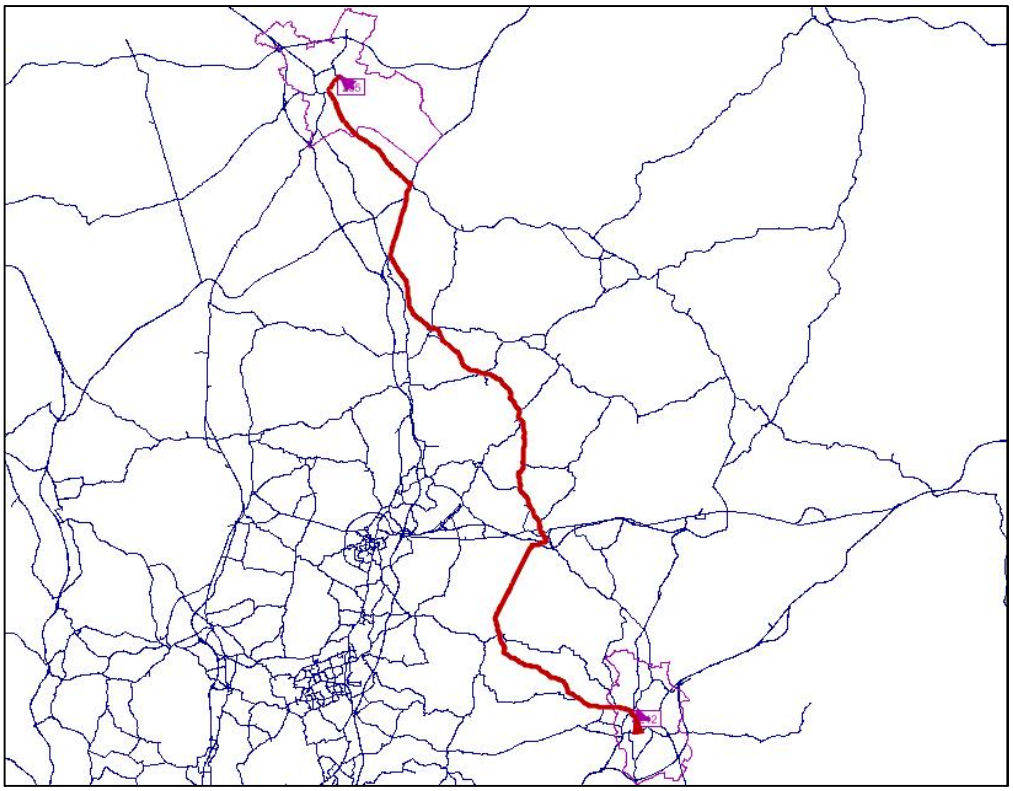
HGV Routing: Chelmsford to Epping:



HGV Routing: Harlow to Hertford:



HGV Routing: Cambridge to Chelmsford:



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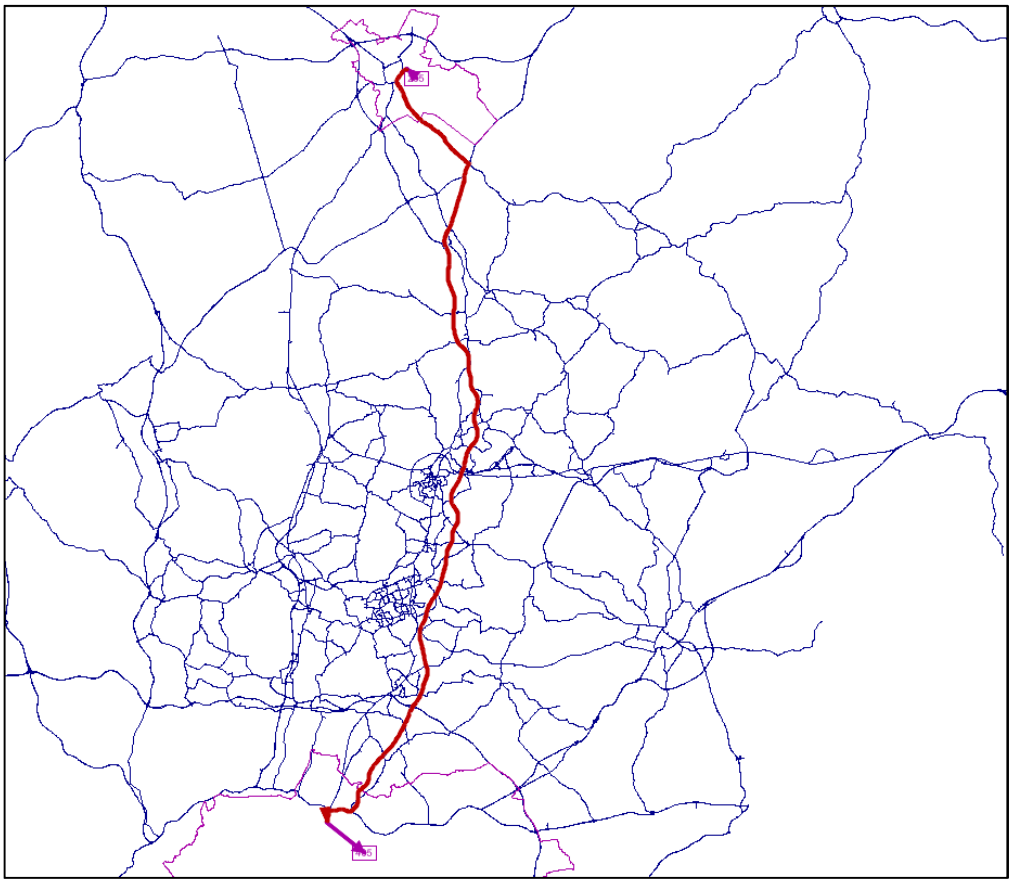
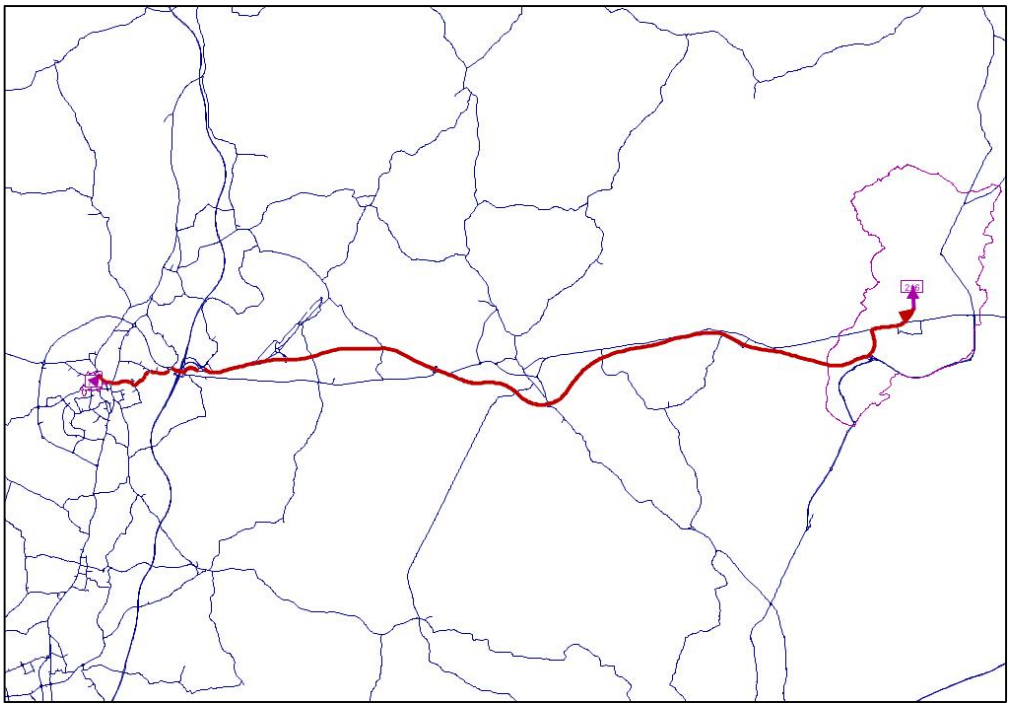
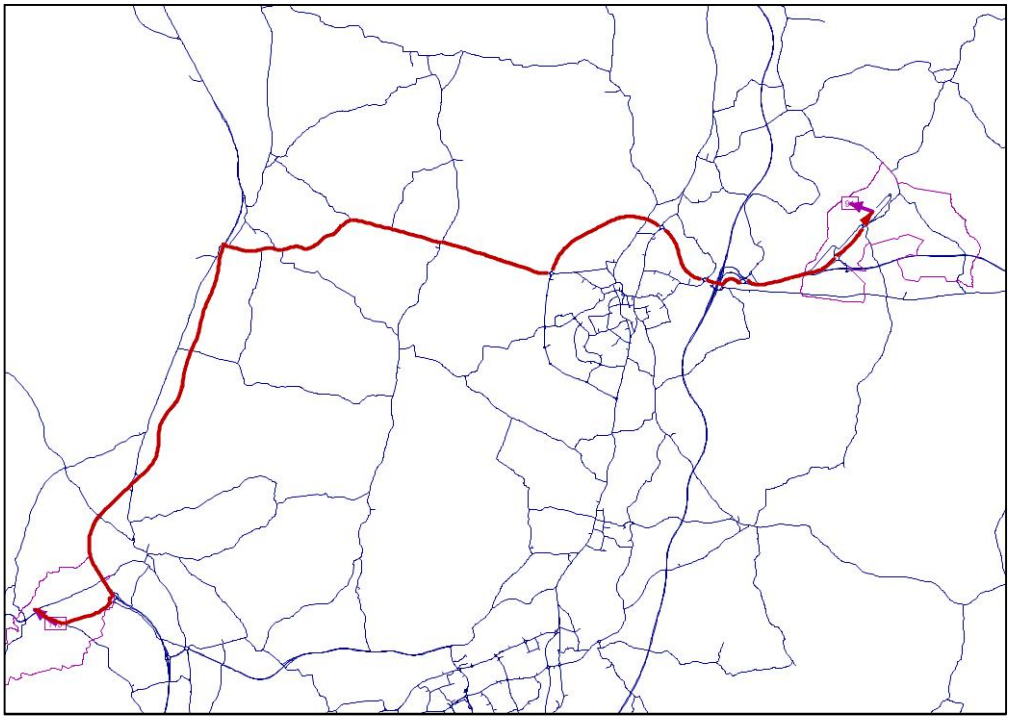


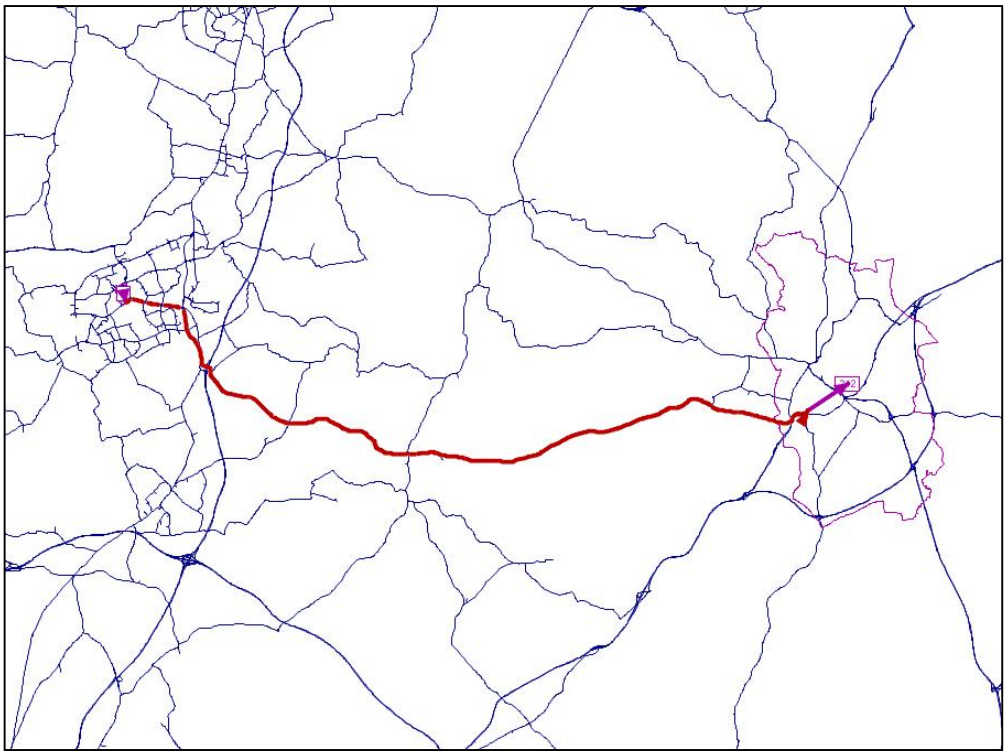
HGV Routing: Bishop's Stortford to Braintree:



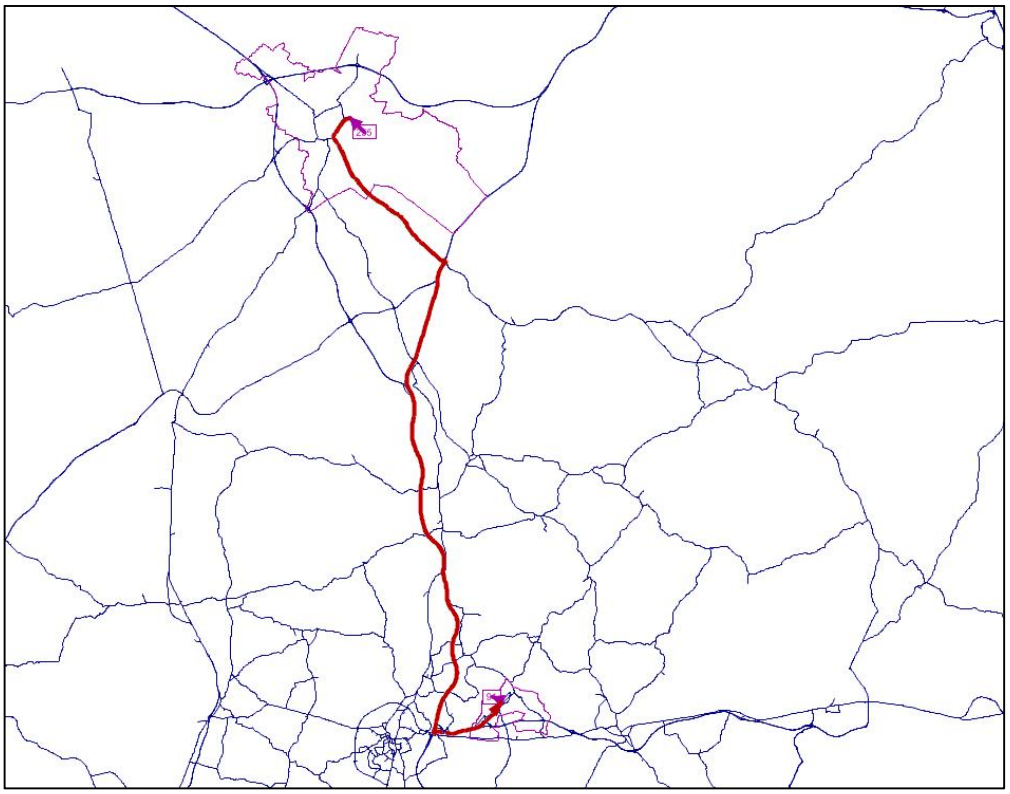
HGV Routing: Hertford to Stansted Airport:



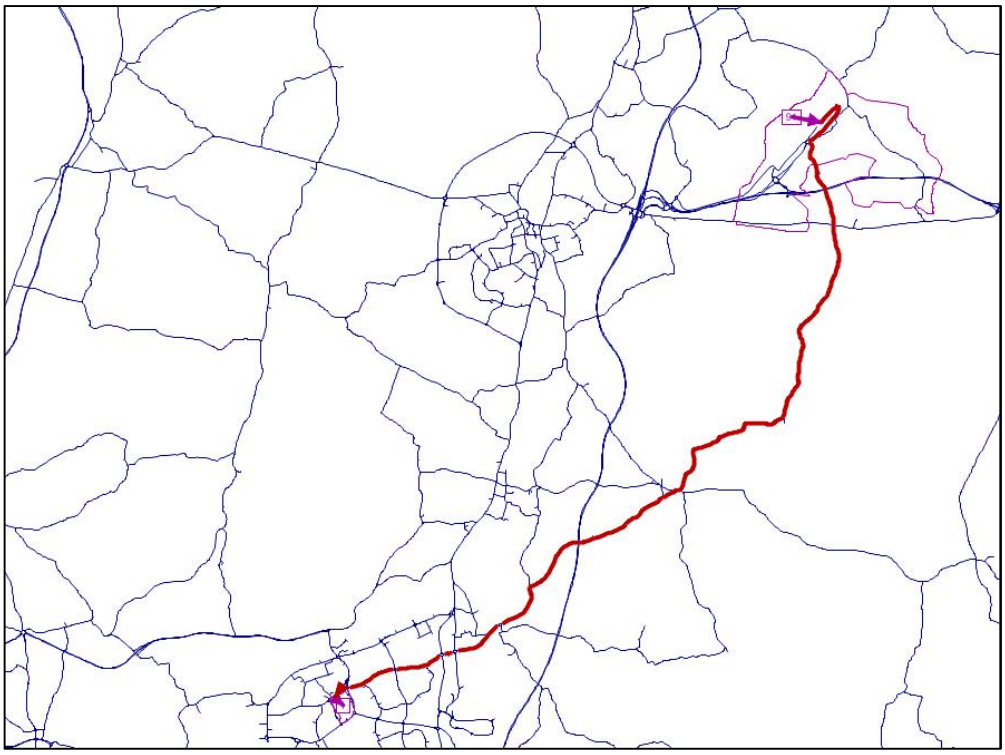
HGV Routing: Harlow to Chelmsford:



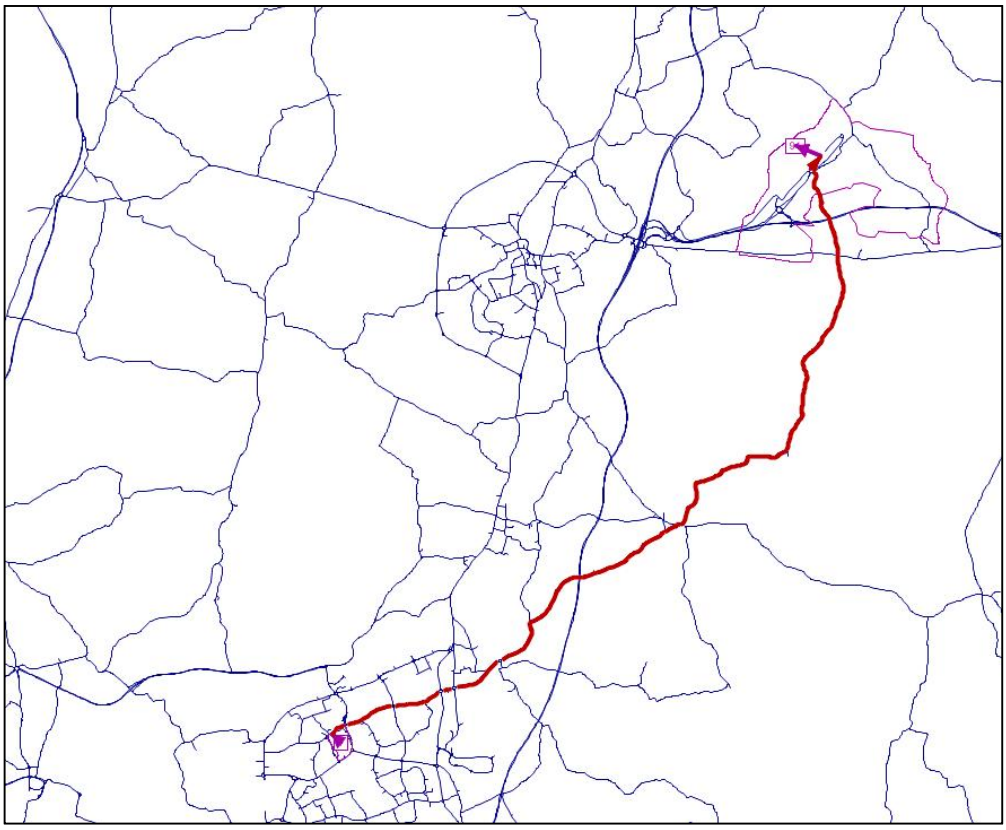
HGV Routing: Cambridge to Stansted Airport:



HGV Routing: Stansted Airport to Harlow:



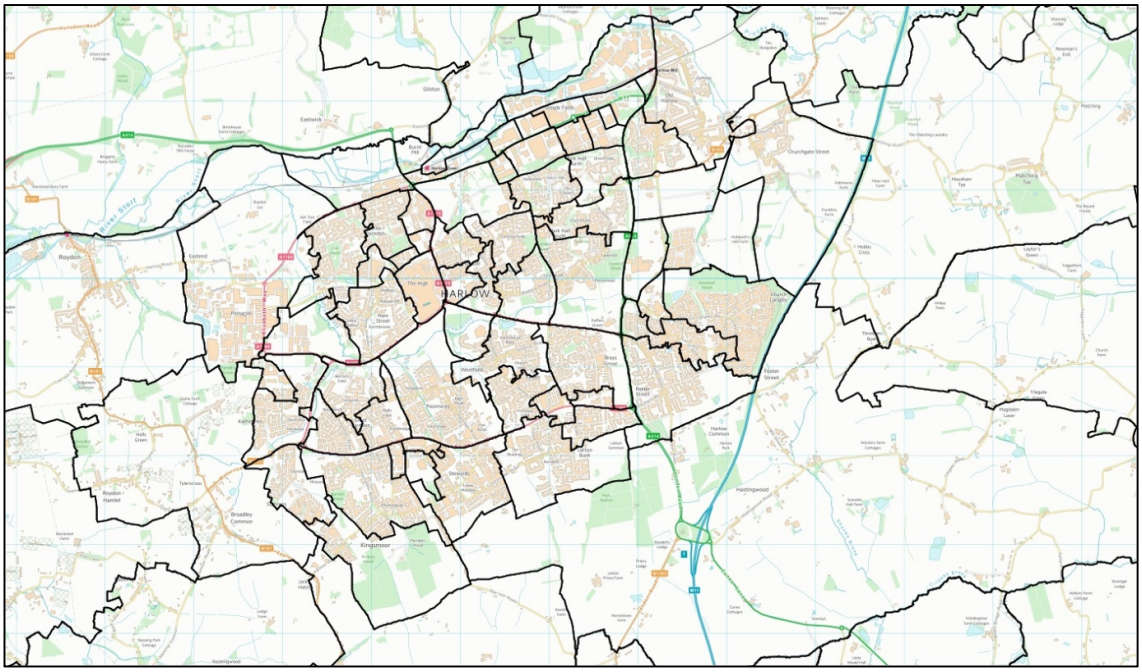
HGV Routing: Harlow to Stansted Airport:



Appendix H. Zone Structure

Zoning Diagrams

Harlow:



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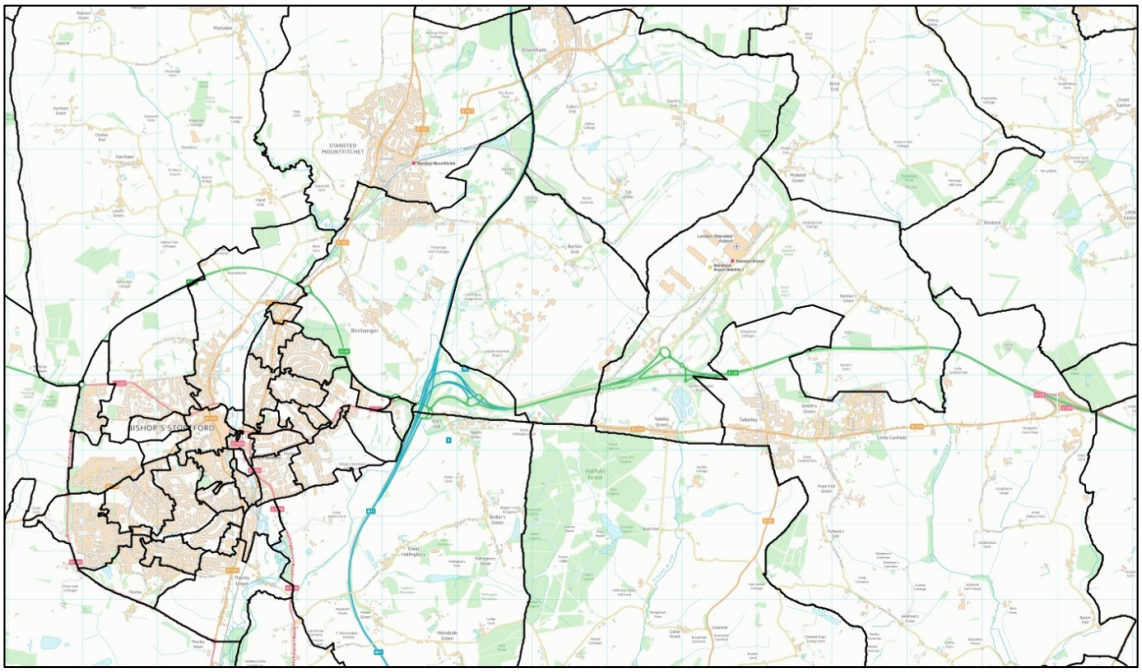
Bishop's Stortford and Stansted Airport:



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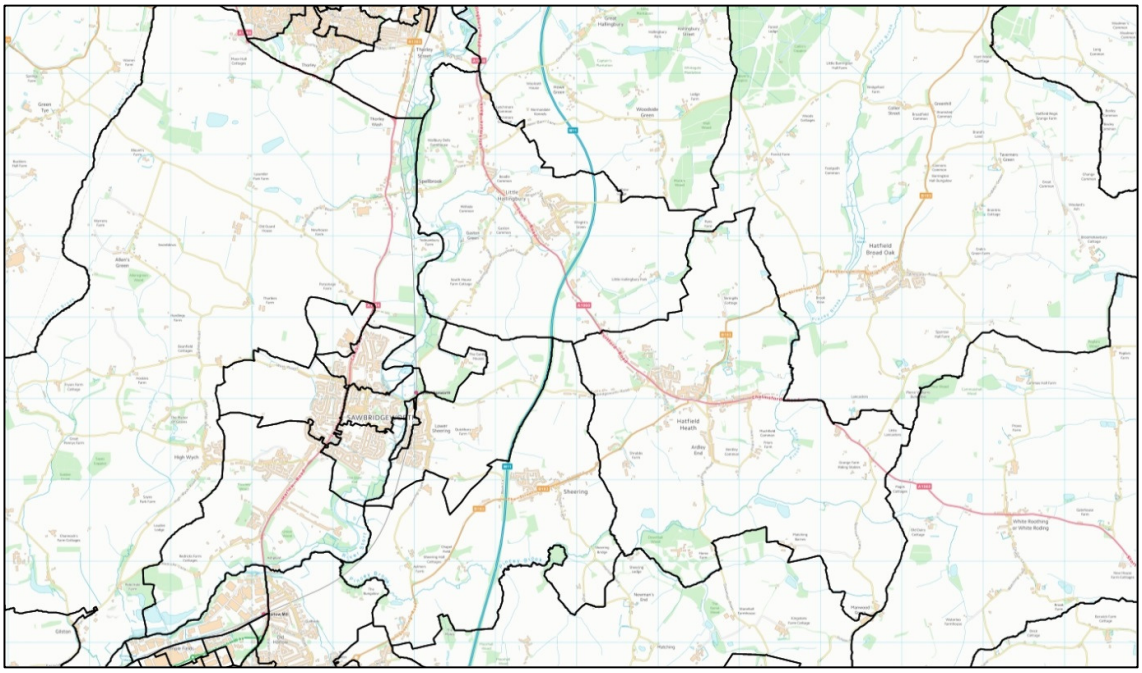
Sawbridgeworth and Hatfield Heath:



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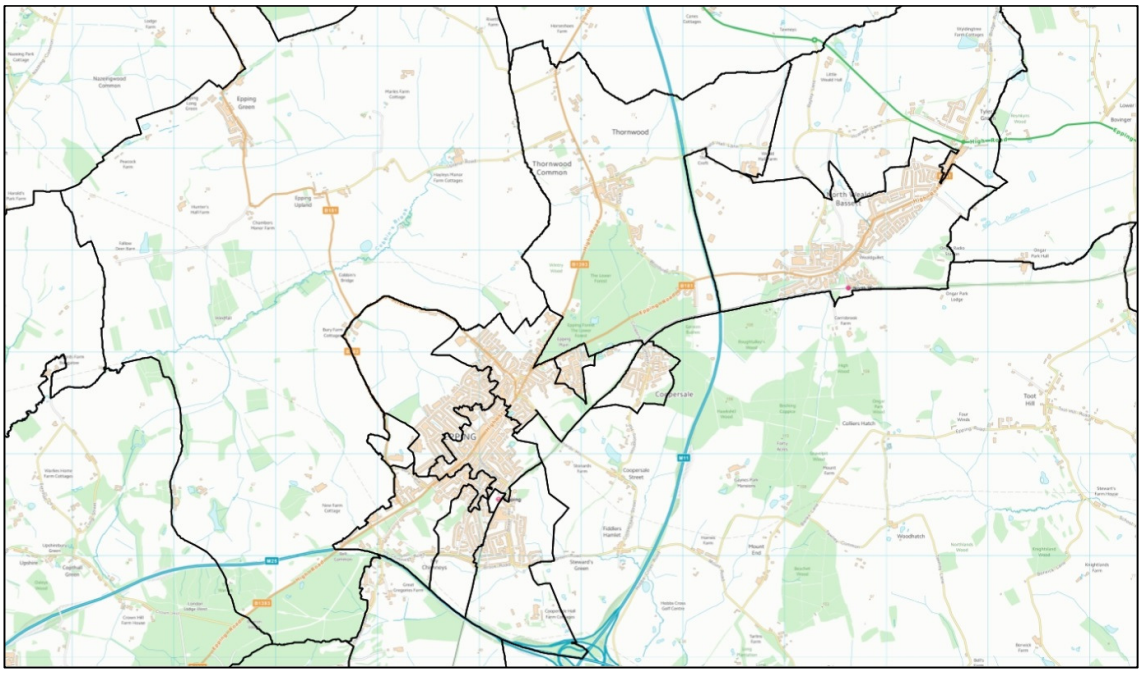
Epping:



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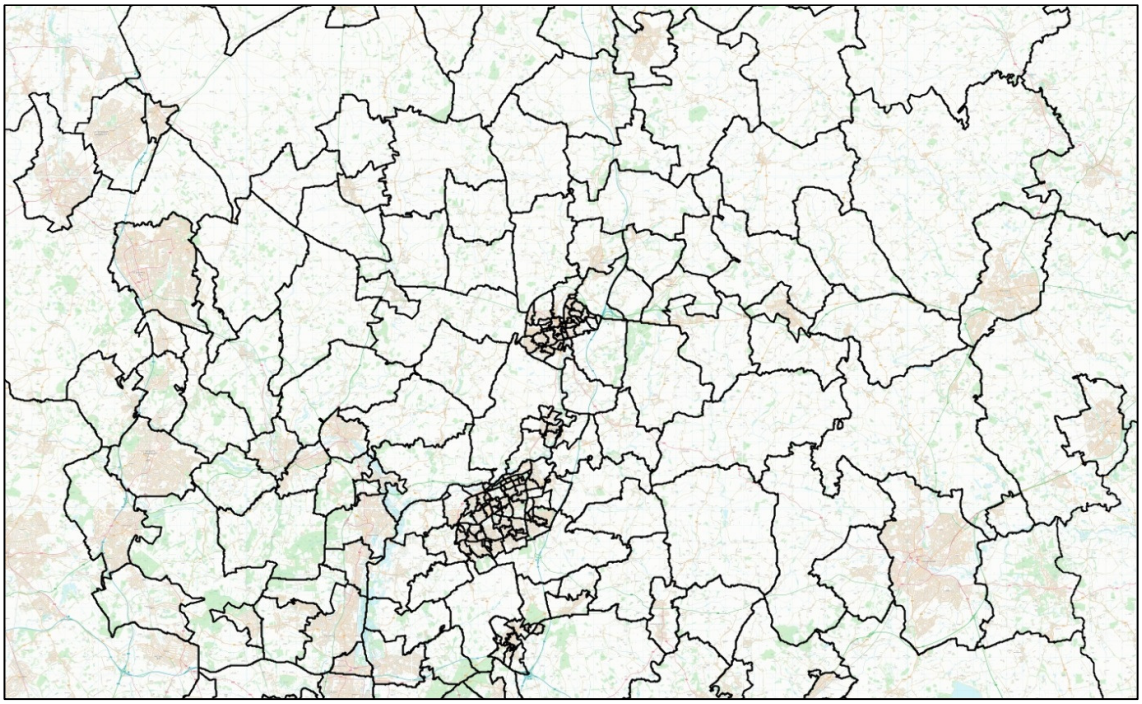
Wider Area:



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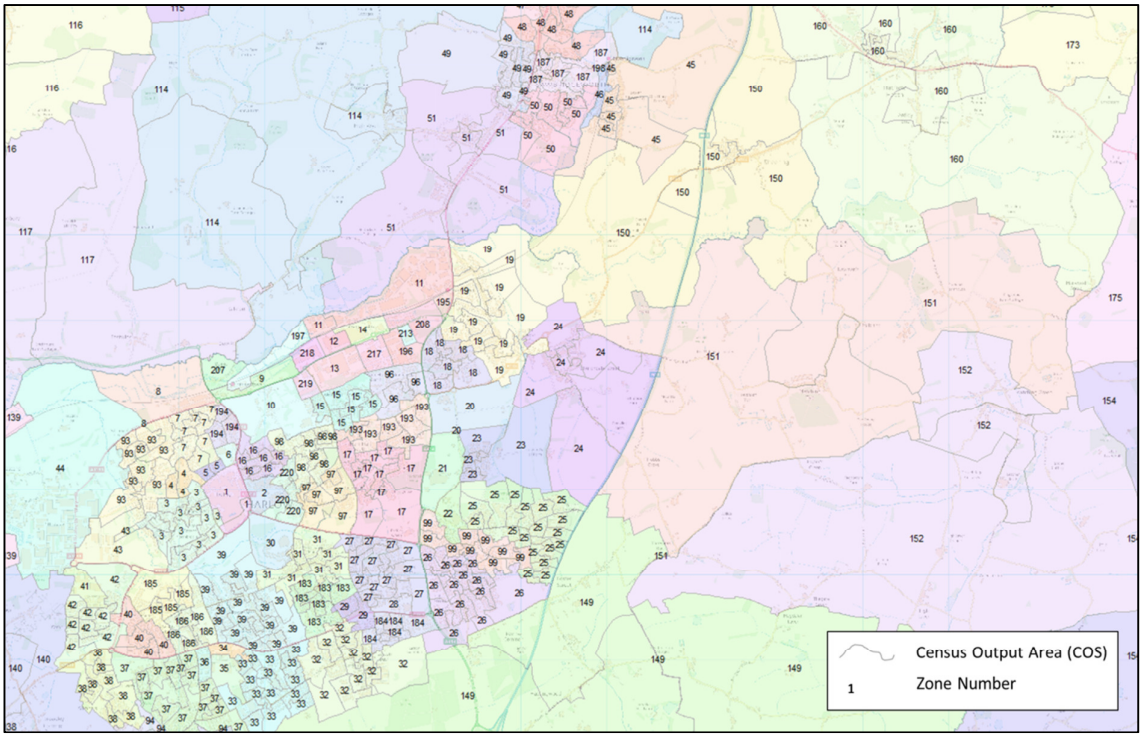
Full Model Extent:

Zone to Census Output Area (COA) Relationship

Harlow and Sawbridgeworth:



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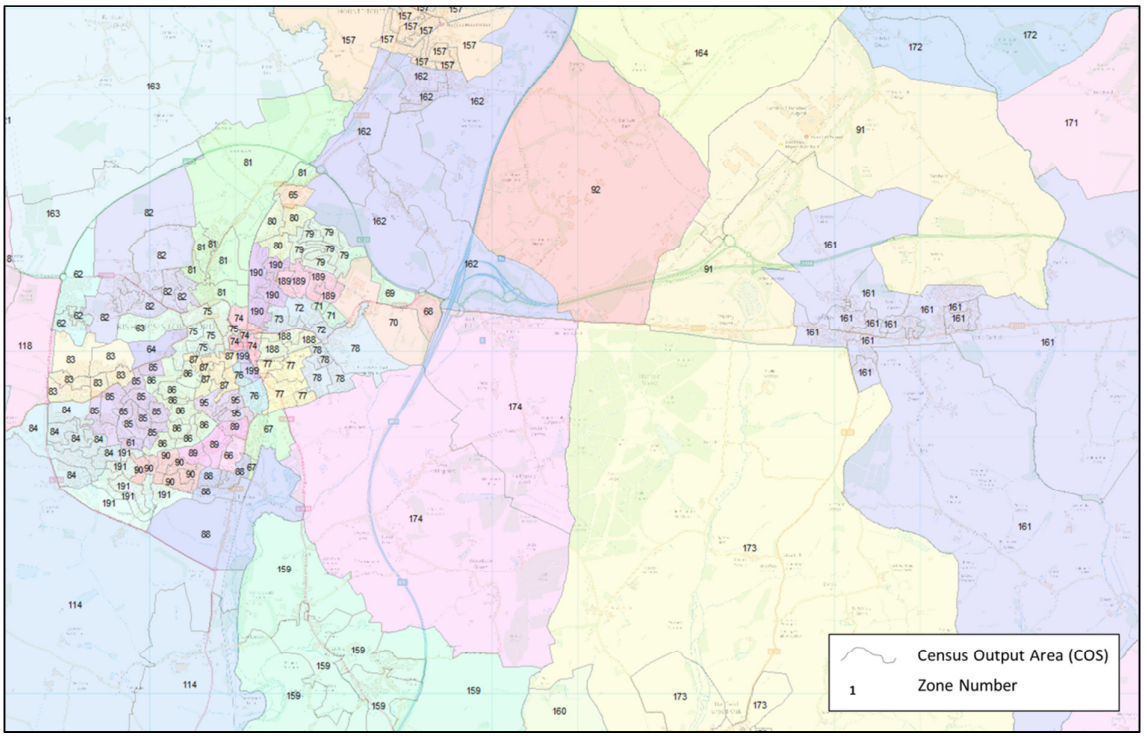
Bishop's Stortford and Stansted Airport:



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Sector to Zone Table

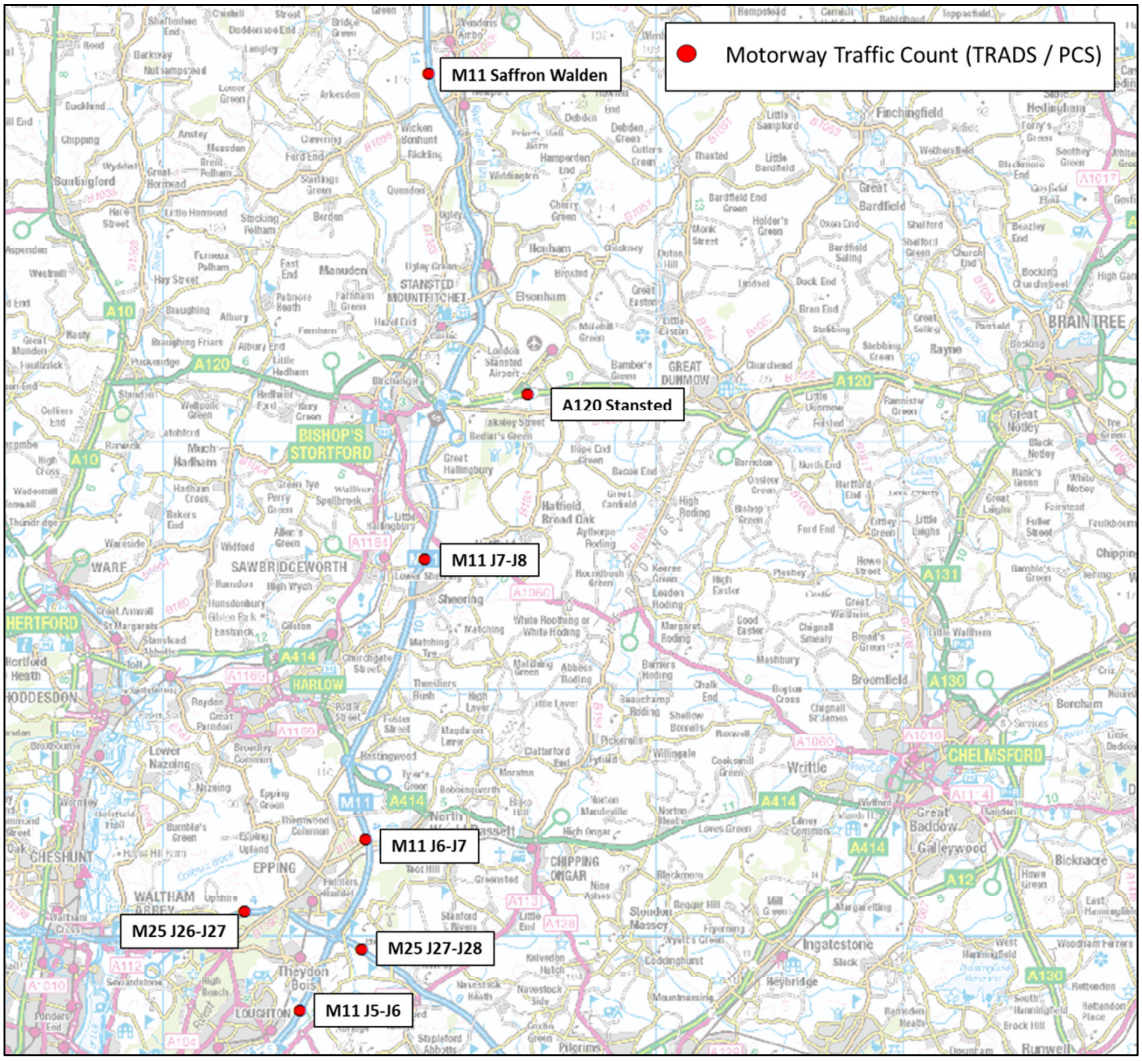
Sector	Sector Name	Zone Numbers
1	Stansted Airport	91-92
2	Bishop's Stortford	61-90, 95, 188-191, 199
3	Sawbridgeworth	45-51, 187, 198
4	Harlow West	1, 3-8, 33-44, 93-94, 185-186, 194, 207
5	Harlow East	2, 9-23, 25-32, 96-99, 183-184, 193, 195-197, 208, 213, 217-220
6	Epping	52-60
7	Hoddesdon & Cheshunt	100-105
8	Nazeing & Waltham Abbey	137-140, 144-148
9	Hertford & Ware	109-113, 127-129
10	Cambridge & Saffron Walden	158, 164-165, 170-172, 176-182, 255, 280-281, 284-286
11	Much Hadham and rural	106-108, 114-126, 130-133, 157, 159, 162-163, 166-167, 174
12	Hatfield Heath and rural	24, 134-136, 143, 149-156, 160-161, 168-169, 173, 175, 192
13	London & the South East	141-142, 200-203, 267, 405, 407, 409, 417
14	Essex & Suffolk	204-206, 209-212, 214, 216, 224, 268-277, 408, 410-411
15	Norfolk	414, 416
16	Luton & Stevenage	221, 238, 240, 243-247, 278-279, 283, 413
17	NW London & Herts	22-231, 234-235, 265-266, 406, 412
18	The North & Scotland	401-404
19	Wales & South West	400, 418, 420, 424
20	The Midlands	419, 422-423
21	Lincolnshire & Northamptonshire	415, 421

Appendix I. Motorway Flow Corrections

Motorway Vehicle Flow Correction

Changes to motorway flows were made to sections, which display differences between modelled and observed flow of greater than 10%. A map displaying the location of motorway count sites can be found below. These motorway locations, the flow differences associated with them and whether corrections were made are shown in the tables that follow.

Motorway Correction Traffic Count Locations



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Motorway Flow Differences Post Matrix Estimation – AM Car

Motorway Count Site	Direction	Modelled	Observed	Absolute Difference	% Difference	Correction Required
A120 Stansted	EB	747	826	-79	-10%	
A120 Stansted	WB	1393	1475	-82	-6%	
M11 Saffron Walden	NB	1817	1788	29	2%	
M11 Saffron Walden	SB	1558	1540	18	1%	
M11 J5-J6	NB	1386	1456	-70	-5%	
M11 J5-J6	SB	1830	1919	-89	-5%	
M11 J6-J7	NB	2408	2205	203	9%	
M11 J6-J7	SB	2845	2581	264	10%	✓
M11 J7-J8	NB	2076	1991	85	4%	
M11 J7-J8	SB	2454	2365	89	4%	
M25 J26-J27	EB	2975	2723	252	9%	
M25 J26-J27	WB	3074	2858	216	8%	
M25 J27-J28	EB	3442	3301	141	4%	
M25 J27-J28	WB	3548	3326	222	7%	

Motorway Flow Differences Post Matrix Estimation – AM LGV

Motorway Count Site	Direction	Modelled	Observed	Absolute Difference	% Difference	Correction Required
A120 Stansted	EB	147	159	-12	-8%	
A120 Stansted	WB	224	284	-60	-21%	✓
M11 Saffron Walden	NB	269	421	-152	-36%	✓
M11 Saffron Walden	SB	282	362	-80	-22%	✓
M11 J5-J6	NB	223	343	-120	-35%	✓
M11 J5-J6	SB	293	451	-158	-35%	✓
M11 J6-J7	NB	338	519	-181	-35%	✓
M11 J6-J7	SB	432	607	-175	-29%	✓
M11 J7-J8	NB	306	468	-162	-35%	✓
M11 J7-J8	SB	382	556	-174	-31%	✓
M25 J26-J27	EB	500	640	-140	-22%	✓
M25 J26-J27	WB	537	672	-135	-20%	✓
M25 J27-J28	EB	589	776	-187	-24%	✓
M25 J27-J28	WB	602	782	-180	-23%	✓

Motorway Flow Differences Post Matrix Estimation – AM HGV

Motorway Count Site	Direction	Modelled	Observed	Absolute Difference	% Difference	Correction Required
A120 Stansted	EB	23	53	-30	-57%	✓
A120 Stansted	WB	57	94	-37	-39%	✓
M11 Saffron Walden	NB	113	163	-50	-31%	✓
M11 Saffron Walden	SB	76	140	-64	-46%	✓
M11 J5-J6	NB	101	132	-31	-23%	✓
M11 J5-J6	SB	124	174	-50	-29%	✓
M11 J6-J7	NB	187	200	-13	-7%	
M11 J6-J7	SB	193	235	-42	-18%	✓
M11 J7-J8	NB	139	181	-42	-23%	✓
M11 J7-J8	SB	143	215	-72	-33%	✓
M25 J26-J27	EB	174	248	-74	-30%	✓
M25 J26-J27	WB	171	260	-89	-34%	✓
M25 J27-J28	EB	218	300	-82	-27%	✓
M25 J27-J28	WB	232	302	-70	-23%	✓

Motorway Flow Differences Post Matrix Estimation – IP Car

Motorway Count Site	Direction	Modelled	Observed	Absolute Difference	% Difference	Correction Required
A120 Stansted	EB	678	765	-87	-11%	✓
A120 Stansted	WB	685	806	-121	-15%	✓
M11 Saffron Walden	NB	1479	1605	-126	-8%	
M11 Saffron Walden	SB	1224	1334	-110	-8%	
M11 J5-J6	NB	1164	1319	-155	-12%	✓
M11 J5-J6	SB	1126	1286	-160	-12%	✓
M11 J6-J7	NB	2093	1948	145	7%	
M11 J6-J7	SB	1861	1885	-24	-1%	
M11 J7-J8	NB	1877	1793	84	5%	
M11 J7-J8	SB	1585	1688	-103	-6%	
M25 J26-J27	EB	2170	2192	-22	-1%	
M25 J26-J27	WB	2086	2245	-159	-7%	
M25 J27-J28	EB	2305	2448	-143	-6%	
M25 J27-J28	WB	2416	2510	-94	-4%	

Motorway Flow Differences Post Matrix Estimation – IP LGV

Motorway Count Site	Direction	Modelled	Observed	Absolute Difference	% Difference	Correction Required
A120 Stansted	EB	146	160	-14	-9%	
A120 Stansted	WB	128	168	-40	-24%	✓
M11 Saffron Walden	NB	337	586	-249	-42%	✓
M11 Saffron Walden	SB	332	486	-154	-32%	✓
M11 J5-J6	NB	283	481	-198	-41%	✓
M11 J5-J6	SB	268	469	-201	-43%	✓
M11 J6-J7	NB	441	711	-270	-38%	✓
M11 J6-J7	SB	443	688	-245	-36%	✓
M11 J7-J8	NB	405	654	-249	-38%	✓
M11 J7-J8	SB	378	616	-238	-39%	✓
M25 J26-J27	EB	521	799	-278	-35%	✓
M25 J26-J27	WB	547	819	-272	-33%	✓
M25 J27-J28	EB	604	893	-289	-32%	✓
M25 J27-J28	WB	613	916	-303	-33%	✓

Motorway Flow Differences Post Matrix Estimation – IP HGV

Motorway Count Site	Direction	Modelled	Observed	Absolute Difference	% Difference	Correction Required
A120 Stansted	EB	16	30	-14	-47%	✓
A120 Stansted	WB	18	32	-14	-44%	✓
M11 Saffron Walden	NB	83	146	-63	-43%	✓
M11 Saffron Walden	SB	68	122	-54	-44%	✓
M11 J5-J6	NB	70	120	-50	-42%	✓
M11 J5-J6	SB	69	117	-48	-41%	✓
M11 J6-J7	NB	122	178	-56	-31%	✓
M11 J6-J7	SB	116	172	-56	-33%	✓
M11 J7-J8	NB	101	164	-63	-38%	✓
M11 J7-J8	SB	93	154	-61	-40%	✓
M25 J26-J27	EB	119	200	-81	-41%	✓
M25 J26-J27	WB	119	205	-86	-42%	✓
M25 J27-J28	EB	143	223	-80	-36%	✓
M25 J27-J28	WB	148	229	-81	-35%	✓

Motorway Flow Differences Post Matrix Estimation – PM Car

Motorway Count Site	Direction	Modelled	Observed	Absolute Difference	% Difference	Correction Required
A120 Stansted	EB	1780	1872	-92	-5%	
A120 Stansted	WB	866	941	-75	-8%	
M11 Saffron Walden	NB	1994	1968	26	1%	
M11 Saffron Walden	SB	2151	2019	132	7%	
M11 J5-J6	NB	2711	2937	-226	-8%	
M11 J5-J6	SB	1698	1887	-189	-10%	✓
M11 J6-J7	NB	3877	3418	459	13%	✓
M11 J6-J7	SB	2856	2617	239	9%	
M11 J7-J8	NB	3168	3023	145	5%	
M11 J7-J8	SB	2425	2409	16	1%	
M25 J26-J27	EB	3811	3693	118	3%	
M25 J26-J27	WB	3208	3212	-4	0%	
M25 J27-J28	EB	4369	4429	-60	-1%	
M25 J27-J28	WB	3773	3738	35	1%	

Motorway Flow Differences Post Matrix Estimation – PM LGV

Motorway Count Site	Direction	Modelled	Observed	Absolute Difference	% Difference	Correction Required
A120 Stansted	EB	254	299	-45	-15%	✓
A120 Stansted	WB	109	151	-42	-28%	✓
M11 Saffron Walden	NB	465	422	43	10%	✓
M11 Saffron Walden	SB	491	433	58	13%	✓
M11 J5-J6	NB	617	630	-13	-2%	
M11 J5-J6	SB	394	405	-11	-3%	
M11 J6-J7	NB	705	733	-28	-4%	
M11 J6-J7	SB	513	561	-48	-9%	
M11 J7-J8	NB	608	648	-40	-6%	
M11 J7-J8	SB	500	517	-17	-3%	
M25 J26-J27	EB	819	792	27	3%	
M25 J26-J27	WB	718	689	29	4%	
M25 J27-J28	EB	913	950	-37	-4%	
M25 J27-J28	WB	783	801	-18	-2%	

Motorway Flow Differences Post Matrix Estimation – PM HGV

Motorway Count Site	Direction	Modelled	Observed	Absolute Difference	% Difference	Correction Required
A120 Stansted	EB	9	40	-31	-78%	✓
A120 Stansted	WB	8	20	-12	-60%	✓
M11 Saffron Walden	NB	75	71	4	6%	
M11 Saffron Walden	SB	71	72	-1	-1%	
M11 J5-J6	NB	72	105	-33	-31%	✓
M11 J5-J6	SB	61	68	-7	-10%	✓
M11 J6-J7	NB	120	123	-3	-2%	
M11 J6-J7	SB	86	94	-8	-9%	
M11 J7-J8	NB	88	109	-21	-19%	✓
M11 J7-J8	SB	75	86	-11	-13%	✓
M25 J26-J27	EB	55	133	-78	-59%	✓
M25 J26-J27	WB	105	115	-10	-9%	
M25 J27-J28	EB	74	159	-85	-53%	✓
M25 J27-J28	WB	147	134	13	10%	

Appendix J. Supplementary Classified Turning Count Validation

			Observed Flows [veh]				Modelled Flows [veh]				Absolute Differences				%age Differences				Flow Differences Criterion				GEH>5				GEH>10			
			AM				AM				AM				AM				AM				AM				AM			
SiteNo	Junction	Turn	CAR	LGV	HGV	Total	CAR	LGV	HGV	Total	CAR	LGV	HGV	Total	CAR	LGV	HGV	Total	CAR	LGV	HGV	Total	CAR	LGV	HGV	Total	CAR	LGV	HGV	Total
1	Roydon Road / A1169 Elizabeth Way	B to B	1	0	0	1	0	0	0	0	-1	0	0	-1	-100%	0%	0%	-100%	Pass	Pass	Pass	Pass	1	0	0	1	1	0	0	1
		B to C	310	42	17	369	198	87	31	317	-112	45	14	-52	-36%	107%	82%	-14%	Fail	Pass	Pass	Pass	7	6	3	3	7	6	3	3
		B to A	461	31	10	502	76	85	30	191	-385	54	20	-311	-84%	174%	200%	-62%	Fail	Pass	Pass	Fail	23	7	4	17	23	7	4	17
		C to B	290	38	14	342	48	9	2	59	-242	-29	-12	-283	-83%	-76%	-86%	-83%	Fail	Pass	Pass	Fail	19	6	4	20	19	6	4	20
		C to C	3	0	1	4	0	0	0	0	-3	0	-1	-4	-300%	0%	-100%	-400%	Pass	Pass	Pass	Pass	2	0	1	3	2	0	1	3
		C to A	278	19	7	304	77	27	10	114	-201	8	3	-190	-72%	42%	43%	-63%	Fail	Pass	Pass	Fail	15	2	1	13	15	2	1	13
		A to B	215	31	4	250	18	3	1	22	-197	-28	-3	-228	-92%	-90%	-75%	-91%	Fail	Pass	Pass	Fail	18	7	2	20	18	7	2	20
		A to C	103	25	6	134	105	81	47	232	2	56	41	98	2%	224%	683%	73%	Pass	Pass	Pass	Pass	0	8	8	7	0	8	8	7
		A to A	1	0	0	1	0	0	0	0	-1	0	0	-1	-100%	0%	0%	-100%	Pass	Pass	Pass	Pass	1	0	0	1	1	0	0	1
2	A1169 Elizabeth Way / Flex Meadow / Access to GSK / Third Ave	A to A	2	0	1	3	0	0	0	0	-2	0	-1	-3	-200%	0%	-100%	-300%	Pass	Pass	Pass	Pass	2	0	1	2	2	0	1	2
		A to B	81	5	3	89	4	1	1	6	-77	-4	-2	-83	-95%	-80%	-67%	-93%	Pass	Pass	Pass	Pass	12	2	1	12	12	2	1	12
		A to E	176	52	9	237	141	23	7	170	-35	-29	-2	-67	-20%	-56%	-22%	-28%	Pass	Pass	Pass	Pass	3	5	1	5	3	5	1	5
		E to A	729	57	16	802	975	138	30	1143	246	81	14	341	34%	142%	88%	43%	Fail	Pass	Pass	Fail	8	8	3	11	8	8	3	11
		E to B	100	14	6	120	34	6	1	42	-66	-8	-5	-78	-66%	-57%	-83%	-65%	Pass	Pass	Pass	Pass	8	3	3	9	8	3	3	9
		E to E	0	0	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	Pass	Pass	Pass	Pass	0	0	0	0	0	0	0	0
		B to A	16	8	5	29	3	7	3	13	-13	-1	-2	-16	-81%	-13%	-40%	-55%	Pass	Pass	Pass	Pass	4	0	1	3	4	0	1	3
		B to E	13	2	2	17	10	9	3	22	-3	7	1	5	-23%	350%	50%	29%	Pass	Pass	Pass	Pass	1	3	1	1	1	3	1	1
		B to B	0	0	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	Pass	Pass	Pass	Pass	0	0	0	0	0	0	0	0
3	A1169 Third Ave / Peldon Rd / A1169 Katherine's Way / A1025 Third Ave	A to A	1	0	0	1	0	0	0	0	-1	0	0	-1	-100%	0%	0%	-100%	Pass	Pass	Pass	Pass	1	0	0	1	1	0	0	1
		A to C	163	39	6	208	128	44	11	183	-35	5	5	-25	-21%	13%	83%	-12%	Pass	Pass	Pass	Pass	3	1	2	2	3	1	2	2
		A to D	36	9	6	51	102	39	9	151	66	30	3	100	183%	333%	50%	196%	Pass	Pass	Pass	Pass	8	6	1	10	8	6	1	10
		C to A	706	56	10	772	581	88	19	687	-125	32	9	-85	-18%	57%	90%	-11%	Fail	Pass	Pass	Pass	5	4	2	3	5	4	2	3
		C to C	0	0	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	Pass	Pass	Pass	Pass	0	0	0	0	0	0	0	0
		C to D	308	17	5	330	455	18	1	474	147	1	-4	144	48%	6%	-80%	44%	Fail	Pass	Pass	Fail	8	0	2	7	8	0	2	7
		D to A	142	14	12	168	602	215	44	862	460	201	32	694	324%	1436%	267%	413%	Fail	Fail	Pass	Fail	24	19	6	31	24	19	6	31
		D to C	171	17	6	194	64	14	1	79	-107	-3	-5	-115	-63%	-18%	-83%	-59%	Fail	Pass	Pass	Fail	10	1	3	10	10	1	3	10
		D to D	0	0	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	Pass	Pass	Pass	Pass	0	0	0	0	0	0	0	0
4	A1019 Velizy Ave / South Gate / A1025 Third Avenue / A1025 Second Avenue	C to C	3	0	0	3	2	3	1	6	-1	3	1	3	-33%	300%	100%	100%	Pass	Pass	Pass	Pass	1	2	1	1	1	2	1	1
		C to D	347	25	14	386	371	80	17	468	24	55	3	82	7%	220%	21%	21%	Pass	Pass	Pass	Pass	1	8	1	4	1	8	1	4
		C to A	314	25	8	347	193	34	5	232	-121	9	-3	-115	-39%	36%	-38%	-33%	Fail	Pass	Pass	Fail	8	2	1	7	8	2	1	7
		D to C	601	31	23	655	593	155	15	762	-8	124	-8	107	-1%	400%	-35%	16%	Pass	Fail	Pass	Fail	0	13	2	4	0	13	2	4
		D to D	17	2	0	19	0	0	0	0	-17	-2	0	-19	-1700%	-200%	0%	-1900%	Pass	Pass	Pass	Pass	6	2	0	6	6	2	0	6
		D to A	325	34	10	369	301	66	42	409	-24	32	32	40	-7%	94%	320%	11%	Pass	Pass	Pass	Pass	1	5	6	2	1	5	6	2
		A to C	202	27	6	235	242	18	14	273	40	-9	8	38	20%	-33%	133%	16%	Pass	Pass	Pass	Pass	3	2	3	2	3	2	3	2
		A to D	232	52	19	303	172	61	25	257	-60	9	6	-46	-26%	17%	32%	-15%	Pass	Pass	Pass	Pass	4	1	1	3	4	1	1	3
		A to A	24	9	3	36	18	5	2	25	-6	-4	-1	-11	-25%	-44%	-33%	-31%	Pass	Pass	Pass	Pass	1	2	1	2	1	2	1	2
5	A1184 Cambridge Road / A414 Edinburgh Way / A414 / Station Road	C to C	2	2	0	4	0	0	0	0	-2	-2	0	-4	-200%	-200%	0%	-400%	Pass	Pass	Pass	Pass	2	2	0	3	2	2	0	3
		C to D	96	52	32	180	102	28	7	137	6	-24	-25	-43	6%	-46%	-78%	-24%	Pass	Pass	Pass	Pass	1	4	6	3	1	4	6	3
		C to A	111	50	10	171	100	32	22	155	-11	-18	12	-16	-10%	-36%	120%	-9%	Pass	Pass	Pass	Pass	1	3	3	1	1	3	3	1
		C to E	66	15	3	84	61	11	3	75	-5	-4	0	-9	-8%	-27%	0%	-11%	Pass	Pass	Pass	Pass	1	1	0	1	1	1	0	1
		D to C	457	69	37	563	323	54	13	391	-134	-15	-24	-172	-29%	-22%	-65%	-31%	Fail	Pass	Pass	Fail	7	2	5	8	7	2	5	8
		D to D	0	0	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	Pass	Pass	Pass	Pass	0	0	0	0	0	0	0	0
		D to A	287	49	15	351	348	57	10	414	61	8	-5	63	21%	16%	-33%	18%	Pass	Pass	Pass	Pass	3	1	1	3	3	1	1	3
		D to E	5	2	2	9	158	5	2	164	153	3	0	155	3060%	150%	0%	1722%	Fail	Pass	Pass	Fail	17	2	0	17	17	2	0	17
		A to C	360	59	18	437	183	46	9	238	-177	-13	-9	-199	-49%	-22%	-50%	-46%	Fail	Pass	Pass	Fail	11	2	2	11	11	2	2	11
		A to D	429	59	12	500	449	84	24	557	20	25	12	57	5%	42%	100%	11%	Pass	Pass	Pass	Pass	1	3	3	2	1	3	3	2
		A to A	0	1	0	1	0	0	0	0	0	-1	0	-1	0%	-100%	0%	-100%	Pass	Pass	Pass	Pass	0	1	0	1	0	1	0	1
		A to E	60	5	1	66	45	6	0	51	-15	1	-1	-15	-25%	20%	-100%	-23%	Pass	Pass	Pass	Pass	2	0	1	2	2	0	1	2
		E to C	298	28	3	329	183	12	1	197	-115	-16	-2	-132	-39%	-57%	-67%	-40%	Fail	Pass	Pass	Fail	7	4	1	8	7	4	1	8
		E to D	58	3	0	61	149	10	3	161	91	7	3	100	157%	233%	300%	164%	Pass	Pass	Pass	Pass	9	3	2	9	9	3	2	9
		E to A	137	6	0	143	60	8	0	68	-77	2	0	-75	-56%	33%	0%	-52%	Pass	Pass	Pass	Pass	8	1	0	7	8	1	0	7
		E to E	0	0	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	Pass	Pass	Pass	Pass	0	0	0	0	0	0	0	0
6	A1184 Bonks Hill / High Wych Road / Harlow Road	A to B	483	35	5	523	414	54	19	487	-69	19	14	-36	-14%	54%	280%	-7%	Pass	Pass	Pass	Pass	3	3	4	2	3	3	4	2
		A to C	633	59	18	710	605	129	31	764	-28	70	13	54	-4%	119%	72%	8%	Pass	Pass	Pass	Pass	1	7	3	2	1	7	3	2
		B to A	310	54	11	375	298	43	9	350	-12	-11	-2	-25	-4%	-20%	-18%	-7%	Pass	Pass	Pass	Pass	1	2	1	1	1	2	1	1
		B to C	19	6	3	28	3	0	0	4	-16	-6	-3	-24	-84%	-600%	-300%	-86%	Pass	Pass	Pass	Pass	5	3	2	6	5	3	2	6
		C to A	378	70	20	468	367	80	32	480	-11	10	12	12	-3%	14%	60%	3%	Pass	Pass	Pass	Pass	1	1	2	1	1	1	2	1
		C to B	36	2	1	39	75	8	0	83	39	6	-1	44	108%	300%	-100%	113%	Pass	Pass	Pass	Pass	5	3	1	6	5	3	1	6
7	Cambridge Rd / West Road / London Rd / Station Rd	A to A	1	0	0	1	0	0	0	0	-1	0	0	-1	-100%	0%	0%	-100%	Pass	Pass	Pass	Pass	1	0	0	1	1	0	0	1
		A to B	42	7	1	50	46	4	0	50	4	-3	-1	0	10%	-43%	-100%	0%	Pass	Pass	Pass	Pass	1	1	1	0	1	1	1	0
		A to C	614	47	15	676	670	130	43	843	56	83	28	167	9%	177%	187%	25%	Pass	Pass	Pass	Fail	2	9	5	6	2	9	5	6
		A to D	46	8	1	55	0	0	0	0	-46	-8	-1	-55	-4600%	-800%	-100%	-5500%	Pass	Pass	Pass	Pass	10	4	1	10	10	4	1	10
		B to C	94	7	1	102	6	2	0	8	-88	-5	-1	-94	-94%	-71%	-100%	-92%	Pass	Pass	Pass	Pass	12	2	1	13	12	2	1	13
		B to D	53	2	3	58	52	2	0	54	-1	0	-3	-4	-2%	0%	-300%	-7%	Pass	Pass	Pass	Pass	0	0	2	1	0	0	2	1
		B to A	84	8	1	93	145	15	0	160	61	7	-1	67	73%	88%	-100%	72%	Pass	Pass	Pass	Pass	6	2	1	6	6	2	1	6

		B to B	0	0	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	Pass	Pass	Pass	Pass	0	0	0	0	0	0	0	0
		C to D	92	22	2	116	82	9	3	94	-10	-13	1	-22	-11%	-59%	50%	-19%	Pass	Pass	Pass	Pass	1	3	1	2	1	3	1	2
		C to A	476	71	19	566	520	113	38	671	44	42	19	105	9%	59%	100%	19%	Pass	Pass	Pass	Fail	2	4	4	4	2	4	4	4
		C to B	27	2	1	30	0	0	0	0	-27	-2	-1	-30	-2700%	-200%	-100%	-3000%	Pass	Pass	Pass	Pass	7	2	1	8	7	2	1	8
		C to C	0	0	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	Pass	Pass	Pass	Pass	0	0	0	0	0	0	0	0
		D to A	95	11	3	109	49	11	0	60	-46	0	-3	-49	-48%	0%	-300%	-45%	Pass	Pass	Pass	Pass	5	0	2	5	5	0	2	5
		D to B	38	6	3	47	36	2	0	38	-2	-4	-3	-9	-5%	-67%	-300%	-19%	Pass	Pass	Pass	Pass	0	2	2	1	0	2	2	1
		D to C	195	28	8	231	173	33	7	213	-22	5	-1	-18	-11%	18%	-13%	-8%	Pass	Pass	Pass	Pass	2	1	0	1	2	1	0	1
		D to D	0	0	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	Pass	Pass	Pass	Pass	0	0	0	0	0	0	0	0
8	M11 Junction 7	A to B	259	46	19	324	380	81	2	463	121	35	-17	139	47%	76%	-89%	43%	Fail	Pass	Pass	Fail	7	4	5	7	7	4	5	7
		A to C	206	55	15	278	368	34	10	412	162	-21	-5	134	79%	-38%	-33%	48%	Fail	Pass	Pass	Fail	10	3	1	7	10	3	1	7
		A to D	447	137	38	638	428	130	62	620	-19	-7	24	-18	-4%	-5%	63%	-3%	Pass	Pass	Pass	Pass	1	1	3	1	1	1	3	1
		A to E	326	31	6	373	279	28	16	323	-47	-3	10	-50	-14%	-10%	167%	-13%	Pass	Pass	Pass	Pass	3	1	3	3	3	1	3	3
		A to A	0	2	0	2	0	0	0	0	0	-2	0	-2	0%	-200%	0%	-200%	Pass	Pass	Pass	Pass	0	2	0	2	0	2	0	2
		B to C	150	32	9	192	35	24	9	68	-115	-8	0	-124	-77%	-25%	0%	-65%	Fail	Pass	Pass	Fail	12	2	0	11	12	2	0	11
		B to D	2	1	1	4	0	0	0	0	-2	-1	-1	-4	-200%	-100%	-100%	-400%	Pass	Pass	Pass	Pass	2	1	1	3	2	1	1	3
		B to E	259	38	7	304	234	45	5	284	-25	7	-2	-20	-10%	18%	-29%	-7%	Pass	Pass	Pass	Pass	2	1	1	1	2	1	1	1
		B to A	250	61	28	340	341	45	4	390	91	-16	-24	50	36%	-26%	-86%	15%	Pass	Pass	Pass	Pass	5	2	6	3	5	2	6	3
		B to B	0	0	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	Pass	Pass	Pass	Pass	0	0	0	0	0	0	0	0
		C to D	110	33	16	163	412	22	0	434	302	-11	-16	271	275%	-33%	-1600%	166%	Fail	Pass	Pass	Fail	19	2	6	16	19	2	6	16
		C to E	63	9	3	77	67	8	0	75	4	-1	-3	-2	6%	-11%	-300%	-3%	Pass	Pass	Pass	Pass	0	0	2	0	0	0	2	0
		C to A	363	63	18	447	335	44	14	393	-28	-19	-4	-54	-8%	-30%	-22%	-12%	Pass	Pass	Pass	Pass	1	3	1	3	1	3	1	3
		C to B	68	14	15	97	44	16	8	68	-24	2	-7	-29	-35%	14%	-47%	-30%	Pass	Pass	Pass	Pass	3	1	2	3	3	1	2	3
		C to C	0	1	0	1	0	0	0	0	0	-1	0	-1	0%	-100%	0%	-100%	Pass	Pass	Pass	Pass	0	1	0	1	0	1	0	1
		D to E	114	24	11	149	133	5	0	138	19	-19	-11	-11	17%	-79%	-1100%	-7%	Pass	Pass	Pass	Pass	2	5	5	1	2	5	5	1
		D to A	494	109	63	672	675	173	63	911	181	64	0	239	37%	59%	0%	36%	Fail	Pass	Pass	Fail	7	5	0	8	7	5	0	8
		D to B	75	27	0	102	0	0	0	0	-75	-27	0	-102	-7500%	-2700%	0%	-10200%	Pass	Pass	Pass	Fail	12	7	0	14	12	7	0	14
		D to C	63	16	10	90	25	2	0	27	-38	-14	-10	-63	-60%	-88%	-1000%	-70%	Pass	Pass	Pass	Pass	6	5	4	8	6	5	4	8
		D to D	0	0	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	Pass	Pass	Pass	Pass	0	0	0	0	0	0	0	0
		E to A	214	58	12	302	189	26	8	223	-25	-32	-4	-79	-12%	-55%	-33%	-26%	Pass	Pass	Pass	Pass	2	5	1	5	2	5	1	5
		E to B	108	8	7	125	158	35	6	199	50	27	-1	74	46%	338%	-14%	59%	Pass	Pass	Pass	Pass	4	6	0	6	4	6	0	6
		E to C	40	5	2	48	24	1	0	25	-16	-4	-2	-23	-40%	-80%	-200%	-48%	Pass	Pass	Pass	Pass	3	2	2	4	3	2	2	4
		E to D	32	16	3	51	169	16	1	186	137	0	-2	135	428%	0%	-67%	265%	Fail	Pass	Pass	Fail	14	0	1	12	14	0	1	12
		E to E	1	1	0	2	0	0	0	0	-1	-1	0	-2	-100%	-100%	0%	-2	Pass	Pass	Pass	Pass	1	1	0	2	1	1	0	2
																			CAR	LGV	HGV	Total	CAR	LGV	HGV	Total	CAR	LGV	HGV	Total
																			79%	98%	100%	77%	65%	85%	92%	63%	87%	98%	100%	85%

			Observed Flows [veh]				Modelled Flows [veh]				Absolute Differences				%age Differences				Flow Differences Criterion				GEH>5				GEH>10			
			PM				PM				PM				PM				PM				PM				PM			
SiteNo	Junction	Turn	CAR	LGV	HGV	Total	CAR	LGV	HGV	Total	CAR	LGV	HGV	Total	CAR	LGV	HGV	Total	CAR	LGV	HGV	Total	CAR	LGV	HGV	Total	CAR	LGV	HGV	Total
1	Roydon Road / A1169 Elizabeth Way	B to B	3	0	0	3	0	0	0	0	-3	0	0	-3	-300%	0%	0%	-300%	Pass	Pass	Pass	Pass	2	0	0	2	2	0	0	2
		B to C	296	30	14	340	302	83	6	391	6	53	-8	51	2%	177%	-57%	15%	Pass	Pass	Pass	Pass	0	7	3	3	0	7	3	3
		B to A	218	28	5	251	156	40	5	201	-62	12	0	-50	-28%	43%	0%	-20%	Pass	Pass	Pass	Pass	5	2	0	3	5	2	0	3
		C to B	330	39	9	378	165	74	3	242	-165	35	-6	-136	-50%	90%	-67%	-36%	Fail	Pass	Pass	Fail	10	5	2	8	10	5	2	8
		C to C	3	0	0	3	0	0	0	0	-3	0	0	-3	-300%	0%	0%	-300%	Pass	Pass	Pass	Pass	2	0	0	2	2	0	0	2
		C to A	100	8	4	112	166	71	9	245	66	63	5	133	66%	788%	125%	119%	Pass	Pass	Pass	Fail	6	10	2	10	6	10	2	10
		A to B	445	31	4	480	280	29	4	314	-165	-2	0	-166	-37%	-6%	0%	-35%	Fail	Pass	Pass	Fail	9	0	0	8	9	0	0	8
		A to C	218	17	7	242	303	79	14	397	85	62	7	155	39%	365%	100%	64%	Pass	Pass	Pass	Fail	5	9	2	9	5	9	2	9
		A to A	0	1	0	1	0	0	0	0	0	-1	0	-1	0%	-100%	0%	-100%	Pass	Pass	Pass	Pass	0	1	0	1	0	1	0	1
2	A1169 Elizabeth Way / Flex Meadow / Access to GSK / Third Ave	A to A	1	0	0	1	0	0	0	0	-1	0	0	-1	-100%	0%	0%	-100%	Pass	Pass	Pass	Pass	1	0	0	1	1	0	0	1
		A to B	16	8	4	28	63	24	4	91	47	16	0	63	294%	200%	0%	225%	Pass	Pass	Pass	Pass	7	4	0	8				
		A to E	769	83	7	859	553	67	5	625	-216	-16	-2	-234	-28%	-19%	-29%	-27%	Fail	Pass	Pass	Fail	8	2	1	9	8	2	1	9
		E to A	233	30	5	268	258	121	5	385	25	91	0	117	11%	303%	0%	44%	Pass	Pass	Pass	Fail	2	10	0	6	2	10	0	6
		E to B	12	12	4	28	127	61	3	191	115	49	-1	163	958%	408%	-25%	582%	Fail	Pass	Pass	Fail	14	8	1	16	14	8	1	16
		E to E	0	0	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	Pass	Pass	Pass	Pass	0	0	0	0	0	0	0	0
		B to A	62	10	9	81	128	50	6	185	66	40	-3	104	106%	400%	-33%	128%	Pass	Pass	Pass	Fail	7	7	1	9	7	7	1	9
		B to E	82	12	6	100	244	51	3	298	162	39	-3	198	198%	325%	-50%	198%	Fail	Pass	Pass	Fail	13	7	1	14	13	7	1	14
		B to B	0	0	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	Pass	Pass	Pass	Pass	0	0	0	0	0	0	0	0
3	A1169 Third Ave / Peldon Rd / A1169 Katherine's Way / A1025 Third Ave	A to A	2	0	0	2	0	0	0	0	-2	0	0	-2	-200%	0%	0%	-200%	Pass	Pass	Pass	Pass	2	0	0	2	2	0	0	2
		A to C	699	79	6	784	618	79	6	705	-81	0	0	-79	-12%	0%	0%	-10%	Pass	Pass	Pass	Pass	3	0	0	3	3	0	0	3
		A to D	158	22	8	188	221	72	4	297	63	50	-4	109	40%	227%	-50%	58%	Pass	Pass	Pass	Fail	5	7	2	7	5	7	2	7
		C to A	198	28	4	230	230	126	5	362	32	98	1	132	16%	350%	25%	57%	Pass	Pass	Pass	Fail	2	11	0	8	2	11	0	8
		C to C	0	0	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	Pass	Pass	Pass	Pass	0	0	0	0	0	0	0	0
		C to D	303	45	0	348	289	30	2	320	-14	-15	2	-28	-5%	-33%	200%	-8%	Pass	Pass	Pass	Pass	1	2	2	2	1	2	2	2
		D to A	40	12	4	56	192	197	9	399	152	185	5	343	380%	1542%	125%	613%	Fail	Fail	Pass	Fail	14	18	2	23	14	18	2	23
		D to C	319	35	2	356	338	17	2	357	19	-18	0	1	6%	-51%	0%	0%	Pass	Pass	Pass	Pass	1	4	0	0	1	4	0	0
		D to D	0	0	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	Pass	Pass	Pass	Pass	0	0	0	0	0	0	0	0
4	A1019 Velizy Ave / South Gate / A1025 Third Avenue / A1025 Second Avenue	C to C	36	3	0	39	32	3	0	35	-4	0	0	-4	-11%	0%	0%	-10%	Pass	Pass	Pass	Pass	1	0	0	1	1	0	0	1
		C to D	787	38	9	834	848	128	5	982	61	90	-4	148	8%	237%	-44%	18%	Pass	Pass	Pass	Fail	2	10	2	5	2	10	2	5
		C to A	507	67	1	575	224	10	1	235	-283	-57	0	-340	-56%	-85%	0%	-59%	Fail	Pass	Pass	Fail	15	9	0	17	15	9	0	17
		D to C	443	58	9	510	373	163	5	541	-70	105	-4	31	-16%	181%	-44%	6%	Pass	Fail	Pass	Pass	3	10	2	1	3	10	2	1
		D to D	23	0	0	23	0	0	0	0	-23	0	0	-23	-2300%	0%	0%	-2300%	Pass	Pass	Pass	Pass	7	0	0	7	7	0	0	7
		D to A	263	46	5	314	406	47	15	469	143	1	10	155	54%	2%	200%	49%	Fail	Pass	Pass	Fail	8	0	3	8	8	0	3	8
		A to C	214	14	0	228	106	11	2	119	-108	-3	2	-109	-50%	-21%	200%	-48%	Fail	Pass	Pass	Fail	9	1	2	8	9	1	2	8
		A to D	290	31	7	328	348	56	13	417	58	25	6	89	20%	81%	86%	27%	Pass	Pass	Pass	Pass	3	4	2	5	3	4	2	5
		A to A	38	5	0	43	246	15	1	262	208	10	1	219	547%	200%	100%	509%	Fail	Pass	Pass	Fail	17	3	1	18	17	3	1	18
5	A1184 Cambridge Road / A414 Edinburgh Way / A414 / Station Road	C to C	0	1	0	1	0	0	0	0	0	-1	0	-1	0%	-100%	0%	-100%	Pass	Pass	Pass	Pass	0	1	0	1	0	1	0	1
		C to D	619	68	14	701	379	39	2	421	-240	-29	-12	-280	-39%	-43%	-86%	-40%	Fail	Pass	Pass	Fail	11	4	4	12	11	4	4	12
		C to A	352	42	2	396	197	33	3	233	-155	-9	1	-163	-44%	-21%	50%	-41%	Fail	Pass	Pass	Fail	9	1	1	9	9	1	1	9
		C to E	366	28	2	396	190	13	2	206	-176	-15	0	-190	-48%	-54%	0%	-48%	Fail	Pass	Pass	Fail	11	3	0	11	11	3	0	11
		D to C	225	54	25	304	137	41	3	181	-88	-13	-22	-123	-39%	-24%	-88%	-40%	Pass	Pass	Pass	Fail	7	2	6	8	7	2	6	8
		D to D	2	0	0	2	0	0	0	0	-2	0	0	-2	-200%	0%	0%	-200%	Pass	Pass	Pass	Pass	2	0	0	2	2	0	0	2
		D to A	367	51	6	424	407	82	10	500	40	31	4	76	11%	61%	67%	18%	Pass	Pass	Pass	Pass	2	4	1	4	2	4	1	4
		D to E	34	3	0	37	236	9	3	249	202	6	3	212	594%	200%	300%	573%	Fail	Pass	Pass	Fail	17	2	2	18	17	2	2	18
		A to C	180	34	5	219	146	41	6	193	-34	7	1	-26	-19%	21%	20%	-12%	Pass	Pass	Pass	Pass	3	1	0	2	3	1	0	2
		A to D	353	56	6	415	350	50	5	405	-3	-6	-1	-10	-1%	-11%	-17%	-2%	Pass	Pass	Pass	Pass	0	1	0	0	0	1	0	0
		A to A	1	0	0	1	0	0	0	0	-1	0	0	-1	-100%	0%	0%	-100%	Pass	Pass	Pass	Pass	1	0	0	1	1	0	0	1
		A to E	67	10	0	77	27	3	0	30	-40	-7	0	-47	-60%	-70%	0%	-61%	Pass	Pass	Pass	Pass	6	3	0	6	6	3	0	6
		E to C	107	15	0	122	125	9	3	137	18	-6	3	15	17%	-40%	300%	12%	Pass	Pass	Pass	Pass	2	2	2	1	2	2	2	1
		E to D	43	4	0	47	102	6	2	109	59	2	2	62	137%	50%	200%	132%	Pass	Pass	Pass	Pass	7	1	2	7	7	1	2	7
		E to A	59	5	0	64	72	15	6	91	13	10	6	27	22%	200%	600%	42%	Pass	Pass	Pass	Pass	2	3	3	3	2	3	3	3
		E to E	0	0	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	Pass	Pass	Pass	Pass	0	0	0	0	0	0	0	0
6	A1184 Bonks Hill / High Wych Road / Harlow Road	A to B	311	37	2	350	356	40	5	401	45	3	3	51	14%	8%	150%	15%	Pass	Pass	Pass	Pass	2	0	2	3	2	0	2	3
		A to C	517	65	13	595	473	87	11	571	-44	22	-2	-24	-9%	34%	-15%	-4%	Pass	Pass	Pass	Pass	2	3	1	1	2	3	1	1
		B to A	457	43	3	503	250	52	3	306	-207	9	0	-197	-45%	21%	0%	-39%	Fail	Pass	Pass	Fail	11	1	0	10	11	1	0	10
		B to C	7	0	0	7	0	0	0	0	-7	0	0	-7	-700%	0%	0%	-700%	Pass	Pass	Pass	Pass	4	0	0	4	4	0	0	4
		C to A	548	65	4	617	542	112	18	672	-6	47	14	55	-1%	72%	350%	9%	Pass	Pass	Pass	Pass	0	5	4	2	0	5	4	2
		C to B	12	0	1	13	50	14	0	64	38	14	-1	51	317%	1400%	-100%	392%	Pass	Pass	Pass	Pass	7	5	1	8	7	5	1	8
7	Cambridge Rd / West Road / London Rd / Station Rd	A to A	3	0	0	3	0	0	0	0	-3	0	0	-3	-300%	0%	0%	-300%	Pass	Pass	Pass	Pass	2	0	0	2	2	0	0	2
		A to B	58	7	0	65	53	9	0	62	-5	2	0	-3	-9%	29%	0%	-5%	Pass	Pass	Pass	Pass	1	1	0	0	1	1	0	0
		A to C	616	67	16	699	621	103	16	740	5	36	0	41	1%	54%	0%	6%	Pass	Pass	Pass	Pass	0	4	0	2	0	4	0	2
		A to D	65	11	3	79	19	0	0	19	-46	-11	-3	-60	-71%	-1100%	-300%	-76%	Pass	Pass	Pass	Pass	7	5	2	9	7	5	2	9
		B to C	52	8	0	60	1	0	0	1	-51	-8	0	-59	-98%	-800%	0%	-98%	Pass	Pass	Pass	Pass	10	4	0	11	10	4	0	11
		B to D	48	7	1	56	35	1	0	36	-13	-6	-1	-20	-27%	-86%	-100%	-36%	Pass	Pass	Pass	Pass	2	3	1	3	2	3	1	3
		B to A	89	10	4	103	213	15	0	228	124	5	-4	125	139%	50%	-400%	121%	Fail	Pass	Pass	Fail	10	1	3	10	10	1	3	10

		B to B	1	0	0	1	0	0	0	0	-1	0	0	-1	-100%	0%	0%	-100%	Pass	Pass	Pass	Pass	1	0	0	1	1	0	0	1
		C to D	126	17	1	144	118	16	0	134	-8	-1	-1	-10	-6%	-6%	-100%	-7%	Pass	Pass	Pass	Pass	1	0	1	1	1	0	1	1
		C to A	631	60	6	697	532	132	20	684	-99	72	14	-13	-16%	120%	233%	-2%	Pass	Pass	Pass	Pass	4	7	4	0	4	7	4	0
		C to B	30	4	0	34	0	0	0	0	-30	-4	0	-34	-3000%	-400%	0%	-3400%	Pass	Pass	Pass	Pass	8	3	0	8	8	3	0	8
		C to C	4	1	0	5	0	0	0	0	-4	-1	0	-5	-400%	-100%	0%	-500%	Pass	Pass	Pass	Pass	3	1	0	3	3	1	0	3
		D to A	132	8	1	141	48	3	0	51	-84	-5	-1	-90	-64%	-63%	-100%	-64%	Pass	Pass	Pass	Pass	9	2	1	9	9	2	1	9
		D to B	52	11	0	63	37	2	0	39	-15	-9	0	-24	-29%	-82%	0%	-38%	Pass	Pass	Pass	Pass	2	4	0	3	2	4	0	3
		D to C	202	11	1	214	119	18	1	138	-83	7	0	-76	-41%	64%	0%	-36%	Pass	Pass	Pass	Pass	7	2	0	6	7	2	0	6
		D to D	0	0	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	Pass	Pass	Pass	Pass	0	0	0	0	0	0	0	0
8	M11 Junction 7	A to B	331	53	13	398	485	76	1	562	154	23	-12	164	47%	43%	-92%	41%	Fail	Pass	Pass	Fail	8	3	5	7	8	3	5	7
		A to C	316	67	8	396	378	48	8	434	62	-19	0	38	20%	-28%	0%	10%	Pass	Pass	Pass	Pass	3	3	0	2	3	3	0	2
		A to D	655	103	19	787	728	122	21	871	73	19	2	84	11%	18%	11%	11%	Pass	Pass	Pass	Pass	3	2	0	3	3	2	0	3
		A to E	293	29	3	333	139	33	5	177	-154	4	2	-156	-53%	14%	67%	-47%	Fail	Pass	Pass	Fail	10	1	1	10	10	1	1	10
		A to A	0	0	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	Pass	Pass	Pass	Pass	0	0	0	0	0	0	0	0
		B to C	172	25	9	206	59	37	4	100	-113	12	-5	-106	-66%	48%	-56%	-51%	Fail	Pass	Pass	Fail	11	2	2	9	11	2	2	9
		B to D	0	0	1	1	0	0	0	0	0	0	-1	-1	0%	0%	-100%	-100%	Pass	Pass	Pass	Pass	0	0	1	1	0	0	1	1
		B to E	103	19	4	126	295	35	1	331	192	16	-3	205	186%	84%	-75%	163%	Fail	Pass	Pass	Fail	14	3	2	14	14	3	2	14
		B to A	197	38	11	249	277	38	0	315	80	0	-11	66	41%	0%	-1100%	27%	Pass	Pass	Pass	Pass	5	0	5	4	5	0	5	4
		B to B	0	0	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	Pass	Pass	Pass	Pass	0	0	0	0	0	0	0	0
		C to D	121	26	10	159	235	16	0	251	114	-10	-10	92	94%	-38%	-1000%	58%	Fail	Pass	Pass	Pass	9	2	4	6	9	2	4	6
		C to E	33	9	1	44	69	7	0	76	36	-2	-1	32	109%	-22%	-100%	73%	Pass	Pass	Pass	Pass	5	1	1	4	5	1	1	4
		C to A	285	41	2	333	271	33	5	309	-14	-8	3	-24	-5%	-20%	150%	-7%	Pass	Pass	Pass	Pass	1	1	2	1	1	1	2	1
		C to B	69	13	4	86	52	19	1	72	-17	6	-3	-14	-25%	46%	-75%	-16%	Pass	Pass	Pass	Pass	2	2	2	2	2	2	2	2
		C to C	0	1	0	1	0	0	0	0	0	-1	0	-1	0%	-100%	0%	-100%	Pass	Pass	Pass	Pass	0	1	0	1	0	1	0	1
		D to E	105	31	11	148	223	11	1	235	118	-20	-10	87	112%	-65%	-91%	59%	Fail	Pass	Pass	Pass	9	4	4	6	9	4	4	6
		D to A	813	259	24	1119	923	234	34	1191	110	-25	10	72	14%	-10%	42%	6%	Pass	Pass	Pass	Pass	4	2	2	2	4	2	2	2
		D to B	85	17	0	102	0	0	0	0	-85	-17	0	-102	-8500%	-1700%	0%	-10200%	Pass	Pass	Pass	Fail	13	6	0	14	13	6	0	14
		D to C	121	37	4	164	54	4	0	58	-67	-33	-4	-106	-55%	-89%	-400%	-65%	Pass	Pass	Pass	Fail	7	7	3	10	7	7	3	10
		D to D	3	2	0	5	0	0	0	0	-3	-2	0	-5	-300%	-200%	0%	-500%	Pass	Pass	Pass	Pass	2	2	0	3	2	2	0	3
		E to A	459	72	5	549	385	37	6	428	-74	-35	1	-121	-16%	-49%	20%	-22%	Pass	Pass	Pass	Fail	4	5	0	5	4	5	0	5
		E to B	241	23	1	266	177	45	1	223	-64	22	0	-43	-27%	96%	0%	-16%	Pass	Pass	Pass	Pass	4	4	0	3	4	4	0	3
		E to C	106	18	0	125	21	1	1	23	-85	-17	1	-102	-80%	-94%	100%	-82%	Pass	Pass	Pass	Fail	11	6	1	12	11	6	1	12
		E to D	44	10	1	55	130	10	0	140	86	0	-1	85	195%	0%	-100%	155%	Pass	Pass	Pass	Pass	9	0	1	9	9	0	1	9
		E to E	0	0	0	0	0	0	0	0	0	0	0	0	0%	0%	0%	0%	Pass	Pass	Pass	Pass	0	0	0	0	0	0	0	0
																			CAR	LGV	HGV	Total	CAR	LGV	HGV	Total	CAR	LGV	HGV	Total
																		Criterion Pass	78%	98%	100%	68%	58%	82%	99%	56%	84%	96%	100%	87%