LOCAL MODEL VALIDATION REPORT – 2019 UPDATE

SYSTRA

MID SUSSEX STRATEGIC HIGHWAY MODEL

LOCAL MODEL VALIDATION REPORT – 2019 UPDATE

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TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

APPENDICES

1. INTRODUCTION

1.1 Work Undertaken

1.1.1 Mid Sussex District Council (MSDC) commissioned SYSTRA to:

- Build a strategic highway model, known as the Mid Sussex Strategic Highway Model (MSSHM), to underpin the Mid Sussex Transport Study (MSTS); and
- Update the Mid Sussex Transport Study to test the impact of proposed development on the strategic and local transport network and upon significant routes in Ashdown Forest (adjacent to but outside of Mid Sussex District).

1.1.2 The current work is further divided into the following stages:

- 2017 Base Year Highway Model Production and Validation – the subject of this note is the methodology to undertake an update to a 2019 Base Year;
- 2038 Reference Case Scenario;
- 2038 District Plan Review Scenarios; and
- 2038 District Plan Review Scenarios including potential mitigation.

1.2 Highway Model

1.2.1 As was the case for the 2017 Base Model production, the updated 2019 Base Model follows standard good practice as set out in the Department for Transport's (DfT) transport analysis guidance (TAG) , in particular TAG Unit M3-1 Highway Assignment Modelling. The approaches to data processing, matrices and network production, along with model calibration will be consistent with those of similar strategic highways models.

1.2.2 The development of the current 2017 Base Year Model was reported in a Local Model Validation Report (LMVR). This report acts as a standalone updated LMVR for the 2019 Base Year Model.

1.3 Transport Study

1.3.1 The impact on the highway network of the agreed Development Scenarios will be assessed based on the National Planning Policy Framework (NPPF). The assessment of impacts will be based on criteria agreed by MSDC and West Sussex County Council (WSCC). These will be derived using WSCC's position statement in relation to the NPPF which sets out their interpretation of terms defining traffic impacts.

1.3.2 Where junctions or roads sections are assessed to be adversely impacted by the developments, the potential impact of sustainable transport mitigation will be assessed before highway mitigation schemes are devised and tested. These mitigations will aim to remove all 'severe' impacts.

1.3.3 A safety review will also be undertaken to provide a junction and road-section based assessment of accident clusters, cross-referenced to national accident rates available from the Department for Transport and forecast traffic flow changes as a result of the Scenarios compared to the Reference Case.

1.3.4 Further parallel work will also be undertaken to:

- Undertake environmental impact to comply with National Planning Practice Guidance on transport evidence bases in plan making.
- Undertake air quality modelling and ecological interpretation for Habitats Regulations Assessment to test the impact of traffic, as a result of proposed development, on the Ashdown Forest Special Area of Conservation. This will be based on the outputs of the Mid Sussex Transport Study.

1.4 This Report

1.4.1 This report describes the production of the base year MSSHM and is structured as follows:

- Chapter 2: Key Features of the Model;
- Chapter 3: Model Standards;
- Chapter 4: Model Data;
- Chapter 5: Road Network;
- Chapter 6: Trip Matrices;
- Chapter 7: Calibration and Validation; and
- Chapter 8: Summary of Model Fitness for purpose.

1.4.2 Chapter 2 is a summary of the existing model, as also provided in the 2017 LMVR, which remains valid for the 2019 update, apart from the change to the model base year.

1.4.3 Chapter 3 describes the DfT standards against which the updated model is assessed.

1.4.4 The model development Chapters 4, 5 and 6 include the methodology for the 2017 base model, followed by the 2019 update methodology.

1.4.5 Chapter 7 describes the calibration and validation process for the 2019 updated model.

1.4.6 Chapter 8 provides a summary of the model's fitness for purpose.

2. KEY FEATURES OF THE MODEL

2.1 Software

2.1.1 The model uses SATURN software developed by Atkins and University of Leeds. The deterministic user equilibrium assignment method is used, which assumes users have perfect knowledge of journey times on the network from their origin to destination.

Geographic Coverage

2.1.2 In accordance with TAG Unit M3-1 Highway Assignment Modelling, the coverage of the model is organised into model areas of varying detail:

- Fully Modelled Area (FMA) as shown in Figure 1:
  - SATURN simulation (includes junction modelling)
  - Mid Sussex District and the Ashdown Forest plus a suitable area beyond
- External Area
  - SATURN buffer (does not include junction modelling)
  - Suitable area to accommodate all reasonable route choices for trips travelling within FMA in any part of its journey
  - Mainly motorways and A roads only

Figure 1. Fully Modelled Area

2.2 Model Base Year

2.2.1 The base year and month is defined by the most predominant data used in matrix calibration. The chosen base year and month should be the latest neutral month that can be practicably used in the model. According to DMRB (Design Manual for Roads and Bridges) guidance neutral months include:

- Late March and April -excluding the weeks before and after Easter
- May – excluding the weeks before and after bank holidays
- Most of June
- Late September
- All of October
- All of November

2.2.2 For National Highways and other permanent counts it is convenient to choose months where four full weeks of data can be used. Therefore it is considered that March, April, May and September are not suitable. For the original model development it was decided that **June 2017** would be used as the base year and month, in preference to October and November when poor weather can have an impact.

2019 Update

2.2.3 The updated model has a base of **June 2019.**

2.3 Time Periods

2.3.1 The model has the following assignment periods:

- AM peak hour (0800-0900)
- IP interpeak average hour (1000-1600)
- PM peak hour (1700-1800)

2.4 User Classes

2.4.1 The MSSHM has the following assignment user classes:

- Car;
- Light goods vehicles (LGVs); and
- Heavy goods vehicles (HGVs).

2.4.2 Additionally cars are split into three purposes:

- Car – commute / home based work
- Car – employer's business / in work
- Car – other (includes education and leisure)

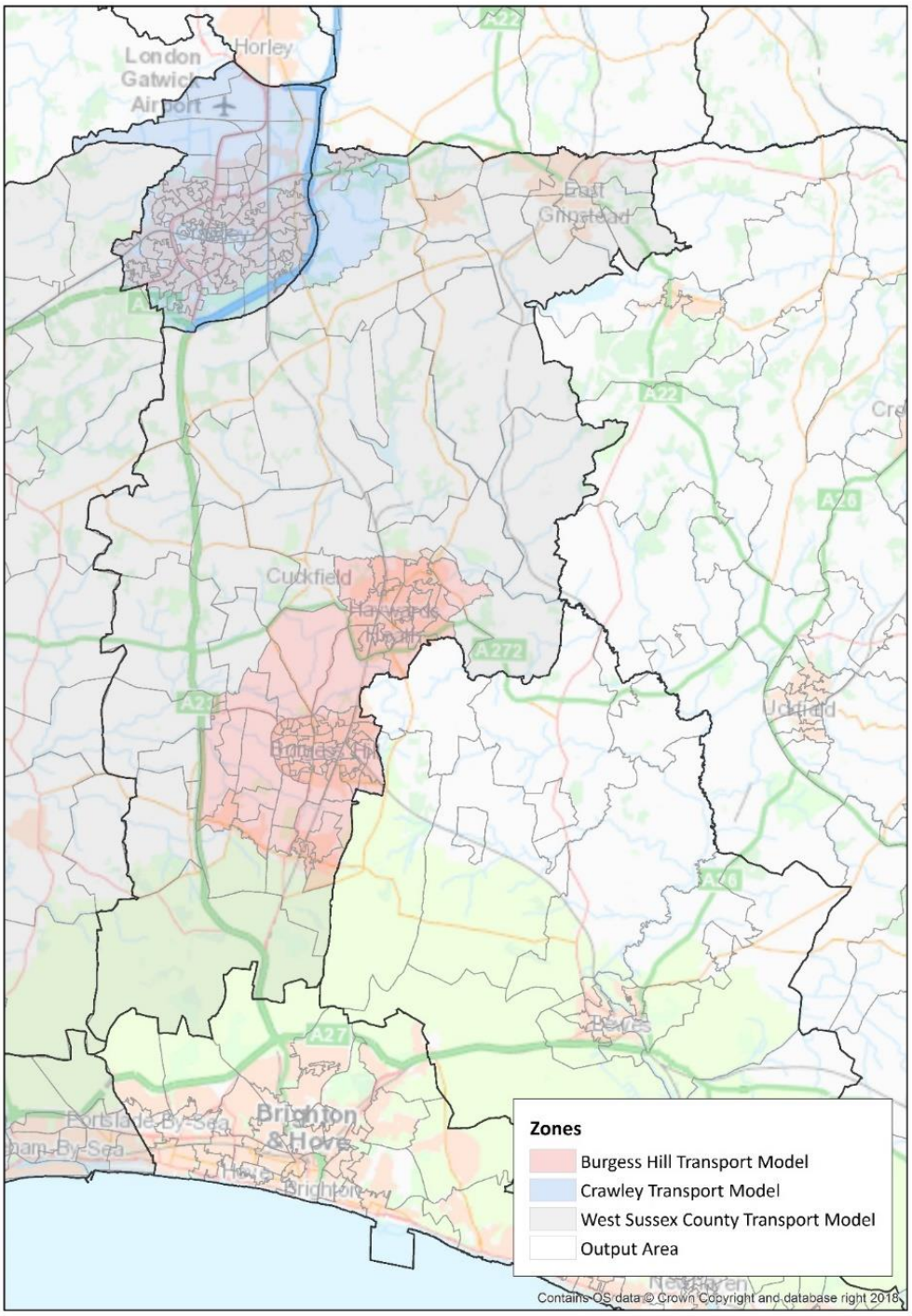
2.5 Zones

2.5.1 **Figure 2** shows the MSSHM zones system. The model has 825 zones. Several existing zone systems are combined for the MSSHM zone system:

- West Sussex County Transport Model (WSCTM) zones **(385 zones)**
- Burgess Hill Transport Model (BHTM) zones **(138 zones)**
- Crawley Transport Model (CTM) zones **(292 zones)**

2.5.2 Additionally, Middle and Lower Super Output Areas (MSOAs/LSOAs) are used for zones in neighbouring authorities. In Mid Sussex district the approach is to use the finest level of detail available from the existing systems. TEMPro areas (Middle Super Output Areas) are compatible with the zone system.

Figure 2. Zones



3. MODEL STANDARDS

3.1 Introduction

3.1.1 This chapter describes the criteria and acceptability guidelines against which the base year model is assessed in Chapter 6 (Calibration and Validation). The model should achieve the validation criteria and acceptability guidelines set out in TAG Unit M3-1 https://www.gov.uk/government/publications/webtag-tag-unit-m3-1-highway-assignment-modelling

3.2 Validation Criteria and Acceptability Guidelines

3.2.1 Validation involves comparing modelled and observed data. Any adjustments to the model intended to reduce the differences between the modelled and observed data are regarded as calibration.

3.2.2 The differences between modelled and observed data are quantified and assessed using the criteria described in this Chapter. The acceptability of the proportion of instances where the criteria are met is then assessed.

3.2.3 The validation of a highway assignment model includes comparisons of the following:

- assigned flows and counts totalled for each screenline or cordon, as a check of the quality of the trip matrices;
- assigned flows and counts of individual links as a check of the quality of the assignment; and
- modelled and observed journey times along routes, as a check of the quality of the network and the assignment.

3.2.4 For trip matrix validation, the measure used is the percentage difference between modelled flows and counts.

3.2.5 For link flow validation, the measures used are:

- the absolute differences between modelled flows and counts; and
- the GEH statistic which is a form of the Chi-squared statistic that incorporates both relative and absolute errors, and is defined as follows:

$$GEH = \sqrt{\frac{(M-C)^2}{(0.5\times(M+C))}}$$

where:
M is the modelled flow; and
C is the observed flow.

3.2.6 For journey time validation, the measure used is the percentage difference between modelled and observed journey times.

3.2.7 The validation criteria and acceptability guidelines for each of these measures are described as follows.

Trip Matrix Validation

3.2.8 Comparisons at screenline level provide information on the quality of the trip matrices. The validation criterion and acceptability guideline for screenline flows are defined in **Table 1** from TAG Unit M3-1 which is reproduced below.

Table 1. Screenline Flow Validation Criterion and Acceptability Guideline

CRITERIA	DMRB ACCEPTABILITY GUIDELINE
Differences between modelled flows and counts should be less than 5% of the counts	All or nearly all screenlines

3.2.9 With regard to screenline validation, the following should be noted:

- screenlines should normally be made up of more than 5 links;
- the comparisons for screenlines containing high flow routes such as motorways should be presented both including and excluding such routes;
- the comparisons should be presented separately for (a) roadside interview screenlines; (b) the other screenlines used as constraints in matrix estimation (excluding the roadside interview screenlines even though they have been used as constraints in matrix estimation); and (c) screenlines used for independent validation;
- the comparisons should be presented by vehicle type (preferably cars, light goods vehicles and other goods vehicles); and
- the comparisons should be presented separately for each modelled period.

Link Flow Validation

3.2.10 The validation criteria and acceptability guidelines for link flows are defined in **Table 2** from TAG Unit M3-1 which is reproduced below.

Table 2. Link Flow Validation Criteria and Acceptability Guidelines

CRITERIA	DMRB GUIDELINES
Individual flows within 15% of counts for flows from 700-2700 veh/h	> 85% of cases
Individual flows within 100 veh/h of counts for flows less than 700veh/h	> 85% of cases
Individual flows within 400 veh/h of counts for flows more than 2700 veh/h	> 85% of cases
GEH < 5 for individual flows	> 85% of cases

3.2.11 With regard to flow validation, the following should be noted:

- the comparisons should be presented for cars and all vehicles but not for light and other goods vehicles unless sufficiently accurate link counts have been obtained; and
- the comparisons should be presented separately for each modelled period.

Journey Time Validation

3.2.12 The validation criterion and acceptability guideline for journey times are defined in **Table 3** from TAG Unit M3-1 which is reproduced below.

Table 3. Journey Time Validation Criteria and Acceptability Guideline

CRITERIA	DMRB ACCEPTABILITY GUIDELINE
Modelled times along routes should be within 15% of surveyed times (or 1 minute, if higher)	> 85% of routes

3.2.13 With regard to the journey time validation, the comparisons should be presented separately for each modelled period.

3.3 Convergence Criteria and Standards

3.3.1 TAG Unit M3-1 states that before the results of any traffic assignment are used to influence decisions, the stability (or degree of convergence) of the assignment must be confirmed at the appropriate level. The importance of achieving convergence is related to the need to provide stable, consistent and robust model results. When the model outputs are being used to compare development or infrastructure options, it is important to be able to distinguish differences due to the scheme from those associated with different degrees of convergence, i.e. model 'noise'.

3.3.2 As recommended in TAG Unit M3-1 SATURN provides the ability to monitor and control stopping criteria using the '%GAP' statistic which is controlled in SATURN by the parameter 'STPGAP'. This is the difference between the costs along the chosen routes and those along the minimum cost routes, summed across the whole network, and expressed as a percentage of the minimum costs. **Section 7.6** provides more detail on the parameters used to control and monitor convergence.

3.3.3 **Table 4** summarises the most appropriate convergence measures and the values generally considered acceptable for use in establishing a base model. Tighter levels of convergence may be required for option testing. To ensure that, during the development of the base year model, reasonable levels of assignment convergence are achieved, TAG Unit M3-1 states a target %GAP value of 0.1% is used – that is, sufficient iterations are carried out to achieve a %GAP of 0.1% or less on four consecutive assignment loops.

Table 4. Summary of Convergence Measures and Base Model Acceptable Values

MEASURE OF CONVERGENCE	BASE MODEL ACCEPTABLE VALUES
Delta and %GAP	less than 0.1% or at least stable with convergence fully documented and all other criteria met
Percentage of links with flow change (P)<1%	four consecutive iterations greater than 98%
Percentage of links with cost change (P2)<1%	four consecutive iterations greater than 98%

4. MODEL DATA

4.1 Introduction

4.1.1 This Chapter describes the traffic count data used in matrices development, calibration and validation. As explained in paragraph 1.4.4 the data collected for the 2017 model is described first followed by the data for the 2019 update (Section 4.8). The data collected are from the following sources:

- National Highways (NH) counts (Webtris) (June 2017 for original model and June 2019 for model update)
- West Sussex County Council (WSCC) permanent counts (June 2017 for original model and June 2019 for model update) and ad-hoc counts
- DfT traffic counts (2017)
- Counts from the BHTM (2015)
- Surrey County Council (2016-18)
- East Sussex County Council (2017)
- Wealden District Council (2017)

4.1.2 The traffic count data is prepared for use in the model using the following Stages:

- Collation of Existing Traffic Counts
- Design of Screen Lines and Cordons
- New Traffic Counts
- Processing of Traffic Counts
- Preparation of Traffic Count Database

4.1.3 In addition journey time data is collected from Google.

4.2 Collation of Existing Traffic Counts

4.2.1 The traffic count data are collated and an inventory for each set is prepared. This is loaded into GIS (Graphical Information System) mapping using the Easting and Northing coordinates provided for each site. The count locations are shown **Figure 3.**

4.3 Design of Screen Lines and Cordons

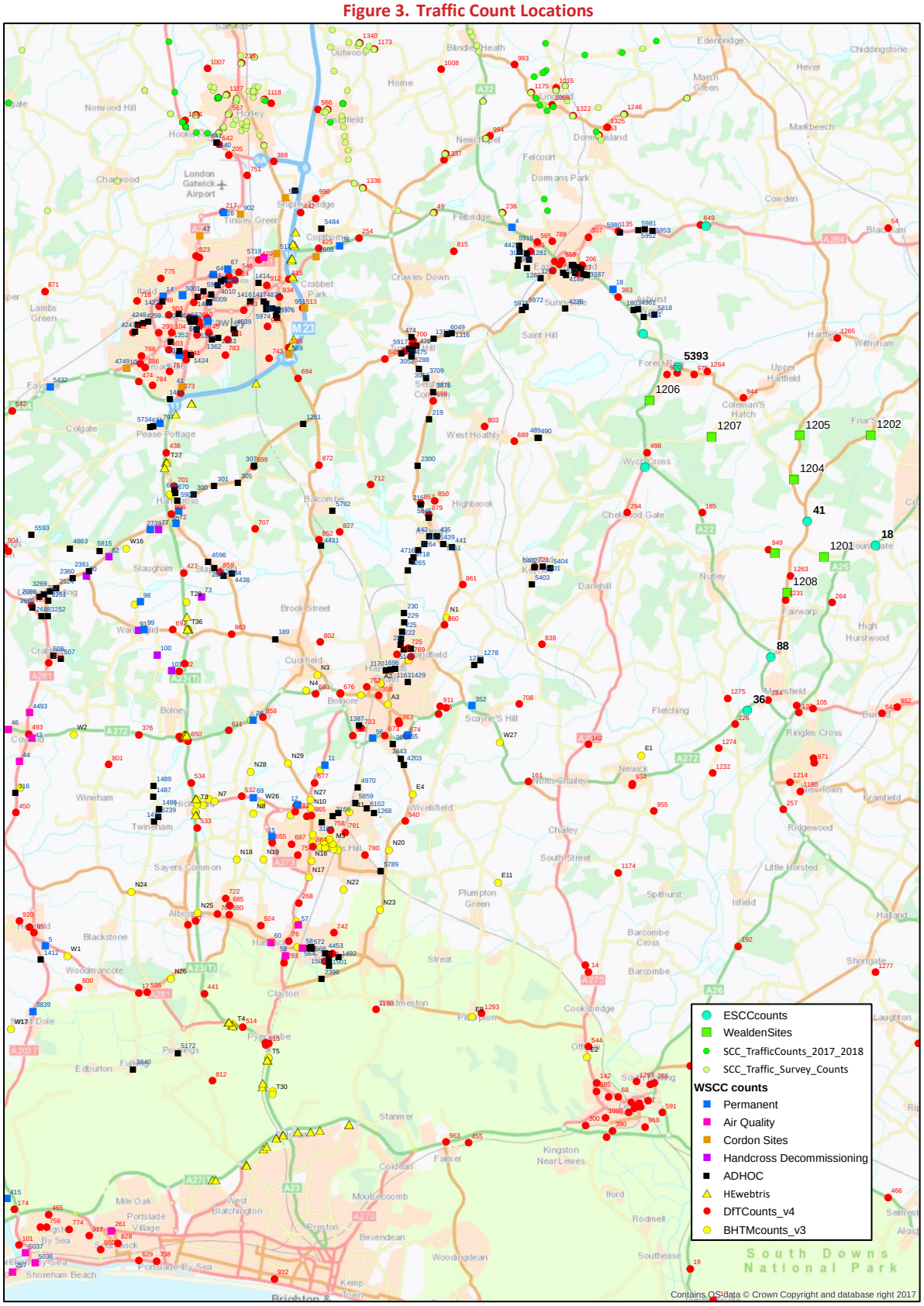
4.3.1 Screenlines and Cordons are groups of traffic count locations that are used to provide an organised structure for the use of counts in model production and to monitor and report broad movement of traffic. They are used in matrices construction, in model calibration and in validating the quality of the model.

4.3.2 The broad location of screenlines and cordons is dictated by suitable coverage and detail in accordance with good practice. However, the roads they pass through is additionally dictated by count data availability and making the best use of existing data.

4.3.3 *Cordons* are best for monitoring movements to, from and through key areas and towns. In the MSSHM cordons include:

- A large cordon broadly following the district boundary
- Cordons for the key towns, Burgess Hill, Haywards Heath and East Grinstead
- A cordon for the Ashdown Forest

Figure 3. Traffic Count Locations



4.3.4 *Screenlines* are for the purpose of monitoring broad movements across the district. Ideally they are long and cross each other to form a grid. They include:

- Long screenlines running north to south to the east and west of the A23
- East-west screenline south of the A272
- Smaller 'town' screenlines crossing Burgess Hill and Haywards Heath.

4.3.5 **Figure 4** shows the MSSHM cordons and screenlines and the locations of traffic counts used in the model production.

4.3.6 Although best use of existing data is made in designing the screenlines and cordons, some gaps or 'holes' are inevitable as shown in by the crosses on the figure. New traffic surveys are considered at these locations to ensure the screenlines and cordons are as watertight as possible, as described in the next section.

4.4 New Traffic Count Surveys (June 2018)

4.4.1 Locations identified as minor holes (blue crosses) are usually single track roads where surveys were not considered appropriate or good value due to the likely low flow. Some major holes on key roads were identified and new traffic surveys were undertaken, in June 2018, at these locations as detailed in **Table 5** and shown on **Figure 4.**

Table 5. New Traffic Survey Locations

LOCATION	DESCRIPTION	DISTRICT
Monteswood Lane	Between Freshfield Lane and Treemans Road	Mid Sussex
Valebridge Road	Between Theobolds Road and Rocky Lane	Mid Sussex
Lower Church Road	Between Civic Way and St. John's Road	Mid Sussex
A2300 Northbound Slip	Between A23 and A2300 / Hickstead Lane roundabout	Mid Sussex
B2026 Edenbridge Road	Between Butcherfield Lane and B2110 Castlefields	Wealden
Chelwood Gate Road / Beaconsfield Road	Between A22 Chelwood Gate Road and Stone Quarry Road	Wealden

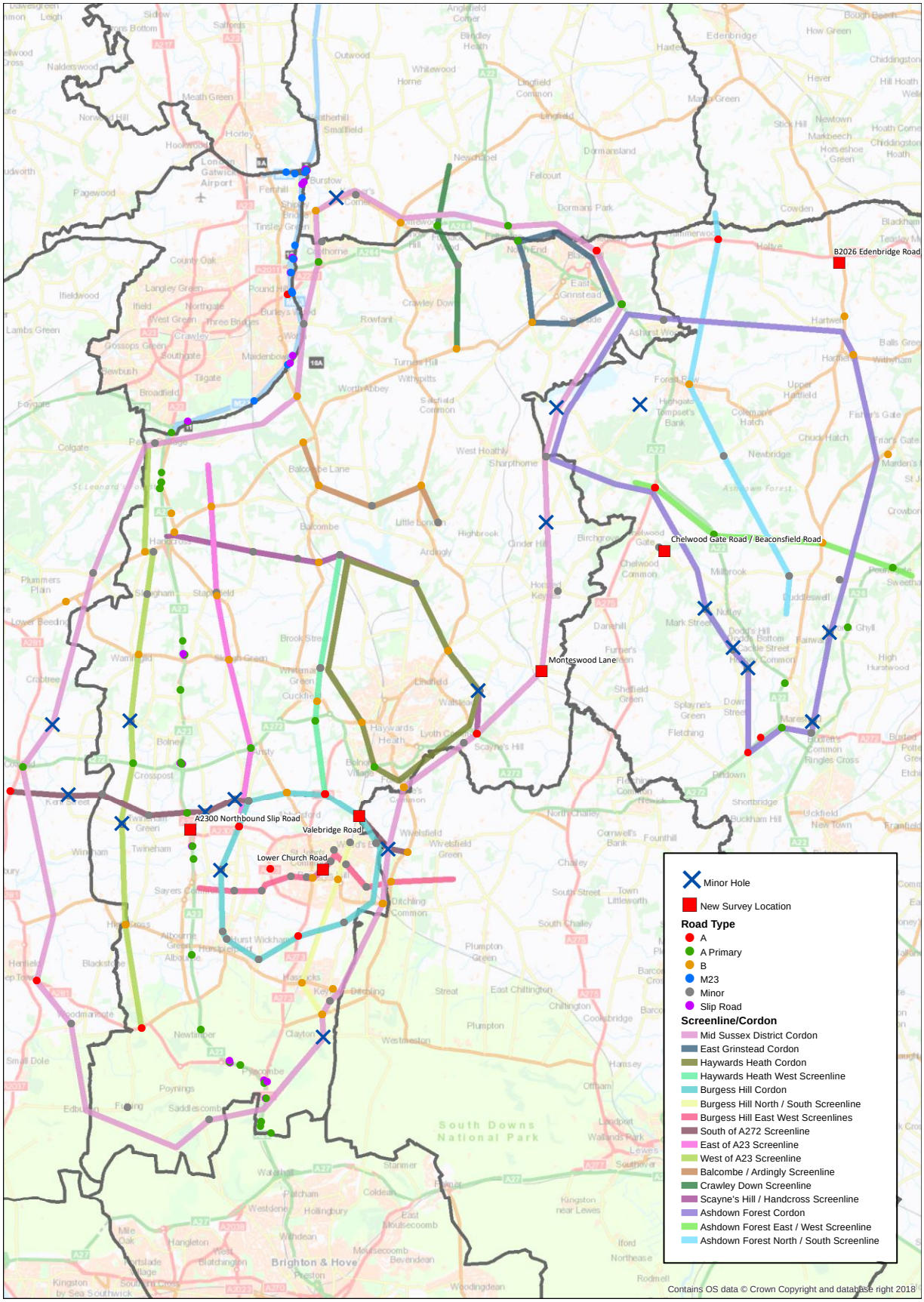
4.5 Processing of Traffic Counts

4.5.1 Traffic counts were collated from the follow datasets:

- **National Highways counts (Webtris) (June 2017)**
  Monday 5 June to Friday 30 June 2017 (weekdays only) is used where available

- **West Sussex County Council permanent (June 2017) and ad-hoc counts**
  These are extracted as required from the online system
  For permanent sites Monday 5 June to Friday 30 June 2017 (weekdays only) is used where available.
  For 'ad-hoc' sites data is used as available, usually only when less than 5 years old

Figure 4. Cordons and Screenlines with New Survey Locations



- **Department for Transport traffic counts (2017)**

  All counts for West Sussex, East Sussex and Surrey were extracted. As they were already processed the provenance is not fully understood. However, the accompanying guidance note states:

  "Raw manual counts dataset is the actual data collected by trained enumerators to feed into road traffic estimates….
  ….A raw count represents the number of vehicles of each type that flowed past a given point on that day broken by direction and hour. Major roads include Motorway and A-class roads."

  Theses counts are considered suitable for use where other data is not available.

- **Counts from the BHTM (2015)**
  Traffic count data used in the production of the BHTM was provided. This was predominantly dated 2015.

- **Surrey County Council (SCC) (2016-18)**
  SCC provided locations of all their available traffic count data. A selection of sites were requested in the Tandridge District to the north of Mid Sussex.

- **East Sussex County Council (ESCC) (2017)**
  ESCC provided existing and newly collected automatic traffic count data.

- **Wealden District Council (WDC) (2017)**
  WDC provided a set of existing counts located in the area of the Ashdown Forest.

Data Cleaning

4.5.2 A cleaning process was undertaken to remove anomalous data, resulting from incidents, equipment faults or other problems. For permanent counters the four weeks of June 2017 (Monday 5 June to Friday 30 June – weekdays only) are processed where available.

4.5.3 The processing is a part automated, part manual process and ensures consistency of approach. The steps are as follows:

Step A Raw data entry: The data is passed from the raw datasets to the analysis spreadsheet. At this point all recorded data is included.

Step B Initial analysis: The average (mean), maximum and minimum values are calculated for each location The analysis is undertaken for every row, i.e., by site, direction and hour for across all of the days on which data was collated (up to 20 weekdays for each direction).

Step C Remove anomalous counts: The maximum and minimum daily count for each direction are analysed to identify anomalies. Outlying days are removed manually until the maximum and minimum count are within approximately 20% of the average.

Step D: Finalise for Count Database: Final checks are undertaken before the average counts are passed to the count database for use in the model.

4.6 Traffic Count Database

4.6.1 Once processed the traffic counts are presented in a common format using MS Excel spreadsheets. This makes the data accessible for analysis and use across all the data sets. It also means it can be conveniently accessed and used for other non-modelling purposes if desired. The database is directly linked to GIS allowing easy navigation of data.

4.6.2 The count database includes an output sheet which presents all count sites by direction, with classified counts (Car, LGV, HGV) for the model periods (AM 0800-0900, average inter-peak 1000-1600 and PM 1700-1800). This output is then used as the main input for use of traffic counts in the model, i.e. for matrix updates, calibration and validation.

4.6.3 **Table 6** shows a summary of the analysis undertaken to provide vehicle class proportions to disaggregate counts into Car, LGV and HGV. The table shows proportions for traffic counts where full vehicle classification is available. These proportions are then used to 'infill' traffic counts where only a total vehicle count is available. Observation of the range proportions for each road type showed that they are broadly consistent for road type and period, with no particular geographical trends for the Mid Sussex area. Therefore it is considered appropriate to apply the factors globally by road type and period.

Table 6. Traffic Counts (Vehicles) by Road Type and Vehicle Class

ROAD TYPE	AM			INTER-PEAK			PM		
	Car	LGV	HGV	Car	LGV	HGV	Car	LGV	HGV
Motorway	77.5%	14.9%	7.7%	72.6%	17.6%	9.8%	82.8%	12.6%	4.6%
A	83.2%	13.3%	3.5%	79.7%	15.7%	4.6%	87.8%	11.0%	1.3%
B	86.2%	12.0%	1.8%	82.3%	14.9%	2.8%	88.6%	10.8%	0.6%
C	87.6%	11.0%	1.4%	84.1%	13.9%	2.0%	89.0%	10.6%	0.4%
unclassified	88.3%	10.5%	1.2%	84.2%	14.0%	1.9%	89.8%	9.7%	0.5%
Overall	83.2%	13.1%	3.7%	79.2%	15.8%	5.0%	87.3%	11.1%	1.6%

4.7 Journey Times

4.7.1 The journey time routes are summarised in **Table 7** and mapped in **Appendix A**.

Table 7. Journey Time Routes

ID	Journey Time Route	Distance (km)	ID	Journey Time Route	Distance (km)
1	Cowfold - Burgess Hill	13.6	9	Hurstpierpoint - Cowfold	12.5
2	Burgess Hill - Crawley	22.9	10	Crawley - East Grinstead	13.5
3	Burgess Hill - East Grinstead	23.2	11	Haywards Heath - Crawley	19.3
4	Burgess Hill - Haywards Heath	6.1	12	Hurstpierpoint - Crawley	23.2
5	Hurstpierpoint - Burgess Hill	8.6	13	Haywards Heath - East Grinstead	18.1
6	Cowfold - Crawley	21.3	14	Hurstpierpoint - East Grinstead	36.1
7	Cowfold - East Grinstead	26.5	15	Hurstpierpoint - Haywards Heath	12.1
8	Cowfold - Haywards Heath	13.0			

4.8 2019 Model Update

4.8.1 The existing 2017 screenlines and cordons were used in the 2019 update in their current locations where possible. The traffic count data comprising these were either updated to the corresponding 2019 traffic count in the case of permanent NH and WSCC count sites, or adjusted using factors calculated from permanent count data.

Collation of 2019 Traffic Counts

4.8.2 The traffic count data was collated and an inventory for each set prepared. This was loaded into GIS (Graphical Information System) mapping using the Easting and Northing coordinates provided for each site.

Processing of 2019 Traffic Counts

4.8.3 Traffic counts were collated from the follow datasets:

- **National Highways counts (Webtris) (June 2019)**
  Monday 3 June to Friday 28 June 2019 (weekdays only) was used where available
- **West Sussex County Council permanent counts (June 2019)**
  For permanent sites Monday 3 June to Friday 28 June 2019 (weekdays only) was used where available.

4.8.4 A cleaning process was undertaken to remove anomalous data, resulting from incidents, equipment faults or other problems.

Traffic Count Database

4.8.5 Once processed the traffic counts were presented in a common format using MS Excel spreadsheets. This makes the data accessible for analysis and use across all the data sets. It also means it can be conveniently accessed and used for other non-modelling purposes if desired.

4.8.6 The count database includes an output sheet which presents all count sites by direction, with classified counts (Car, LGV, HGV) for the model periods (AM 0800-0900, average inter-peak 1000-1600 and PM 1700-1800). This output was then used as the main input for use of traffic counts in the model, i.e. for matrix updates, calibration and validation.

5. ROAD NETWORK

5.1 Introduction

5.1.1 This Chapter describes the development of the road network. As explained in paragraph 1.4.4 the 2017 network is described first followed by the 2019 updates (Section 5.7).

5.1.2 The road network is represented by two levels of network detail, the fully modelled area (FMA) and external area. **Table 8** outlines the different regions.

Table 8. Network Structure by Model Area

NETWORK TYPE	MODEL AREA	MODELLING DESCRIPTION
Simulation network	Fully Modelled Area	Junction capacity restraints are explicitly modelled for priority junctions, roundabouts, and signalised junctions considering the interaction of different movements. As shown in Figure 1.
Speed / flow network	External Area	Capacity restraint is based on speed versus flow curves, where increased flows on a particular link result in increased travel times along that link

5.1.3 The core fully modelled area includes all motorways, A roads, B roads and minor roads and other roads considered to carry high volumes of traffic. Professional judgment of the project team was used to assess which minor roads have sufficiently high volumes of traffic to warrant inclusion. Furthermore, the client, and related consultants have been consulted with to ensure all appropriate roads have been included.

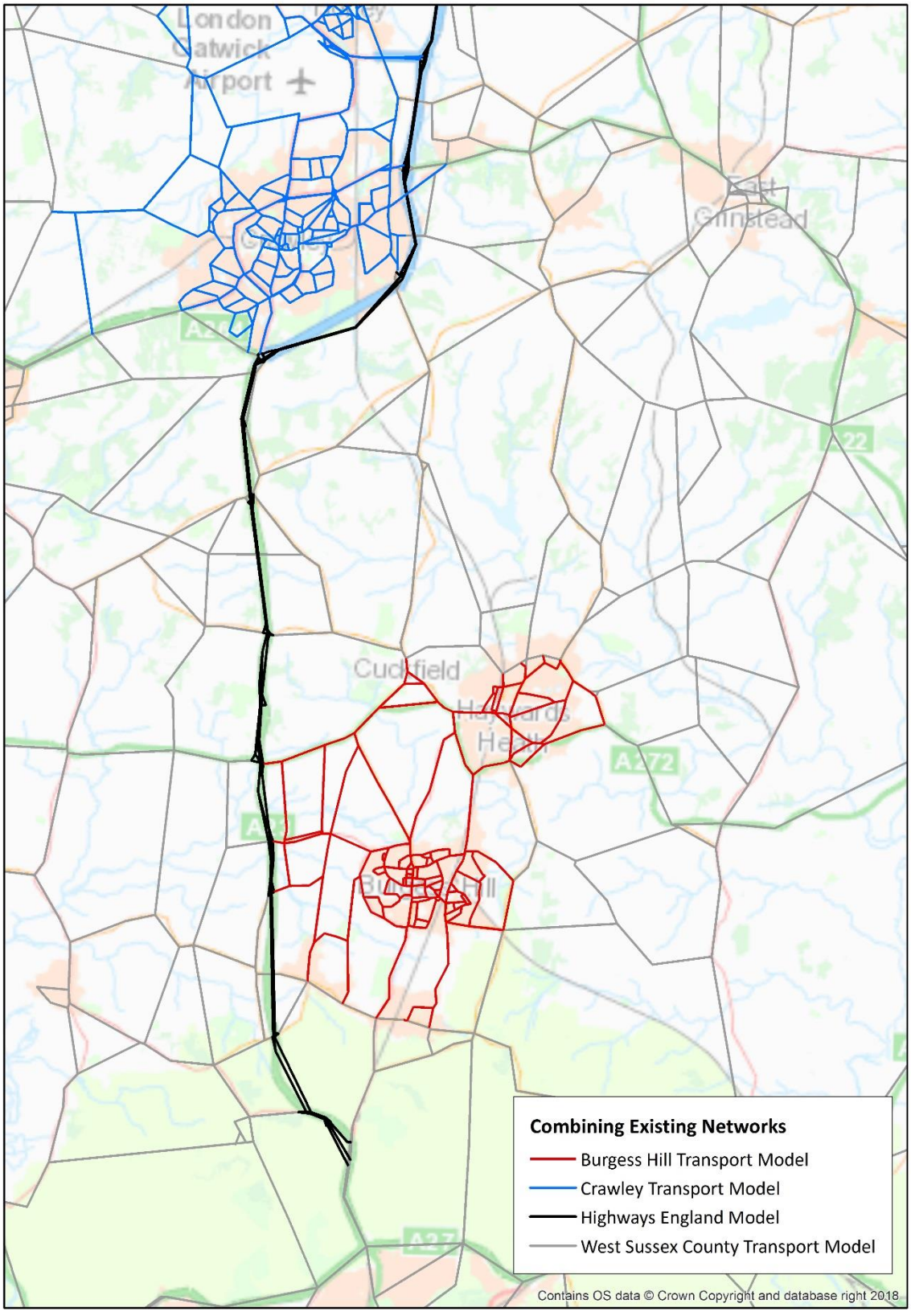
5.1.4 The road network represented in the external area reduces in density with distance from the core fully modelled area. This mirrors the zone system used in the MSSHM. In the districts surrounding Mid Sussex, all motorways, A roads and key strategic routes are included. At a regional level however, a skeletal network is used, covering only main routes into the area.

5.2 Method

5.2.1 The MSSHM uses several existing models to produce a road network with an appropriate level of detail for the model purpose. The existing models have different purposes and therefore cover different areas in and around Mid Sussex. The WSCTM for example, provides sufficient detail for the entire West Sussex area, whereas the BHTM and CTM models have greater detail of the road networks in Burgess Hill and Crawley respectively. To establish a detailed road network of Mid Sussex, the most detailed areas of each model have been combined to form the MSSHM. The models are listed below, with the road used from each model being represented in **Figure 5.**

- The West Sussex County Model (WSCTM)
- Burgess Hill Transport Model (BHTM)
- Crawley Transport model (CTM)
- National Highways M23 Junction 8-10 Model

Figure 5. Existing networks combined for the MSSHM



5.3 Network Review

5.3.1 The models used to establish the road network have different base years, and therefore have be audited against the road network in 2017, the base year of the MSSHM.

5.3.2 By using web-based portals, such as road maps, aerial photography, and ITN networks, an audit has been conducted to ensure all strategic roads are included in the network. A GIS shapefile, including all roads in the West Sussex County was also used. The shapefile contains supplementary information, including the following:

- Road class
- Road length
- Speed limit

5.3.3 The modelled speed of the roads within the network should not be solely based on the speed limit. This would assume that vehicles travel at the speed limit for the full length of the road. In reality, it takes time for vehicles to accelerate after entering a road, and decelerate when approaching a junction, and on some minor, rural roads, traffic may never travel at the speed limit due to the road conditions. To represent this behaviour accurately, and to ensure speeds are modelled consistently throughout the MSSHM, standards have been developed. The standards use a factored speed limit, established by the attributes in **Table 9**, to determine the cruise speed of roads in the model.

Table 9. Attributes used to determine modelled cruise speed

ATTRIBUTE	DESCRIPTION
Speed limit	Sign-posted speed limit As shown in **Figure 6**.
Road classification	Motorway Slip Road A Road B Road C Road Other. As shown in **Figure** 7.
Area type	Whether the geographical area is classified as urban or rural. Urban settlements are defined as having a resident population greater than 10,000, whereas rural settlements have less than 10,000. As determined in the Rural Urban Classification, published as an official statistic as part of the 2011 Census. As shown in **Figure 8**.
Lanes	The number of lanes on the road, by direction.

Figure 6. Speed Limits

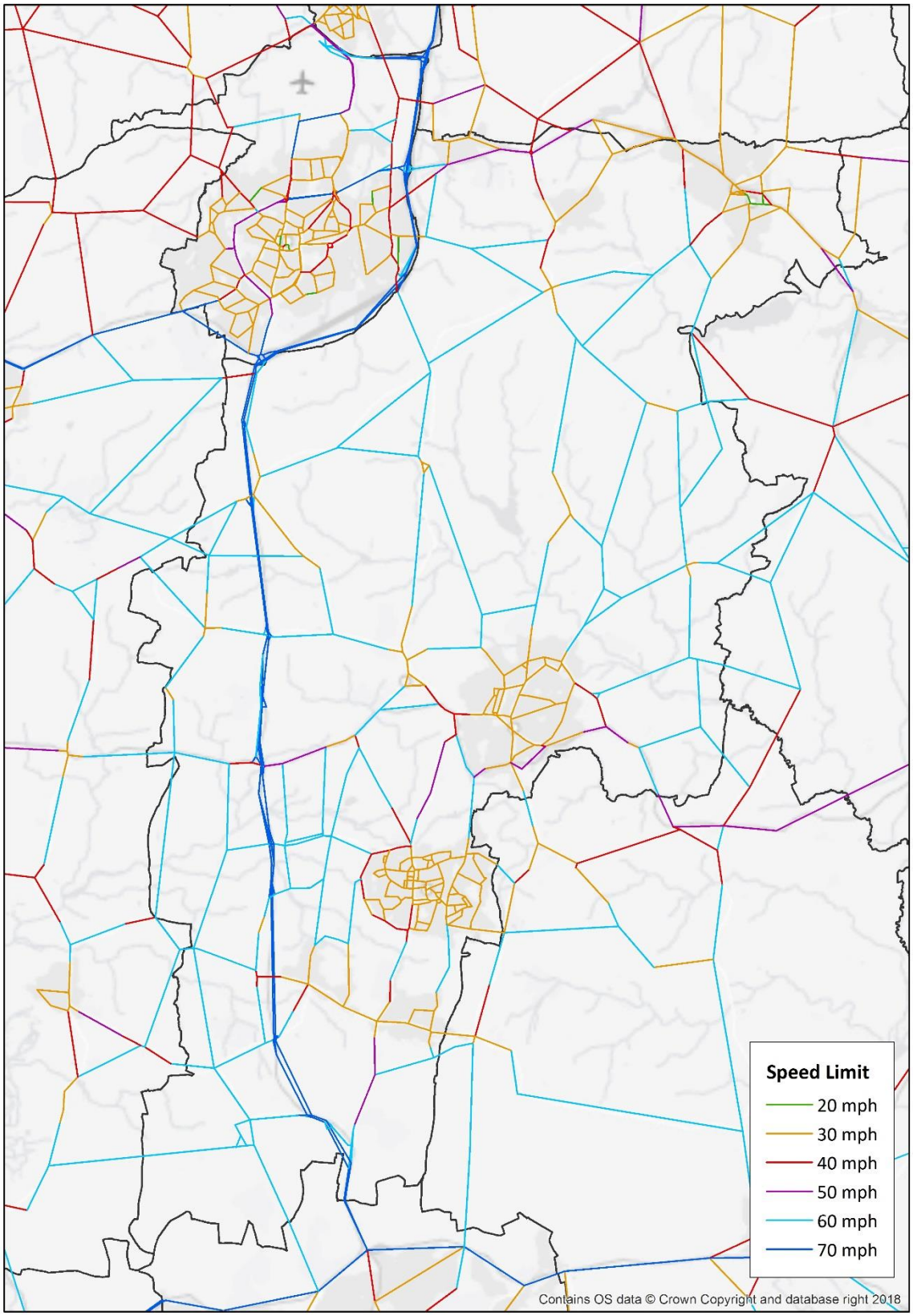


Figure 7. Road classification

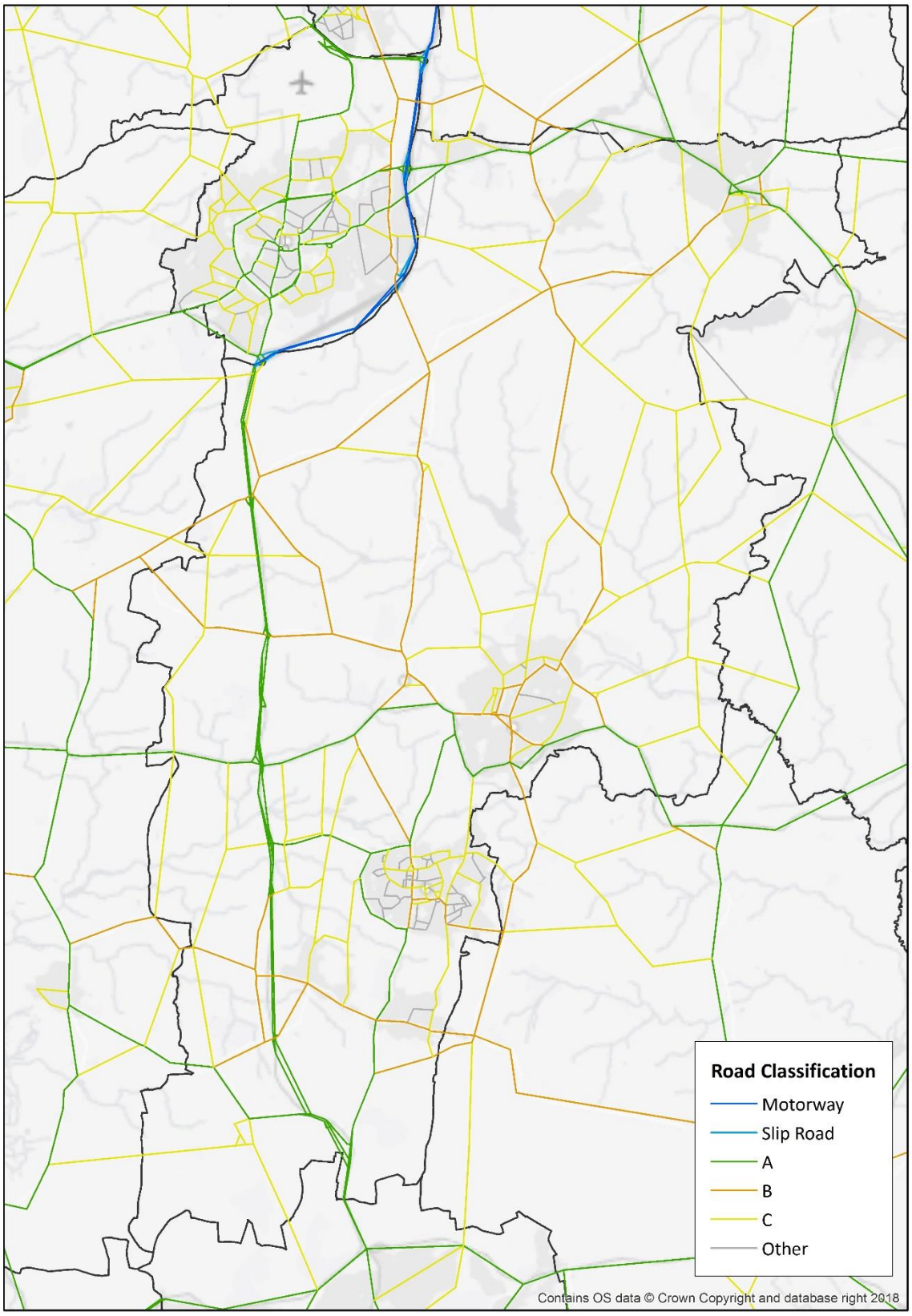
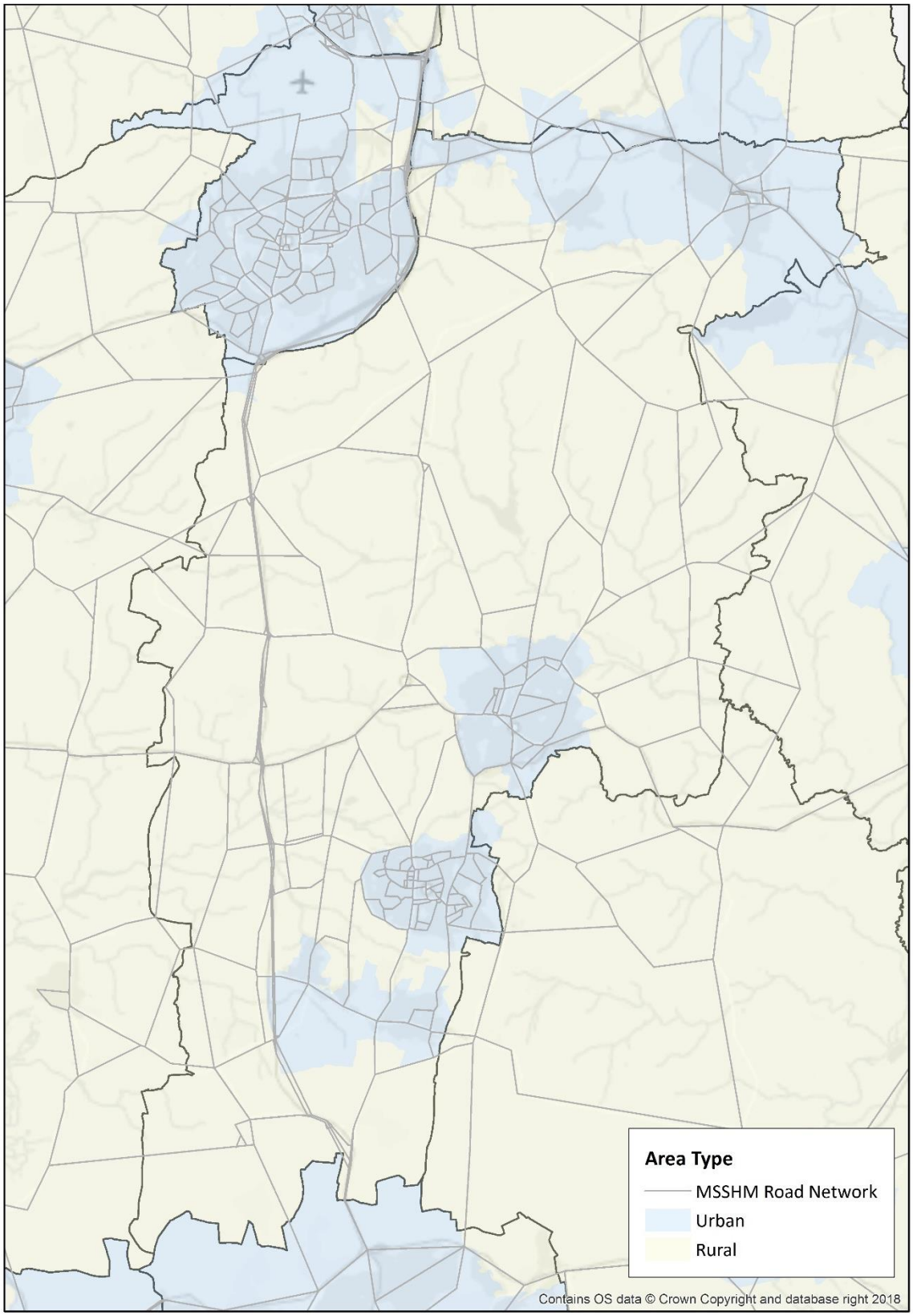


Figure 8. Area type



5.4 Junction Modelling

5.4.1 The design of a junction determines the capacity, in terms of the volume of traffic able to pass through the junction in a defined period of time. Saturation flow represents this measure, describing the number of passenger car units able to pass through the junction on a particular turning movement during one hour of unopposed flow i.e. assuming that no traffic is making another conflicting movement through the junction during this time.

5.4.2 To ensure further consistency across the model, saturation flows have been standardised alongside model speeds. The factors listed in **Table 10** have been used to identify, and implement standards in the MSSHM.

Table 10. Attributes used to determine modelled saturation flows

ATTRIBUTE	DESCRIPTION
Junction type	i.e. Priority junction, roundabout, mini-roundabout, signalised junction, zone access
Approach lanes	The number of lanes at the junction stop line
Volume of traffic	The volume of traffic passing through the junction
Opposing traffic flows	Including give way, merging traffic, and opposed right turns

5.4.3 Each node and link is run through the SATURN network build module, SATNET to ensure no serious errors or warnings exist in the model.

5.4.4 The gap acceptance has been adopted based on practical experience of calibrating and validating SATURN based models, and existing models. The following values have been used in the simulation road network:

- 1.5 seconds for priority junctions or traffic signals;
- 0.75 seconds for merging turns; and
- 1.25 seconds for roundabouts.

5.5 Zone Loading Locations

5.5.1 The location of zone loading points ensures the loading of traffic onto the network is realistic. By using aerial photography and technical experience, patterns of traffic movements and feeding points of local traffic onto strategic roads have been identified.

5.6 Assignment Parameters

5.6.1 Generalised cost parameters are used in the model to determine the minimum cost route by which traffic is assigned onto the network. The parameters required are pence per minute (PPM), and pence per kilometre (PPK). These are calculated by using value of time (VOT), vehicle operating costs (VOC), and vehicle occupancies from the TAG Databook - March 2018 Release v1.7. PPM and PPK figures are read into SATURN by user class and time period.

5.7 2019 Base Model Update

5.7.1 Previous forecasting work included collation and coding of committed highway infrastructure schemes that will be in place by 2031.

5.7.2 For the 2019 update schemes included in 2031 were reviewed in consultation with WSCC to identify which, if any, should be included in the 2019 base model, i.e. those schemes that were completed between 2017 and 2019. The schemes added to the 2017 base model were:

- A264/Kilnwood Vale main site access roundabout: Calvert Link
- A264/Kilnwood Vale secondary site access junction: Rookfield Road
- A264/M23 Pease Pottage Interchange additional lane on eastbound approach with signal control.
- A264 Copthorne Way/Worsell Drive access to "Heathy Wood" development (Worsell Drive is a construction access only).

6. TRIP MATRICES

6.1 Introduction

6.1.1 This Chapter summarises the methodology for production of the base year prior trip matrices. As explained in paragraph 1.4.4 the 2017 matrices development is described first followed by the 2019 updated prior matrices (Section 6.4). The prior matrices were later calibrated using matrix estimation; the trip matrix validation results are reported in Chapter 7. The matrices described in this section are the pre-calibration (prior) matrices.

6.1.2 The 2017 base year highway trip matrices are produced for the periods and user classes/purposes described in Chapter 2. Several sets of existing matrices and data were available for use in matrices production, including:

- West Sussex Mobile Network Data (MND) matrices (2015)
- West Sussex County Transport Model (WSCTM) matrices (2010)
- Burgess Hill Transport Model (BHTM) matrices (2015)
- Crawley Transport Model (CTM) matrices (2015)
- Census Travel to Work (2011)

6.1.3 The approach used for the MSSHM matrices was to make the best use of these existing matrices and data in combination. The MSSHM zone system and matrices have been developed to be compatible with the systems listed above, along with Middle Super Output Areas (MSOAs) .

6.2 Data Analysis

Suitability of Existing Data

6.2.1 The existing datasets were analysed to assess suitability for use in the MSSHM. The BHTM and CTM matrices have base years of 2015 and were constructed using the MND matrices. The WSCTM is a well-established model and has a base year of 2010. The following key analysis was undertaken:

- Analysis of year to year trends (this was required to ascertain whether adjustment factors need to be applied to data used)
- Census Travel to Work 2011 (to confirm suitability for commuting trip patterns)
- West Sussex Mobile Network Data (MND), to confirm its suitability for use as applied in the BHTM and CTM matrices, here using a direct comparison to Census Travel to Work 2011

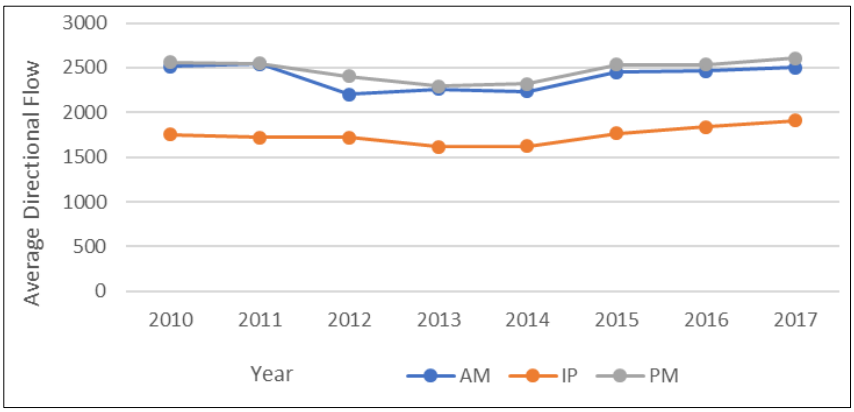
Analysis of Year to Year Trends

6.2.2 The existing data and models used in the MSSHM matrices have varied base years. Therefore it is appropriate to investigate whether adjustments should be made to ensure existing data reflects 2017 volumes of traffic before they are used for the MSSHM.

6.2.3 An analysis of year to year trends in traffic flows was undertaken using Highway England permanent traffic counts. Ten sites were identified on the M23 and A23 for which data

was available for the month of June for every year from 2010 to 2017. **Figure 9** shows the year to year variation of the average traffic flow across these sites, for the three model periods, AM, IP and PM.

Figure 9. Year to Year Traffic Flow Trends: 2010-2017



6.2.4 The key years which require consideration are 2010 (WSCTM), 2011 (Census Travel to Work), 2015 (BHTM and CTM), and 2017 (MSSHM). The analysis shows that for these years, for AM and PM in particular the trend is reasonably consistent, with similar volumes across the four years being considered. All periods show a dip from 2012 to 2014, before returning to 2010/2011 volumes by 2015. This dip was likely to be due to the A23 Handcross to Warninglid works and also possibly Smart Motorway works on the M25.

6.2.5 It was concluded that year to year adjustment factors do not need to be applied to the existing data.

Census Travel to Work 2011

6.2.6 It is considered that although now several years old this data still provides a realistic distribution for home to work trips, due mainly to its very high sample rate and full geographic coverage. However, to confirm this and familiarise with the local commuting patterns an analysis of this data was undertaken for a suitable MSOA based sector system which is shown in **Figure 10.**

6.2.7 **Table 11** shows the matrix of car driver home to work trips for the colour coded sector system.

West Sussex Mobile Network Data (MND) (2015)

6.2.8 Similarly to the Census data the MND data was analysed to confirm its suitability for use. The home to work AM peak MND matrices were converted to the same sector system so that a direct comparison could be made to the Census Travel to Work data. This resulting matrix is shown in **Table 12.**

6.2.9 In terms of the overall pattern of trips, it is considered that, where comparable, the correlation between the Census and MND matrices is reasonable, confirming the MND matrices suitability for use in the MSSHM.

Figure 10. Mid Sussex MSOAs

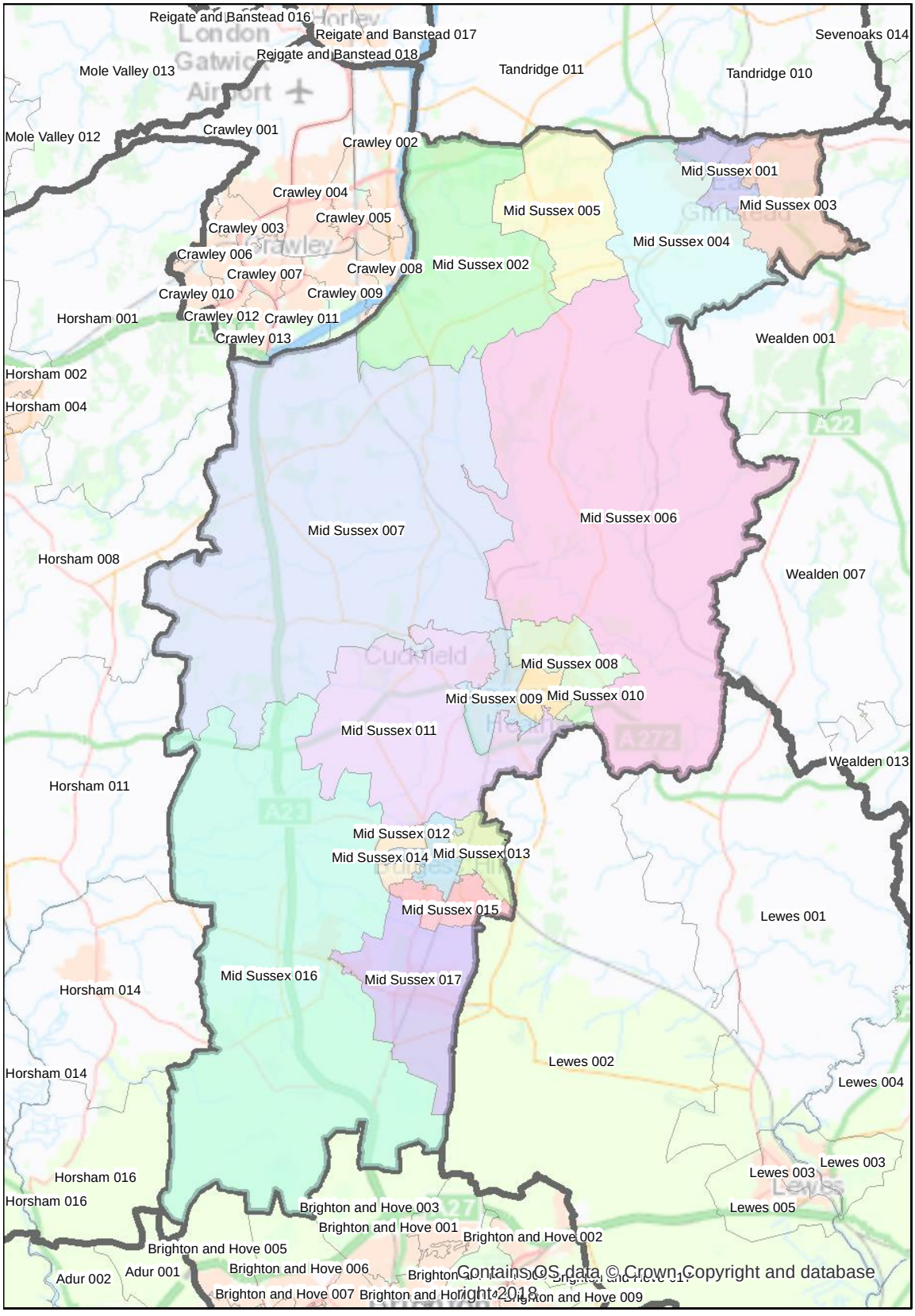


Table 11. Census Travel to Work 2011 (Car Driver)

		East Grinstead Central/North	Copthorne	East Grinstead East, Ashurst Wood	East Grinstead West, Saint Hill	Crawley Down	Horsted Keynes, Scaynes Hill	Staplefield, Balcombe	Haywards Heath - Lindfield	Haywards Heath - West	Haywards Heath Central	Ansty, Cuckfield	Burgess Hill - West	Burgess Hill - East	Burgess Hill - Central	Burgess Hill - South	Hickstead, Albourne	Hassocks	West Sussex (rest)	Brighton and Hove	East Sussex	Surrey	South East (rest)	Rest of UK	
001	East Grinstead Central/North	514	28	74	227	39	48	14	13	34	3	8	7	1	7	5	11	3	624	32	196	742	195	267	3,092
002	Copthorne	86	104	12	33	34	23	20	6	30	1	6	9	3	15	12	9	0	784	22	37	463	57	202	1,968
003	East Grinstead East, Ashurst Wood	492	28	106	178	21	41	10	10	25	3	14	3	0	7	9	11	1	448	25	211	489	151	179	2,462
004	East Grinstead West, Saint Hill	376	22	51	126	14	33	9	10	25	2	10	2	0	6	5	4	1	434	17	132	404	130	184	1,997
005	Crawley Down	157	59	21	41	76	32	13	7	18	0	11	7	1	15	8	5	3	663	30	52	430	71	173	1,893
006	Horsted Keynes, Scaynes Hiil	79	26	15	25	6	169	23	73	156	21	67	15	7	30	26	24	6	342	55	216	161	57	130	1,729
007	Staplefield, Balcombe	25	23	6	11	6	29	153	34	102	12	80	27	3	34	21	46	11	630	74	78	224	64	150	1,843
008	Haywards Heath - Lindfield	40	16	5	16	4	95	46	146	292	56	146	26	3	66	55	46	15	428	128	194	133	69	114	2,139
009	Haywards Heath - West	28	11	4	15	5	90	48	58	297	33	154	57	8	94	59	60	12	624	154	217	158	64	130	2,380
010	Haywards Heath Central	28	8	1	10	9	88	50	108	253	53	108	18	7	69	46	44	8	350	92	148	106	42	76	1,722
011	Ansty, Cuckfield	39	14	9	13	4	89	57	99	308	65	167	25	10	99	51	58	17	495	149	191	150	53	149	2,311
012	Burgess Hill - West	17	6	1	6	6	25	38	32	243	19	112	86	20	251	126	86	39	535	186	160	116	46	105	2,261
013	Burgess Hill - East	19	3	1	2	9	17	36	42	228	19	128	99	38	242	144	101	50	402	202	215	103	42	88	2,230
014	Burgess Hill - Central	14	8	1	11	7	40	46	31	207	13	113	96	33	222	130	113	66	446	197	226	102	50	96	2,268
015	Burgess Hill - South	23	8	1	6	5	12	17	25	158	13	87	60	11	165	116	61	38	339	171	166	82	39	69	1,672
016	Hickstead, Albourne	8	1	3	5	3	21	36	24	96	15	75	35	12	130	60	226	81	509	396	156	93	46	121	2,152
017	Hassocks	17	1	4	8	4	20	15	35	138	16	69	39	12	172	104	133	121	424	384	239	66	37	77	2,135
	West Sussex (rest)	556	448	43	315	172	161	519	140	797	59	342	380	26	526	341	567	79	119,089	8,529	2,112	14,191	9,376	7,879	166,647
	Brighton and Hove	84	35	21	60	25	61	79	55	382	54	284	245	28	486	259	461	150	8,530	21,713	4,305	1,205	869	2,253	41,644
	East Sussex	666	73	108	244	41	348	84	163	781	77	376	197	24	416	280	359	90	4,133	7,212	85,076	1,770	10,296	4,517	117,331
	Surrey	557	139	58	279	88	44	94	30	129	9	40	49	1	40	52	45	3	9,210	290	358	173,193	34,191	66,206	285,105
	South East (rest)	334	37	28	124	19	32	31	17	81	9	17	52	3	31	42	35	2	11,419	381	4,102	49,092	1,285,464	178,128	1,529,480
	Rest of UK	166	75	11	132	16	45	49	18	107	9	22	228	6	47	140	86	2	7,891	707	1,386	52,507	180,732	10,574,760	10,819,142
		4,325	1,173	584	1,887	613	1,563	1,487	1,176	4,887	561	2,436	1,762	257	3,170	2,091	2,591	798	168,749	41,146	100,173	295,980	1,522,141	10,836,053	12,995,603

Table 12. MND Home to Work (AM)

		East Grinstead Central/North	Copthorne	East Grinstead East, Ashurst Wood	East Grinstead West, Saint Hill	Crawley Down	Horsted Keynes, Scaynes Hill	Staplefield, Balcombe	Haywards Heath - Lindfield	Haywards Heath - West	Haywards Heath Central	Ansty, Cuckfield	Burgess Hill - West	Burgess Hill - East	Burgess Hill - Central	Burgess Hill - South	Hickstead, Albourne	Hassocks	West Sussex (rest)	Brighton and Hove	East Sussex	Surrey	South East (rest)	Rest of UK	
001	East Grinstead Central/North	186	47	71	105	74	22	8	1	17	8	8	1	1	10	2	3	0	581	20	247	560	201	118	2,291
002	Copthorne	184	5	8	78	119	3	17	1	10	7	65	7	0	5	0	26	0	875	15	32	278	33	51	1,819
003	East Grinstead East, Ashurst Wood	185	19	11	183	115	20	5	4	19	4	17	3	0	0	2	3	0	286	9	133	448	181	89	1,736
004	East Grinstead West, Saint Hill	219	31	31	55	91	18	17	14	16	8	4	1	2	2	4	1	0	369	5	122	252	125	77	1,464
005	Crawley Down	130	4	55	27	21	13	17	4	8	1	8	1	0	3	0	4	0	420	7	65	205	49	55	1,097
006	Horsted Keynes, Scaynes Hiil	107	16	7	83	9	20	12	8	65	8	85	13	13	60	1	18	5	352	20	181	201	74	32	1,390
007	Staplefield, Balcombe	28	21	6	18	7	2	6	10	52	0	42	14	6	30	13	4	4	712	35	47	134	28	53	1,272
008	Haywards Heath - Lindfield	34	12	11	7	7	23	20	16	84	28	211	96	11	164	46	38	13	373	61	190	60	29	12	1,546
009	Haywards Heath - West	44	4	3	11	3	35	52	55	117	13	672	83	15	149	26	20	13	453	131	187	50	28	19	2,183
010	Haywards Heath Central	26	9	3	6	0	17	8	14	59	4	209	38	22	129	31	10	2	208	49	161	23	21	11	1,060
011	Ansty, Cuckfield	33	0	7	4	7	15	70	24	58	62	91	62	18	135	42	23	27	421	97	168	52	29	27	1,472
012	Burgess Hill - West	28	10	2	2	0	31	38	49	142	33	213	2	0	10	42	45	75	331	179	138	75	17	24	1,486
013	Burgess Hill - East	17	3	0	5	8	30	71	50	95	59	128	34	9	99	29	46	19	268	130	198	38	22	6	1,364
014	Burgess Hill - Central	18	7	2	4	2	39	41	29	204	35	182	1	0	52	56	39	33	441	342	168	73	21	24	1,813
015	Burgess Hill - South	6	1	0	3	0	17	11	15	64	13	39	11	0	113	42	84	1	238	365	166	31	15	7	1,242
016	Hickstead, Albourne	24	4	0	0	3	7	38	16	55	5	140	13	2	22	42	17	99	542	347	88	74	22	21	1,581
017	Hassocks	14	8	1	4	5	24	27	26	124	15	47	12	45	82	24	132	40	339	591	186	49	17	21	1,833
	West Sussex (rest)	588	473	85	238	239	163	313	122	390	51	364	540	54	446	141	438	136	120,341	11,711	1,871	12,248	5,704	3,659	160,315
	Brighton and Hove	65	34	8	37	17	33	64	46	193	18	125	284	55	429	207	358	232	7,862	64,066	9,433	463	577	294	84,900
	East Sussex	804	60	129	227	108	171	193	181	717	119	392	158	17	442	158	239	108	2,983	10,126	21,724	1,246	8,923	853	50,078
	Surrey	672	119	236	300	100	13	37	28	34	0	9	47	3	42	9	35	1	8,966	187	495	101,658	5,540	18,372	136,903
	South East (rest)	316	24	98	108	34	22	25	26	52	5	20	29	5	23	16	38	14	8,298	1,138	8,082	10,700	46,722	11,927	87,722
	Rest of UK	107	19	13	76	15	7	14	10	15	6	2	16	5	10	9	21	4	3,822	216	321	25,000	9,569	4,861	44,138
		3,835	930	787	1,581	984	745	1,104	749	2,590	502	3,073	1,466	283	2,457	942	1,642	826	159,481	89,847	44,403	153,918	77,947	40,613	590,705

6.3 Prior Matrices Production

6.3.1 Following the analysis of the existing matrices and data, a method to combine these to create the MSSHM prior matrices was specified. As previously stated the approach for the MSSHM matrices was to make the best use of these existing matrices and data in combination, within the confines of the geographic coverage and matrix dimensions (e.g. time periods, vehicle/user classes) that are available for each existing data source.

6.3.2 Matrices are required for each of the three periods (Section 2.3) and five vehicle/users classes, resulting in fifteen matrices in total.

6.3.3 Before data could be used it also had to be converted to the MSSHM zone system. This was done using GIS based analysis and use of postcode points to accurately split zonal trip ends.

Matrices combination

6.3.4 For each period and user class, the suitable data source was specified based on the data analysis. This was undertaken separately for the following features of the matrices:

- Zonal trip ends, i.e. the volume of trips going to and from the zones
- Distribution i.e. the pattern of trips or where the trips go to or come from

6.3.5 The availability of this information differs by existing data source for each period and vehicle/user classes, for example the WSCTM is AM peak hour only, with one user class. The existing data also varies in geographical coverage in terms of the fullness of the trip data it provides; while the Census and WSCTM provide wide coverage, the BHTM and CTM are smaller models and have more limited coverage.

6.3.6 For these reasons the data source selected varies for trip ends and distribution, by vehicle/use class and geographical area. **Table 13** shows the main source data for geographical and user class components of the matrices.

Table 13. Prior Matrix Sources

Class	Burgess Hill / Haywards Heath		Rest of Mid Sussex		Crawley Area		Rest of West Sussex		Rest of UK	
	Trip Ends	Distribution	Trip Ends	Distribution	Trip Ends	Distribution	Trip Ends	Distribution	Trip Ends	Distribution
Car Commute	BHTM / MND	**Census Journey to Work**	WSCTM (Split by Class)	**Census Journey to Work**	CTM / MND	**Census Journey to Work**	WSCTM (Split by Class)	**Census Journey to Work**	WSCTM/ TEMPro	**Census Journey to Work**
All Others	BHTM / MND	WSCTM	WSCTM (Split by Class)	WSCTM	CTM / MND	WSCTM	WSCTM (Split by Class)	WSCTM	WSCTM/ TEMPro	WSCTM

Trip Ends

6.3.7 Trips ends are largely provided by WSCTM, BHTM and CTM models for the MSSHM area. Although WSCTM coverage is good within West Sussex and the immediate surrounds, for locations near to Mid Sussex in Surrey and East Sussex, TEMPro was used to ensure the demand to and from these areas is complete for journeys in the MSSHM area.

6.3.8 Where WSCTM is used this required the single user class to be split using appropriate factors. These were derived from models with more segregation of user classes, as shown in **Table 14**.

Trip Distribution

6.3.9 Census Travel to Work 2011 data is used for the distribution of commuting destinations. This data is regarded as being the best for providing accurate representation of home to work trips due to its very high sample size. This is of critical importance for the development sites being tested in the transport study. The WSCTM is considered suitable for providing a realistic trip distribution for non-commuting trips.

6.3.10 Due to the timing of the Census the 2011 data is six years older than the model base year. This data is used for trip distribution purposes only and is not used for any volumetric totals in the matrices. It is therefore considered that this data is suitable for use as long as there have not been any large changes to the proportional distribution of employment compared to housing in the district and surrounding area. Following discussion with Mid Sussex District Council it was concluded that there have not been any significant such changes that would require any adjustment to the Census data.

Matrix Sizes and Proportions

6.3.11 **Table 14** shows the MSSHM matrices sizes and proportions by user classes with comparison to the BHTM and CTM. The proportions are consistent across the models.

Table 14. Matrix Sizes

		BHTM		CTM		MSSHM	
AM							
Car	Commute	13,258	39%	18,055	31%	59,807	38%
Car	Business	5,547	16%	6,318	11%	24,070	15%
Car	Other	9,436	28%	23,068	40%	46,401	30%
LGV	LGV	3,252	10%	5,013	9%	14,652	9%
HGV		1,229	7%	2,732	9%	5,454	7%
Car Total		**28,241**	**83%**	**47,441**	**82%**	**130,278**	**84%**
Grand Total		**33,952**	**100%**	**57,918**	**100%**	**155,838**	**100%**
IP							
Car	Commute	2,364	10%	2,815	7%	9,356	10%
Car	Business	3,116	13%	4,233	10%	12,489	13%
Car	Other	12,742	54%	23,282	58%	52,592	54%
LGV	LGV	2,889	12%	4,940	12%	13,276	14%
HGV		1,204	10%	2,554	13%	5,255	11%
Car Total		**18,223**	**77%**	**30,330**	**75%**	**74,437**	**76%**
Grand Total		**23,519**	**100%**	**40,379**	**100%**	**98,223**	**100%**
PM							
Car	Commute	11,684	36%	16,991	30%	50,768	35%
Car	Business	3,120	10%	4,012	7%	14,309	10%
Car	Other	13,818	43%	26,981	48%	62,989	43%
LGV	LGV	2,356	7%	4,302	8%	11,669	8%
HGV		585	4%	1,747	6%	2,824	4%
Car Total		**28,621**	**89%**	**47,984**	**86%**	**128,066**	**88%**
Grand Total		**32,147**	**100%**	**55,780**	**100%**	**145,383**	**100%**

6.4 2019 Base Model Update

6.4.1 Prior Matrices

6.4.2 Factors were calculated to adjust the 2017 prior matrices to 2019 prior matrices. This was undertaken using 2017-2019 factors calculated from the processed data and applied appropriately by user class.

Calibration and Validation of Prior Matrices

6.4.3 Following production of 2019 prior matrices, calibration was undertaken using matrix estimation. This makes use of 2019 traffic counts grouped into screenlines and cordons. For locations where a 2019 count was not available 2017-2019 factors were applied to counts used in the 2017 calibration and validation, as described in Section 4.8. This process results in a better match between the model traffic flows and observed traffic counts, and is described in the next Chapter.

6.4.4 It should be noted that the 2019 prior matrices were updated from the 2017 pre-calibrated prior matrices and therefore the matrices have not undergone any calibration or matrix estimation before that described in the next Chapter.

7. CALIBRATION AND VALIDATION

7.1 Introduction

7.1.1 This Chapter describes the calibration and validation of the model, using the traffic counts grouped into cordons and screenlines as shown in **Figure 4**. The process uses the SATURN software to undertake adjustments to the trip matrices to achieve a better match between observed and assigned traffic flows.

7.2 Trip Matrix Estimation Process

7.2.1 The matrix estimation process uses the SATURN program SATME2 in conjunction with the supplementary program SATPIJA. It is based on the theoretical procedure generally referred to as ME2 - Matrix Estimation from Maximum Entropy. SATME2 tries to improve the fit between modelled and observed flows by selectively factoring individual cells of the input trip matrix. SATPIJA creates a file used by SATME2 which represents the proportion of trips between origin-destination pairs which uses the counted link (from SATURN Manual Section 13).

7.2.2 The process is undertaken using six loops between the assignment and matrix estimation. The Matrix Estimation process is constrained using the XAMAX = 5 to restrict individual cell value changes to a factor of 5 to prevent excessive distortion of the matrix.

7.2.3 The inputs to the process are:

- highway networks, AM, IP and PM;
- highway prior matrices AM, IP and PM by user class and vehicle class; and
- SATME2 inputs – calibration counts divided into mini-screenlines.

7.2.4 As described in Chapter 4, the traffic count database provides an output sheet of traffic count information to be used in the matrix calibration and validation. Matrix estimation is applied separately to each user and vehicle classes.

7.3 Changes Resulting from Matrix Estimation

7.3.1 In accordance with guidance in Table 5 of TAG Unit M3-1 the changes resulting from the matrix estimation are monitored and assessed to ensure that the prior matrix is not being excessively distorted. This section describes the trip matrices before and after matrix estimation using the following analyses:

- matrix size by user/vehicle class;
- sector to sector level matrix changes;
- statistical analysis of change in zonal cell values and trip ends; and
- statistical analysis of change in trip length distributions.

Matrix size

7.3.2 **Table 15** show matrix sizes by user class before and after matrix estimation.

Table 15. Prior and Estimated Matrix Sizes (PCUs)

Vehicle Class		User Class	AM			IP			PM		
			Pre	Post	Change	Pre	Post	Change	Pre	Post	Change
1	Car	Commute	56,936	57,888	1.7%	8,916	9,198	3.2%	48,534	50,739	4.5%
2	Car	Business	22,915	23,254	1.5%	11,902	12,306	3.4%	13,679	14,140	3.4%
3	Car	Other	44,173	45,112	2.1%	50,120	51,826	3.4%	60,218	62,363	3.6%
	Car Total		**124,024**	**126,254**	**1.8%**	**70,938**	**73,330**	**3.4%**	**122,431**	**127,242**	**3.9%**
4	Light Goods		14,755	15,542	5.3%	13,369	13,859	3.7%	11,774	12,749	8.3%
5	Heavy Goods		11,061	11,548	4.4%	10,605	11,146	5.1%	5,433	5,632	3.6%
	Grand Total		**149,840**	**153,343**	**2.3%**	**94,912**	**98,334**	**3.6%**	**139,638**	**145,623**	**4.3%**

HGV PCU factor = 2

7.3.3 The overall changes in matrix size are considered satisfactory for the MSSHM. The bigger changes in the PM for car commute and light goods in particular could be attributable to the prior matrices approach. In a traditional matrix building using roadside interview (RSI) data the matrices are expanded using traffic count data and for this reason traffic count volumes are already an integral part of the prior matrix and therefore less volumetric adjustment is required in the matrix estimation. The MSSHM prior matrices were constructed from existing matrices data and did not include any new RSIs or traffic counts (other than in the analysis of year to year trends as shown in Figure 9). For this reason the changes resulting from matrix estimation are considered acceptable.

Sector to Sector Level Matrix Changes

7.3.4 **Table 16**, **Table 17 and Table 18** shows changes resulting from matrix estimation for a suitable sector system. The tables show the sector matrices for the prior matrices, the calibrated matrices and the differences between them in absolute and percentage terms.

7.3.5 TAG guidance recommends that percentage changes should be within 5% and while this is the case for most of the origin and destination trip ends, many of the sector to sector movements are not within 5%. However, most differences are within 10% and where the percentage changes are higher than 10% this is usually due to small sector to sector volumes causing the percentages to be sensitive, and the absolute differences are reasonable.

7.3.6 The highest percentage changes are in the inter-peak which is not considered critical for the transport study which is using the AM and PM peaks only. For these reasons and those described in paragraph 7.3.3 this is considered to be an acceptable result.

Table 16. Sector Trip End Changes Resulting from Matrix Estimation - AM Peak Hour

Prior Matrix **AM**

	Sector	1	2	3	4	5	6	7	
1	East Grinstead	1,040	698	179	1,065	118	1,009	1,679	**5,788**
2	Haywards Heath	273	2,973	1,123	1,389	873	749	831	**8,211**
3	Burgess Hill	156	1,691	5,856	1,120	2,372	2,798	1,182	**15,176**
4	Crawley	1,294	536	547	8,571	2,401	386	4,220	**17,957**
5	West Sussex	143	1,158	4,379	3,256	45,441	1,563	7,318	**63,258**
6	East Sussex	538	1,070	2,259	678	1,825	3,026	1,301	**10,697**
7	UK	1,265	709	984	3,901	7,264	431	14,200	**28,753**
		4,709	**8,835**	**15,326**	**19,981**	**60,294**	**9,963**	**30,733**	**149,840**

Calibrated Matrix **AM**

	Sector	1	2	3	4	5	6	7	
1	East Grinstead	1,119	631	206	974	107	963	1,615	**5,614**
2	Haywards Heath	303	3,075	1,299	1,379	890	824	908	**8,678**
3	Burgess Hill	161	1,476	5,977	1,011	2,188	2,657	1,027	**14,497**
4	Crawley	1,521	536	642	9,060	2,351	393	4,280	**18,784**
5	West Sussex	163	1,091	4,802	3,329	46,968	1,585	7,171	**65,110**
6	East Sussex	648	1,198	2,909	684	1,785	2,998	1,295	**11,518**
7	UK	1,499	713	1,157	3,920	7,216	437	14,200	**29,142**
		5,415	**8,721**	**16,992**	**20,358**	**61,503**	**9,858**	**30,497**	**153,343**

Difference **AM**

	Sector	1	2	3	4	5	6	7	
1	East Grinstead	79	-67	27	-91	-11	-46	-65	**-174**
2	Haywards Heath	30	103	176	-10	16	75	77	**467**
3	Burgess Hill	5	-215	121	-109	-184	-141	-156	**-679**
4	Crawley	227	0	95	489	-51	7	60	**827**
5	West Sussex	19	-67	423	73	1527	23	-147	**1852**
6	East Sussex	111	127	651	7	-41	-27	-6	**821**
7	UK	235	4	173	19	-48	6	0	**389**
		706	**-114**	**1666**	**377**	**1209**	**-104**	**-236**	**3503**

% Difference **AM**

	Sector	1	2	3	4	5	6	7	
1	East Grinstead	8%	-10%	15%	-9%	-10%	-5%	-4%	**-3%**
2	Haywards Heath	11%	3%	16%	-1%	2%	10%	9%	**6%**
3	Burgess Hill	3%	-13%	2%	-10%	-8%	-5%	-13%	**-4%**
4	Crawley	18%	0%	17%	6%	-2%	2%	1%	**5%**
5	West Sussex	13%	-6%	10%	2%	3%	1%	-2%	**3%**
6	East Sussex	21%	12%	29%	1%	-2%	-1%	0%	**8%**
7	UK	19%	1%	18%	0%	-1%	1%	0%	**1%**
		15%	**-1%**	**11%**	**2%**	**2%**	**-1%**	**-1%**	**2%**

Table 17. Sector Trip End Changes Resulting from Matrix Estimation - Inter-Peak Hour

Prior Matrix **IP**

	Sector	1	2	3	4	5	6	7	
1	East Grinstead	972	330	93	648	87	537	589	**3,256**
2	Haywards Heath	291	1,822	782	628	723	623	442	**5,311**
3	Burgess Hill	137	1,210	2,702	297	2,054	1,738	887	**9,025**
4	Crawley	854	743	374	4,364	2,013	381	2,942	**11,671**
5	West Sussex	118	774	1,402	1,407	33,798	1,077	1,545	**40,120**
6	East Sussex	675	811	2,458	354	1,651	115	420	**6,483**
7	UK	1,191	659	977	3,820	7,663	503	4,234	**19,046**
		4,238	**6,348**	**8,789**	**11,518**	**47,988**	**4,973**	**11,058**	**94,912**

Calibrated Matrix **IP**

	Sector	1	2	3	4	5	6	7	
1	East Grinstead	904	316	112	816	105	583	810	**3,648**
2	Haywards Heath	280	1,699	952	663	687	710	591	**5,582**
3	Burgess Hill	120	1,009	2,960	323	1,987	1,660	1,197	**9,256**
4	Crawley	850	570	389	4,835	2,023	363	2,987	**12,016**
5	West Sussex	114	699	1,633	1,455	35,715	1,117	1,612	**42,346**
6	East Sussex	599	693	2,786	352	1,611	112	412	**6,565**
7	UK	1,128	618	1,156	3,720	7,565	502	4,234	**18,923**
		3,996	**5,604**	**9,989**	**12,164**	**49,693**	**5,047**	**11,842**	**98,335**

Difference **IP**

	Sector	1	2	3	4	5	6	7	
1	East Grinstead	-68	-14	19	168	18	46	222	**392**
2	Haywards Heath	-11	-123	170	35	-36	87	149	**270**
3	Burgess Hill	-16	-202	258	25	-67	-77	310	**231**
4	Crawley	-4	-173	15	471	10	-18	45	**345**
5	West Sussex	-4	-75	231	49	1917	40	67	**2225**
6	East Sussex	-76	-118	328	-2	-39	-2	-8	**83**
7	UK	-63	-40	179	-100	-98	-1	0	**-123**
		-242	**-745**	**1200**	**646**	**1705**	**74**	**785**	**3422**

% Difference **IP**

	Sector	1	2	3	4	5	6	7	
1	East Grinstead	-7%	-4%	20%	26%	21%	9%	38%	**12%**
2	Haywards Heath	-4%	-7%	22%	6%	-5%	14%	34%	**5%**
3	Burgess Hill	-12%	-17%	10%	8%	-3%	-4%	35%	**3%**
4	Crawley	0%	-23%	4%	11%	0%	-5%	2%	**3%**
5	West Sussex	-3%	-10%	17%	3%	6%	4%	4%	**6%**
6	East Sussex	-11%	-15%	13%	-1%	-2%	-2%	-2%	**1%**
7	UK	-5%	-6%	18%	-3%	-1%	0%	0%	**-1%**
		-6%	**-12%**	**14%**	**6%**	**4%**	**1%**	**7%**	**4%**

Table 18. Sector Trip End Changes Resulting from Matrix Estimation - PM Peak Hour

Prior Matrix **PM**

	Sector	1	2	3	4	5	6	7	
1	East Grinstead	1,280	324	158	960	116	801	1,308	**4,948**
2	Haywards Heath	501	2,918	1,273	471	1,036	1,230	595	**8,022**
3	Burgess Hill	132	1,312	5,130	478	3,118	1,872	947	**12,989**
4	Crawley	1,056	1,030	903	6,281	2,202	562	4,388	**16,423**
5	West Sussex	164	745	3,401	1,599	47,020	1,392	4,429	**58,749**
6	East Sussex	565	631	3,029	476	1,620	3,280	597	**10,197**
7	UK	1,256	959	1,723	3,217	7,883	982	12,290	**28,310**
		4,953	**7,918**	**15,618**	**13,481**	**62,996**	**10,119**	**24,554**	**139,638**

Calibrated Matrix **PM**

	Sector	1	2	3	4	5	6	7	
1	East Grinstead	1,327	319	152	1,145	126	842	1,398	**5,309**
2	Haywards Heath	505	2,777	1,258	541	1,009	1,306	715	**8,112**
3	Burgess Hill	141	1,388	5,535	569	3,292	1,986	1,127	**14,037**
4	Crawley	1,102	1,013	797	7,019	2,240	573	4,523	**17,267**
5	West Sussex	164	763	3,381	1,645	49,510	1,395	4,547	**61,404**
6	East Sussex	659	724	3,143	474	1,646	3,311	577	**10,533**
7	UK	1,258	1,090	1,869	3,278	8,175	1,000	12,290	**28,960**
		5,156	**8,075**	**16,135**	**14,671**	**65,997**	**10,413**	**25,177**	**145,623**

Difference **PM**

	Sector	1	2	3	4	5	6	7	
1	East Grinstead	47	-5	-6	185	9	41	90	**361**
2	Haywards Heath	4	-140	-15	71	-27	76	120	**89**
3	Burgess Hill	9	76	404	91	173	114	180	**1048**
4	Crawley	46	-17	-106	738	38	10	136	**845**
5	West Sussex	0	18	-20	46	2490	3	118	**2655**
6	East Sussex	94	94	114	-2	26	31	-20	**337**
7	UK	2	131	145	61	292	18	0	**650**
		202	**157**	**517**	**1190**	**3001**	**294**	**623**	**5985**

% Difference **PM**

	Sector	1	2	3	4	5	6	7	
1	East Grinstead	4%	-1%	-4%	19%	8%	5%	7%	**7%**
2	Haywards Heath	1%	-5%	-1%	15%	-3%	6%	20%	**1%**
3	Burgess Hill	7%	6%	8%	19%	6%	6%	19%	**8%**
4	Crawley	4%	-2%	-12%	12%	2%	2%	3%	**5%**
5	West Sussex	0%	2%	-1%	3%	5%	0%	3%	**5%**
6	East Sussex	17%	15%	4%	0%	2%	1%	-3%	**3%**
7	UK	0%	14%	8%	2%	4%	2%	0%	**2%**
		4%	**2%**	**3%**	**9%**	**5%**	**3%**	**3%**	**4%**

Zonal Trip End and Cell Changes

7.3.7 **Figure 11** to **Figure 13** show scatter plots of the pre and post ME matrix origin and destination totals by period. The scatter charts for origins show good correlation across the three periods, with no significant outliers. The correlations for destinations are generally not as good as for origins. However, observation of the scatter charts for the AM and PM peak destinations show a reasonable correlation with some outliers. The locations that these relate to are predominantly outside the core model areas and are not considered to be of concern with respect to model quality and fitness for purpose.

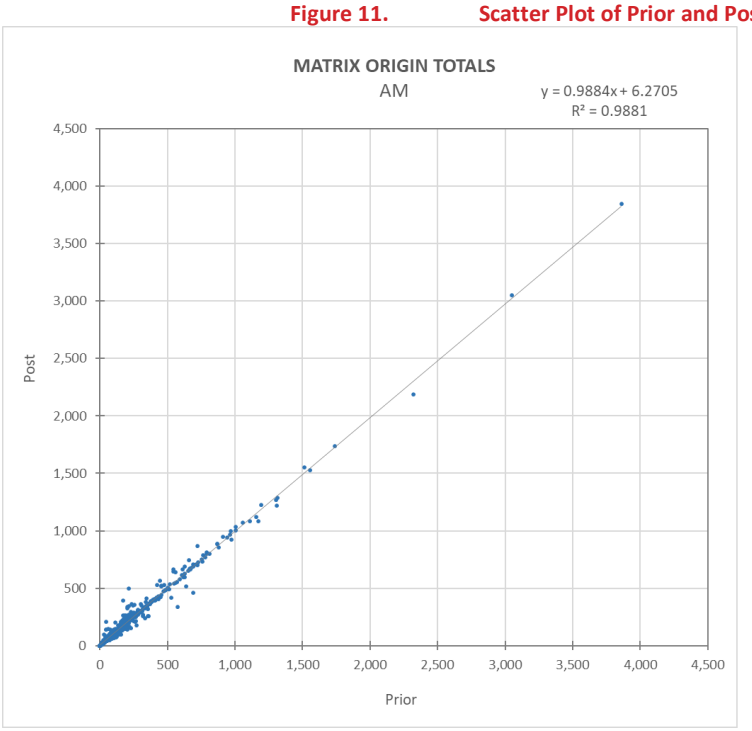
7.3.8 **Table 19** shows the statistical measures of the zonal cell and trip ends changes with TAG guidelines for comparison.

Table 19. Significance of Matrix Estimation Changes

Measure	WebTAG Criteria	AM	IP	PM
Matrix Zonal Cell Values				
Slope	within 0.98 and 1.02	1.00	1.01	1.01
R-squared	in excess of 0.95	0.96	0.92	0.97
Matrix Zonal Trip Ends - Origins				
Slope	within 0.99 and 1.01	0.99	1.00	1.01
R-squared	in excess of 0.98	0.99	0.98	0.98
Matrix Zonal Trip Ends - Destinations				
Slope	within 0.99 and 1.01	0.98	0.99	1.01
R-squared	in excess of 0.98	0.95	0.93	0.97

7.3.9 The table shows that for cell values the guidelines are met for the AM and PM models, but fall short for R-squared in the inter-peak. For trip ends, the guidelines are met for origins, while for destinations they fall slightly short for AM and PM and R-squared is some way short for the inter-peak. The guidelines not being met for inter-peak is less of concern due to only the AM and PM models being used in the transport study.

Figure 11. Scatter Plot of Prior and Post ME AM Peak Matrix Origins and Destinations



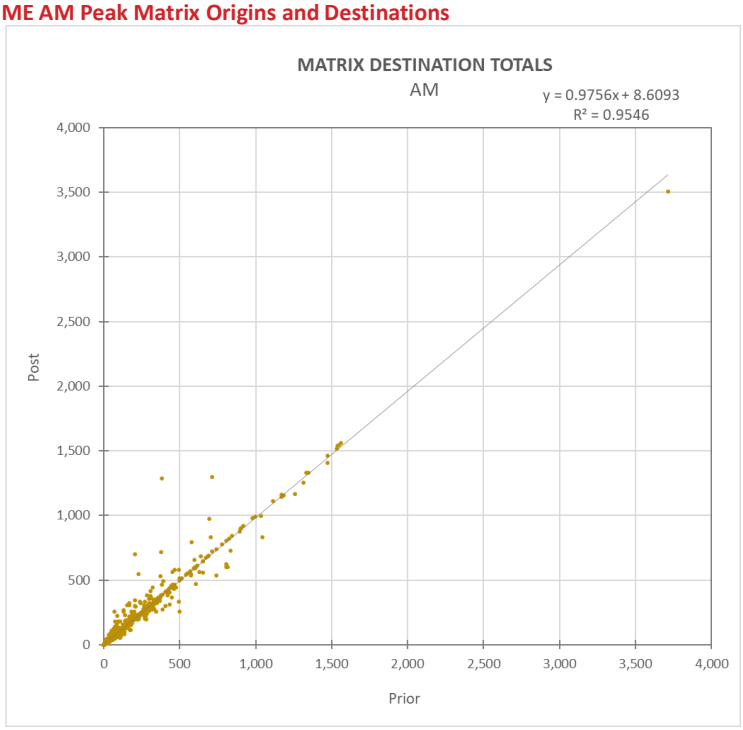
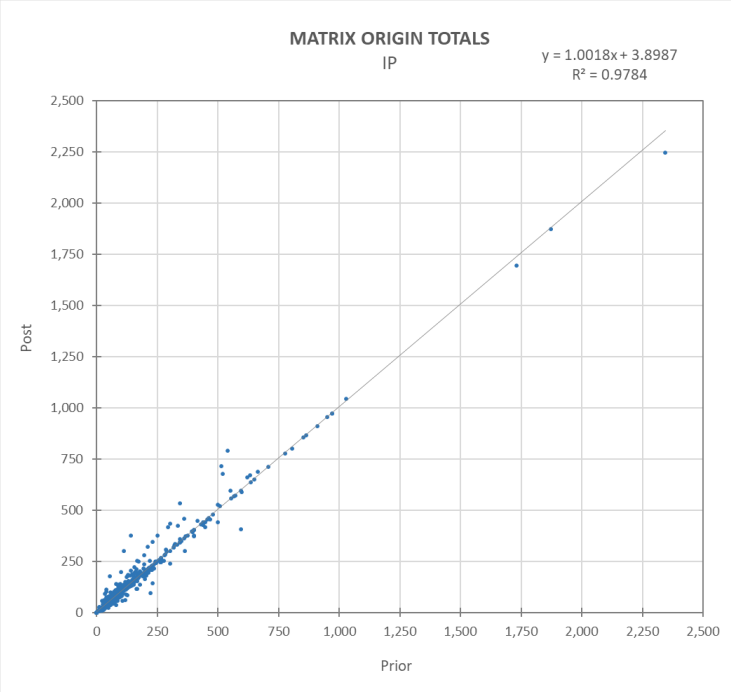


Figure 12. Scatter Plot of Pre and Post ME Inter-Peak Matrix Origins and Destinations



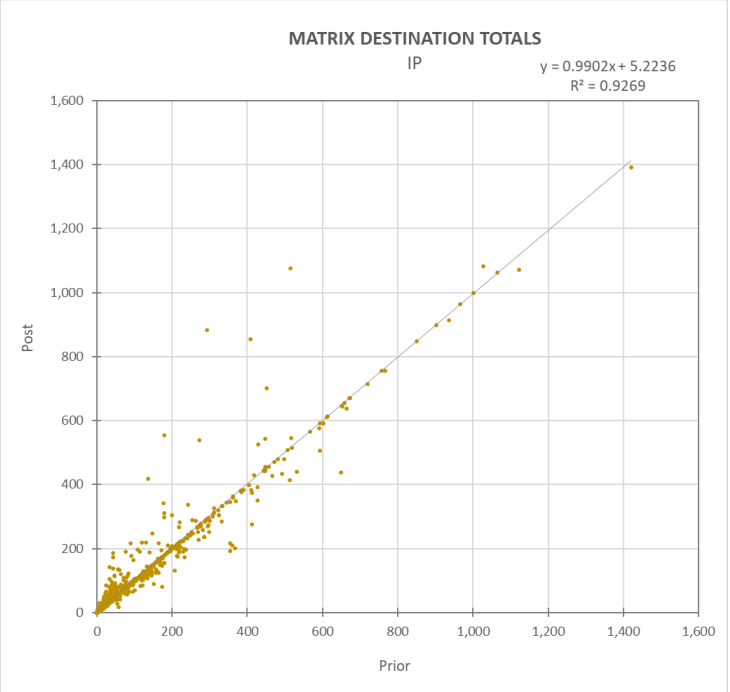
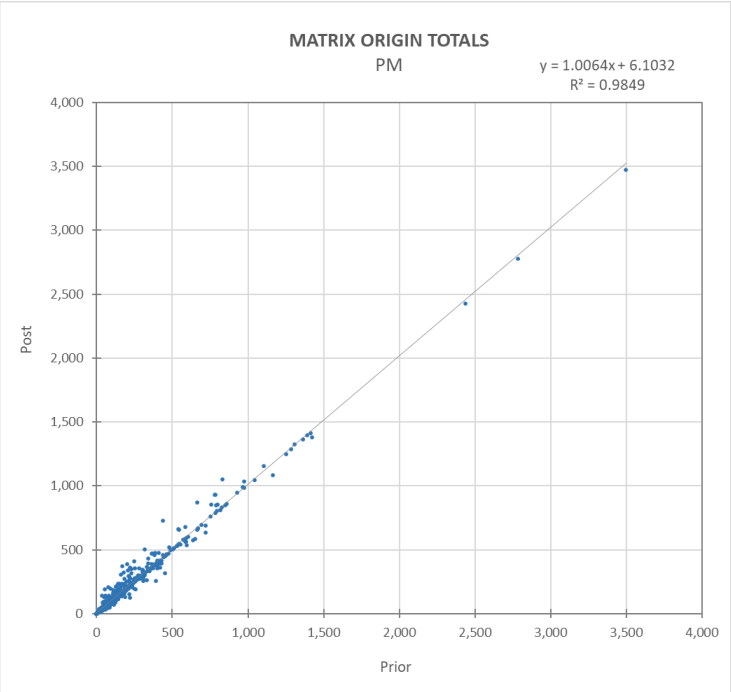
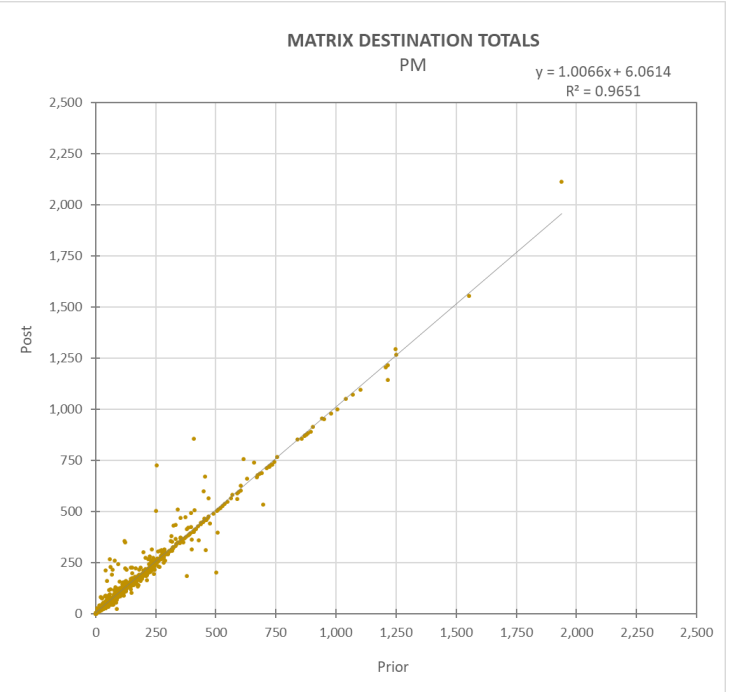


Figure 13. Scatter Plot of Pre and Post ME PM Peak Matrix Origins and Destinations





Trip Length Distributions

7.3.10 **Figure 14** to **Figure 16** show trip length frequency distributions, showing the number of trips lying within each distance band pre and post matrix estimation, by period. **Table 20** shows the mean trip length for the prior and post estimation matrices. The TAG guidance recommends that the means and standard deviations should be within 5%.

Table 20. Mean and Standard Deviation Trip Length (km)

MODEL PERIOD	MEAN			STANDARD DEVIATION		
	PRIOR	POST	%	PRIOR	POST	%
AM Peak Hour	24.2	24.5	1.4%	26.2	26.8	2.1%
Inter-Peak Hour	25.7	27.3	6.2%	28.0	29.7	6.2%
PM Peak Hour	25.0	26.3	5.2%	33.3	34.5	3.7%

7.3.11 The mean and standard deviation for the AM peak are both within TAG guidelines.

7.3.12 For inter-peak, both mean and standard deviation are outside the guidelines. **Figure 15** shows, however, that the distribution has not been significantly distorted. This is also less of a concern at this stage because the inter-peak is not being using in the transport study.

7.3.13 The PM peak hour mean falls just outside, but the standard deviation is within the guidelines. **Figure 16** shows that the distribution has not been distorted.

7.3.14 The shape of the curves in **Figure 14** to **Figure 16** is in line with expectations for a model representing both urban and interurban trips, with short trips dominating the distribution, but a significant number of longer distance trips forming the tail of the distribution.

Figure 14. Trip Frequency Distribution Pre/Post ME AM Peak Hour

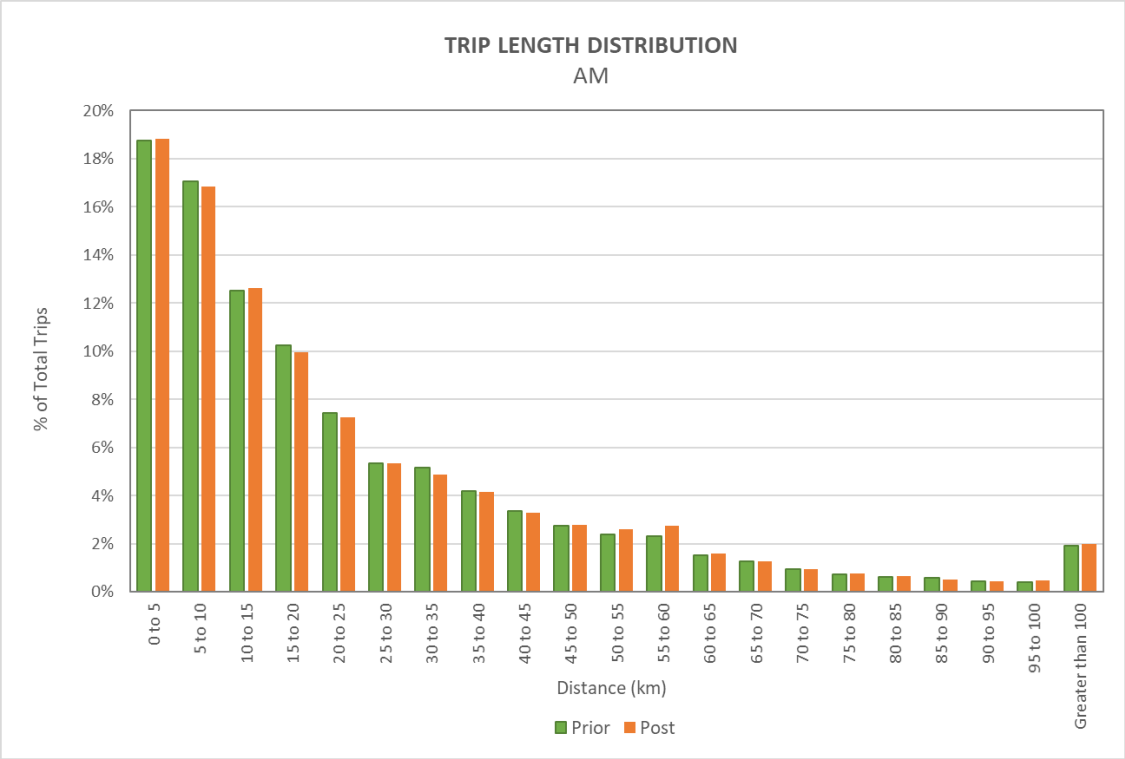


Figure 15. Trip Frequency Distribution Pre/Post ME Inter-Peak Hour

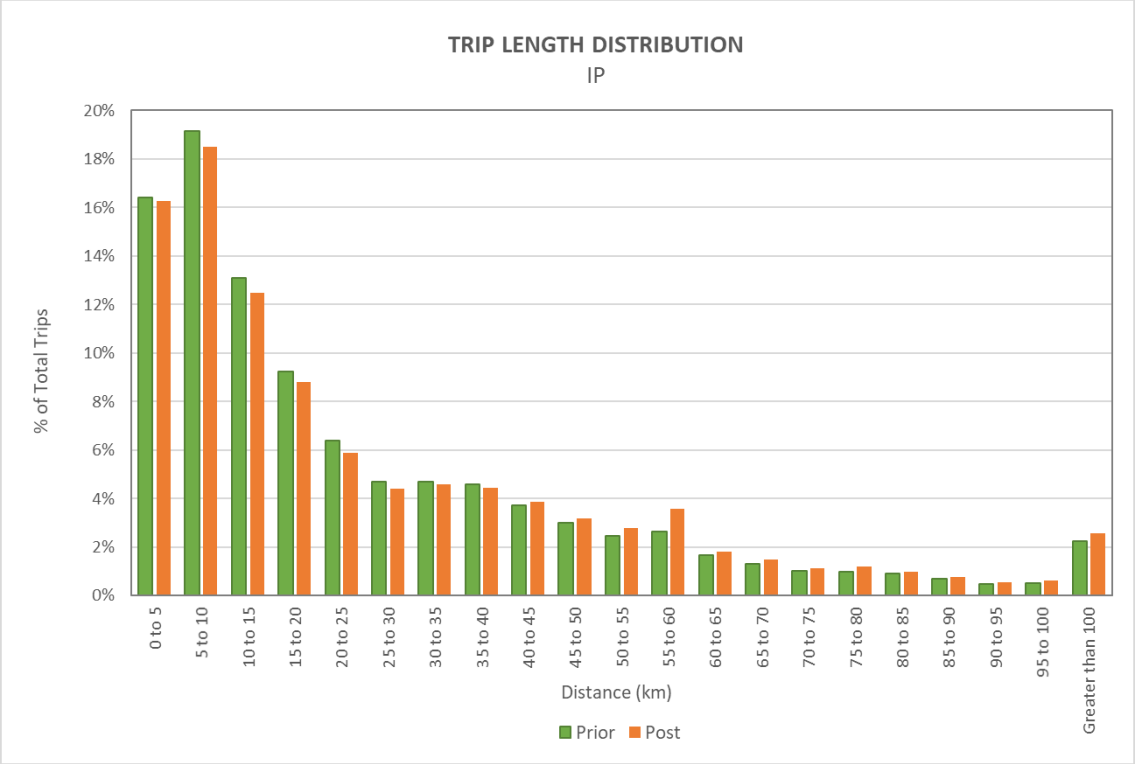
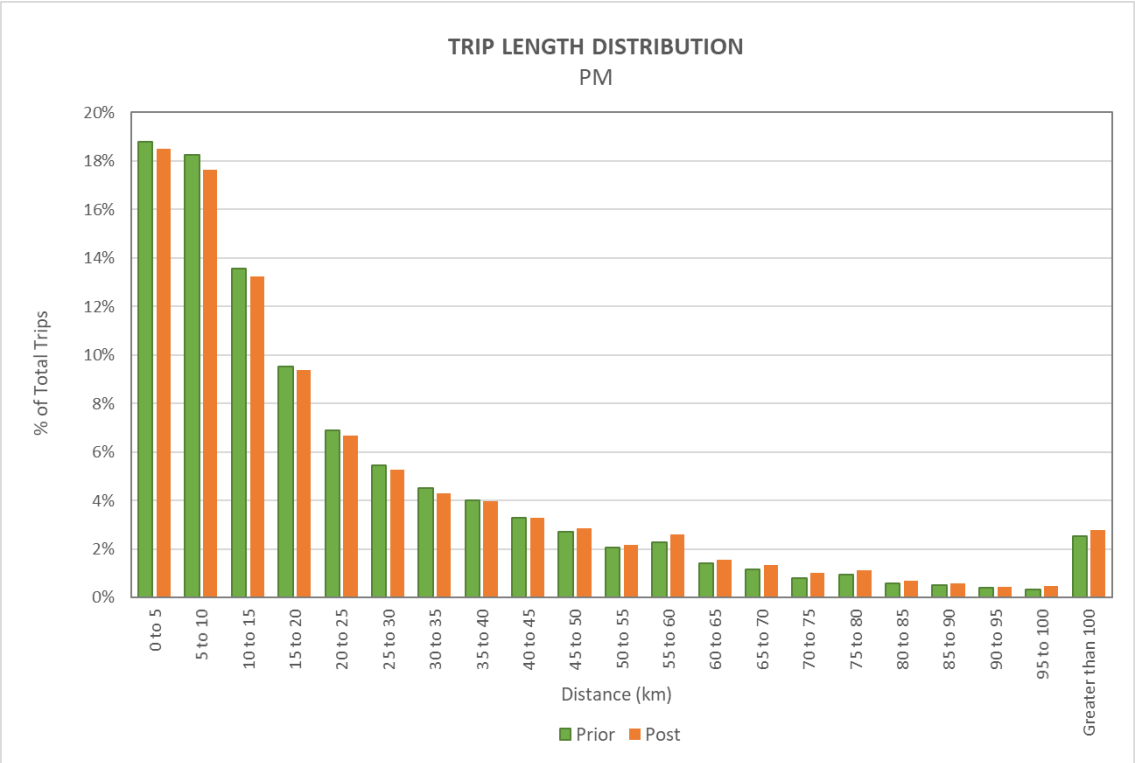


Figure 16. Trip Frequency Distribution Pre/Post ME PM Peak Hour



7.4 Trip Matrix Validation

7.4.1 The trip matrices are assessed using totals of the grouped screenlines and cordon traffic flows. The TAG screenline flow criteria and acceptability guidelines are in **Table 21**.

Table 21. Screenline Flow Validation Criterion and Acceptability Guideline

CRITERIA	ACCEPTABILITY GUIDELINE
Differences between modelled flows and counts should be less than 5% of the counts	All or nearly all screenlines

7.4.2 The results of the cordon and screenline validation for each period are shown in **Table 22.** In addition to TAG performance the results are shown for two additional criteria. There are 16 screenlines and cordons in total, therefore 32 by direction.

Table 22. Trip Matrix Vehicle Flow Validation

Measure	Criteria	Acceptability Guideline	AM Peak	Inter Peak	PM Peak
Matrix Validation	**Differences between modelled flows and counts should be less than 5% of the counts**	**All or nearly all screenlines (WebTAG)**	**84%**	**91%**	**91%**
	*Differences between modelled flows and counts should be within **GEH=4** of the counts*	*N/A*	*91%*	*100%*	*100%*
	*Differences between modelled flows and counts should be less than **10%** of the counts*	*N/A*	*94%*	*100%*	*97%*

7.4.3 The results show a satisfactory performance across the three periods. There are some screenlines which do not meet the 5% TAG criteria, however some of these are for low flow screenlines where it could be regarded that GEH is a more appropriate measure. Over 90% of screenlines are within GEH=4 for all three periods which is a good result.

7.4.4 It is therefore considered that the model quality is suitable for proceeding with the transport study. Locations where the model quality is less strong will be considered for local improvements where necessary as the study proceeds, particularly if in the vicinity of developments being tested and impacted junctions.

7.5 Network Link Calibration and Validation

7.5.1 Individual modelled road/link traffics flows are assessed using the TAG link flow criteria and acceptability guidelines shown in **Table 23**.

Table 23. Link Flow Validation Criteria and Acceptability Guidelines

CRITERIA	ACCEPTABILITY GUIDELINE
Individual flows within 15% of counts for flows from 700 to 2,700 veh/h	> 85% of cases
Individual flows within 100 veh/h of counts for flows less than 700 veh/h	> 85% of cases
Individual flows within 400 veh/h of counts for flows more than 2,700 veh/h	> 85% of cases
GEH < 5 for individual flows	> 85% of cases

7.5.2 The results of the network validation for each period are shown in **Table 24.** In addition to TAG performance the results are shown for an additional criterion

Table 24. Link Vehicle Flow Validation

Measure	Criteria	Acceptability Guideline	AM Peak	Inter Peak	PM Peak
Link Flow Validation	**Individual flows within 15% of counts for flows from 700 to 2700 veh/h**	**>85% of cases (WebTAG)**	**80%**	**88%**	**83%**
	Individual flows within 100 veh/h of counts for flows less than 700 veh/h				
	Individual flows within 400 veh/h of counts for flows more than 2700 veh/h				
	GEH < 5 for individual flows	**> 85% of cases (WebTAG)**	**80%**	**78%**	**80%**
	*GEH < **10** for individual flows*	*N/A*	*95%*	*97%*	*95%*

7.5.3 Overall the results show good performance across the three periods. The TAG criteria results for the percentage and absolute criteria are all 80% or above which is considered good for a relatively large strategic model.

7.5.4 It is therefore considered that the model network quality is suitable for proceeding with the forecast modelling and transport study. As was recommended for the matrices, the locations where the model quality is less strong will be considered for local improvements where necessary as the study proceeds, particularly if in the vicinity of developments being tested and impacted junctions.

7.5.5 **Table 25** to **Table 27** show the matrix and link validation performance by cordon or screenline.

7.5.6 In the AM and PM peak models (which are the priority because these periods are being used in the transport study) the majority of screenlines have all or nearly all links meeting the TAG criteria. Screenlines that have a pass rate of below 75% in either the AM or PM peak (denoted by yellow or orange highlighting in **Table 25** to **Table 27**) will be monitored as the transport study proceeds. These are:

- East Grinstead Cordon
- Haywards Heath Cordon
- Burgess Hill Cordon

- Burgess Hill North / South Screenline
- Burgess Hill East / West Screenline
- South of A272 Screenline
- Balcombe / Ardingly Screenline
- Crawley Down Screenline
- Handcross Screenline
- Ashdown Forest East / West Screenline
- Ashdown Forest North / South Screenline

7.5.7 **Appendix B** shows the results for all roads that make up the screenlines and cordons.

Table 25. Matrix and Link Vehicle Flow Validation by Cordon/Screenline: AM Peak Hour

Cordon / Screenline (SL)	Dir	Sites	Observed	Model	Diff	% Diff	GEH	GEH<=	WebTAG within			WebTAG within			
								4	5%	10%	15%	Abs / %	GEH=5	GEH=10	GEH=15
1 Mid Sussex District Cordon	Out	42	19,187	19,145	-42	0%	0	Y	Y	Y	Y	81%	78%	97%	100%
1 Mid Sussex District Cordon	In	42	17,957	18,022	65	0%	0	Y	Y	Y	Y	72%	75%	94%	97%
2 East Grinstead Cordon	Out	8	3,597	3,638	41	1%	1	Y	Y	Y	Y	43%	57%	100%	100%
2 East Grinstead Cordon	In	8	3,568	3,553	-15	0%	0	Y	Y	Y	Y	71%	86%	100%	100%
3 Haywards Heath Cordon	Out	10	4,318	4,427	109	3%	2	Y	Y	Y	Y	56%	78%	89%	100%
3 Haywards Heath Cordon	In	10	4,897	4,849	-49	-1%	1	Y	Y	Y	Y	56%	56%	100%	100%
4 Haywards Heath West SL	EB	4	1,916	1,926	10	1%	0	Y	Y	Y	Y	100%	100%	100%	100%
4 Haywards Heath West SL	WB	4	1,986	1,974	-12	-1%	0	Y	Y	Y	Y	100%	100%	100%	100%
5 Burgess Hill Cordon	Out	13	4,628	4,644	15	0%	0	Y	Y	Y	Y	73%	73%	100%	100%
5 Burgess Hill Cordon	In	13	4,501	4,586	85	2%	1	Y	Y	Y	Y	100%	100%	100%	100%
6 Burgess Hill North / South SL	EB	4	2,080	2,151	70	3%	2	Y	Y	Y	Y	75%	75%	100%	100%
6 Burgess Hill North / South SL	WB	4	2,366	2,362	-4	0%	0	Y	Y	Y	Y	50%	50%	75%	100%
7 Burgess Hill East / West SL	NB	15	3,862	3,900	38	1%	1	Y	Y	Y	Y	67%	58%	75%	92%
7 Burgess Hill East / West SL	SB	15	4,489	4,284	-205	-5%	3	Y	Y	Y	Y	83%	75%	92%	92%
8 South of A272 SL	NB	13	6,272	5,917	-354	-6%	5	N	N	Y	Y	90%	80%	100%	100%
8 South of A272 SL	SB	13	4,536	4,897	361	8%	5	N	N	Y	Y	78%	67%	100%	100%
9 East of A23 SL	EB	6	2,346	2,390	45	2%	1	Y	Y	Y	Y	100%	100%	100%	100%
9 East of A23 SL	WB	6	2,419	2,435	17	1%	0	Y	Y	Y	Y	100%	80%	100%	100%
10 West of A23 SL	EB	10	2,578	2,660	81	3%	2	Y	Y	Y	Y	86%	86%	86%	100%
10 West of A23 SL	WB	10	2,198	2,262	64	3%	1	Y	Y	Y	Y	71%	71%	100%	100%
11 Balcombe / Ardingly SL	EB	5	1,286	1,223	-63	-5%	2	Y	Y	Y	Y	33%	33%	67%	100%
11 Balcombe / Ardingly SL	WB	5	871	847	-24	-3%	1	Y	Y	Y	Y	67%	67%	100%	100%
12 Crawley Down SL	EB	3	1,068	1,206	138	13%	4	Y	N	N	Y	67%	100%	100%	100%
12 Crawley Down SL	WB	3	1,162	1,164	2	0%	0	Y	Y	Y	Y	100%	100%	100%	100%
13 Handcross SL	NB	4	3,991	4,216	226	6%	4	Y	N	Y	Y	100%	100%	100%	100%
13 Handcross SL	SB	4	2,854	2,898	43	2%	1	Y	Y	Y	Y	100%	100%	100%	100%
14 Ashdown Forest Cordon	Out	19	3,965	3,885	-80	-2%	1	Y	Y	Y	Y	100%	100%	100%	100%
14 Ashdown Forest Cordon	In	19	3,774	3,797	23	1%	0	Y	Y	Y	Y	82%	82%	100%	100%
15 Ashdown Forest East / West SL	NB	4	1,981	1,938	-43	-2%	1	Y	Y	Y	Y	100%	100%	100%	100%
15 Ashdown Forest East / West SL	SB	4	1,557	1,534	-24	-2%	1	Y	Y	Y	Y	50%	50%	100%	100%
16 Ashdown Forest North / South SL	EB	3	462	476	15	3%	1	Y	Y	Y	Y	100%	100%	100%	100%
16 Ashdown Forest North / South SL	WB	3	617	418	-199	-32%	9	N	N	N	N	67%	67%	67%	100%
17 M23 / A23	NB	13										100%	77%	100%	100%
17 M23 / A23	SB	12										92%	92%	100%	100%
		351	**123,288**	**123,623**	**336**	**0%**		**91%**	**84%**	**94%**	**97%**	**80%**	**80%**	**95%**	**99%**

Table 26. Matrix and Link Vehicle Flow Validation by Cordon/Screenline: Inter-Peak Hour

Cordon / Screenline (SL)	Dir	Sites	Observed	Model	Diff	% Diff	GEH	GEH<=	WebTAG within			WebTAG within			
								4	5%	10%	15%	Abs / %	GEH=5	GEH=10	GEH=15
1 Mid Sussex District Cordon	Out	42	12,556	12,320	-236	-2%	2	Y	Y	Y	Y	88%	72%	97%	97%
1 Mid Sussex District Cordon	In	42	12,358	12,361	3	0%	0	Y	Y	Y	Y	94%	78%	100%	100%
2 East Grinstead Cordon	Out	8	2,584	2,639	54	2%	1	Y	Y	Y	Y	100%	86%	100%	100%
2 East Grinstead Cordon	In	8	2,569	2,600	31	1%	1	Y	Y	Y	Y	100%	100%	100%	100%
3 Haywards Heath Cordon	Out	10	2,889	2,950	61	2%	1	Y	Y	Y	Y	100%	100%	100%	100%
3 Haywards Heath Cordon	In	10	2,867	2,935	68	2%	1	Y	Y	Y	Y	100%	100%	100%	100%
4 Haywards Heath West SL	EB	4	1,163	1,193	30	3%	1	Y	Y	Y	Y	100%	100%	100%	100%
4 Haywards Heath West SL	WB	4	1,191	1,205	14	1%	0	Y	Y	Y	Y	100%	100%	100%	100%
5 Burgess Hill Cordon	Out	13	3,079	3,083	3	0%	0	Y	Y	Y	Y	82%	73%	91%	100%
5 Burgess Hill Cordon	In	13	2,918	2,942	24	1%	0	Y	Y	Y	Y	64%	55%	91%	100%
6 Burgess Hill North / South SL	EB	4	1,570	1,633	63	4%	2	Y	Y	Y	Y	50%	50%	100%	100%
6 Burgess Hill North / South SL	WB	4	1,559	1,456	-103	-7%	3	Y	N	Y	Y	75%	75%	100%	100%
7 Burgess Hill East / West SL	NB	15	2,870	2,892	22	1%	0	Y	Y	Y	Y	75%	42%	83%	83%
7 Burgess Hill East / West SL	SB	15	2,858	2,671	-187	-7%	4	Y	N	Y	Y	67%	58%	83%	92%
8 South of A272 SL	NB	13	3,653	3,670	17	0%	0	Y	Y	Y	Y	80%	60%	90%	100%
8 South of A272 SL	SB	13	3,679	3,808	129	4%	2	Y	Y	Y	Y	89%	78%	100%	100%
9 East of A23 SL	EB	6	1,384	1,451	68	5%	2	Y	Y	Y	Y	80%	60%	80%	100%
9 East of A23 SL	WB	6	1,468	1,465	-3	0%	0	Y	Y	Y	Y	100%	100%	100%	100%
10 West of A23 SL	EB	10	1,529	1,551	22	1%	1	Y	Y	Y	Y	100%	71%	100%	100%
10 West of A23 SL	WB	10	1,565	1,630	65	4%	2	Y	Y	Y	Y	71%	71%	100%	100%
11 Balcombe / Ardingly SL	EB	5	558	536	-22	-4%	1	Y	Y	Y	Y	33%	33%	67%	100%
11 Balcombe / Ardingly SL	WB	5	543	520	-22	-4%	1	Y	Y	Y	Y	100%	67%	100%	100%
12 Crawley Down SL	EB	3	799	796	-3	0%	0	Y	Y	Y	Y	100%	100%	100%	100%
12 Crawley Down SL	WB	3	795	811	16	2%	1	Y	Y	Y	Y	100%	100%	100%	100%
13 Handcross SL	NB	4	2,420	2,483	63	3%	1	Y	Y	Y	Y	100%	50%	100%	100%
13 Handcross SL	SB	4	2,571	2,489	-82	-3%	2	Y	Y	Y	Y	50%	50%	100%	100%
14 Ashdown Forest Cordon	Out	19	2,721	2,616	-105	-4%	2	Y	Y	Y	Y	82%	73%	100%	100%
14 Ashdown Forest Cordon	In	19	2,627	2,565	-62	-2%	1	Y	Y	Y	Y	100%	73%	100%	100%
15 Ashdown Forest East / West SL	NB	4	1,193	1,195	2	0%	0	Y	Y	Y	Y	100%	100%	100%	100%
15 Ashdown Forest East / West SL	SB	4	1,264	1,220	-43	-3%	1	Y	Y	Y	Y	100%	100%	100%	100%
16 Ashdown Forest North / South SL	EB	3	406	393	-14	-3%	1	Y	Y	Y	Y	100%	100%	100%	100%
16 Ashdown Forest North / South SL	WB	3	407	376	-31	-8%	2	Y	N	Y	Y	100%	100%	100%	100%
17 M23 / A23	NB	13										100%	92%	100%	100%
17 M23 / A23	SB	12										100%	92%	100%	100%
		351	**82,612**	**82,455**	**-157**	**0%**		**100%**	**91%**	**100%**	**100%**	**88%**	**78%**	**97%**	**99%**

Table 27. Matrix and Link Vehicle Flow Validation by Cordon/Screenline: PM Peak Hour

Cordon / Screenline (SL)	Dir	Sites	Observed	Model	Diff	% Diff	GEH	GEH<=	WebTAG within			WebTAG within			
								4	5%	10%	15%	Abs / %	GEH=5	GEH=10	GEH=15
1 Mid Sussex District Cordon	Out	42	18,842	18,833	-9	0%	0	Y	Y	Y	Y	91%	88%	100%	100%
1 Mid Sussex District Cordon	In	42	18,790	18,675	-115	-1%	1	Y	Y	Y	Y	88%	84%	97%	100%
2 East Grinstead Cordon	Out	8	3,565	3,648	83	2%	1	Y	Y	Y	Y	71%	71%	100%	100%
2 East Grinstead Cordon	In	8	3,435	3,462	27	1%	0	Y	Y	Y	Y	71%	71%	100%	100%
3 Haywards Heath Cordon	Out	10	4,406	4,384	-22	-1%	0	Y	Y	Y	Y	89%	89%	100%	100%
3 Haywards Heath Cordon	In	10	3,894	3,969	75	2%	1	Y	Y	Y	Y	78%	78%	100%	100%
4 Haywards Heath West SL	EB	4	1,746	1,830	84	5%	2	Y	Y	Y	Y	100%	100%	100%	100%
4 Haywards Heath West SL	WB	4	1,734	1,829	95	5%	2	Y	N	Y	Y	100%	100%	100%	100%
5 Burgess Hill Cordon	Out	13	4,426	4,455	29	1%	0	Y	Y	Y	Y	55%	55%	73%	91%
5 Burgess Hill Cordon	In	13	4,290	4,351	61	1%	1	Y	Y	Y	Y	82%	82%	100%	100%
6 Burgess Hill North / South SL	EB	4	2,384	2,494	110	5%	2	Y	Y	Y	Y	50%	75%	100%	100%
6 Burgess Hill North / South SL	WB	4	1,959	1,927	-32	-2%	1	Y	Y	Y	Y	75%	100%	100%	100%
7 Burgess Hill East / West SL	NB	15	4,160	4,113	-47	-1%	1	Y	Y	Y	Y	58%	33%	75%	92%
7 Burgess Hill East / West SL	SB	15	3,874	3,854	-20	-1%	0	Y	Y	Y	Y	33%	42%	58%	92%
8 South of A272 SL	NB	13	4,875	4,961	86	2%	1	Y	Y	Y	Y	80%	80%	100%	100%
8 South of A272 SL	SB	13	6,049	6,057	8	0%	0	Y	Y	Y	Y	89%	67%	89%	89%
9 East of A23 SL	EB	6	2,320	2,333	13	1%	0	Y	Y	Y	Y	100%	80%	100%	100%
9 East of A23 SL	WB	6	2,055	2,092	37	2%	1	Y	Y	Y	Y	100%	100%	100%	100%
10 West of A23 SL	EB	10	2,198	2,224	26	1%	1	Y	Y	Y	Y	71%	71%	86%	100%
10 West of A23 SL	WB	10	2,752	2,863	111	4%	2	Y	Y	Y	Y	100%	86%	100%	100%
11 Balcombe / Ardingly SL	EB	5	818	769	-49	-6%	2	Y	N	Y	Y	100%	67%	100%	100%
11 Balcombe / Ardingly SL	WB	5	1,257	1,220	-37	-3%	1	Y	Y	Y	Y	33%	33%	67%	100%
12 Crawley Down SL	EB	3	1,002	1,000	-2	0%	0	Y	Y	Y	Y	100%	100%	100%	100%
12 Crawley Down SL	WB	3	1,097	1,101	5	0%	0	Y	Y	Y	Y	100%	100%	100%	100%
13 Handcross SL	NB	4	3,017	3,030	13	0%	0	Y	Y	Y	Y	50%	50%	100%	100%
13 Handcross SL	SB	4	4,092	4,159	67	2%	1	Y	Y	Y	Y	100%	100%	100%	100%
14 Ashdown Forest Cordon	Out	19	3,994	3,964	-30	-1%	0	Y	Y	Y	Y	91%	73%	91%	100%
14 Ashdown Forest Cordon	In	19	3,903	3,895	-8	0%	0	Y	Y	Y	Y	91%	82%	100%	100%
15 Ashdown Forest East / West SL	NB	4	1,633	1,646	13	1%	0	Y	Y	Y	Y	100%	100%	100%	100%
15 Ashdown Forest East / West SL	SB	4	2,124	2,085	-39	-2%	1	Y	Y	Y	Y	100%	100%	100%	100%
16 Ashdown Forest North / South SL	EB	3	584	516	-68	-12%	3	Y	N	N	Y	67%	67%	100%	100%
16 Ashdown Forest North / South SL	WB	3	478	487	9	2%	0	Y	Y	Y	Y	100%	100%	100%	100%
17 M23 / A23	NB	13										92%	92%	100%	100%
17 M23 / A23	SB	12										100%	100%	100%	100%
		351	**121,753**	**122,225**	**473**	**0%**		**100%**	**91%**	**97%**	**100%**	**83%**	**80%**	**95%**	**99%**

7.5.8 **Table 28** shows the validation of the flows on the M23 and A23, where National Highways counts are available. The validation shows satisfactory results with the majority of flows within GEH=5 as denoted by the green highlighting.

Table 28. M23 and A23 Flow Validation

	AM Peak					Inter-Peak					PM Peak				
	Observed	Modelled	Diff	% Diff	GEH	Observed	Modelled	Diff	% Diff	GEH	Observed	Modelled	Diff	% Diff	GEH
NORTHBOUND															
A23 - A27 to A273 OFF	3702	3589	-113	-3%	1.9	2304	2307	3	0%	0.1	2954	2993	39	1%	0.7
A23 - A273 OFF to A273 ON	2788	2811	23	1%	0.4	1799	1810	11	1%	0.3	2163	2153	-10	0%	0.2
A23 - A281 OFF to A281 ON	2749	2764	16	1%	0.3	1745	1664	-81	-5%	2.0	2080	1937	-144	-7%	3.2
A23 - A2300 OFF to A2300 ON	2561	2548	-13	0%	0.2	1704	1661	-44	-3%	1.1	1995	1933	-62	-3%	1.4
A23 - A272 OFF to A272 ON	2900	2922	22	1%	0.4	1801	1850	49	3%	1.2	2279	2180	-99	-4%	2.1
A23 - B2115 OFF to B2115 ON	3048	2941	-107	-4%	2.0	1961	1921	-40	-2%	0.9	2378	2269	-109	-5%	2.3
A23 - B2110 ON to J11 OFF	3496	3811	315	9%	5.2	2138	2300	163	8%	3.5	2637	2787	150	6%	2.9
M23 - J11 OFF - J11 ON	2191	2518	327	15%	6.7	1597	1620	23	1%	0.6	1671	1714	43	3%	1.0
M23 - J10a ON to J10 OFF	3886	4007	120	3%	1.9	2609	2530	-79	-3%	1.6	2909	2856	-53	-2%	1.0
M23 - J10 OFF to J10 ON	2913	2806	-107	-4%	2.0	2140	2035	-105	-5%	2.3	2278	2261	-16	-1%	0.3
M23 - J10 ON to J9 OFF	3238	3616	378	12%	6.5	2509	2845	336	13%	6.5	2873	3308	435	15%	7.8
M23 - J9 OFF to J9 ON	2793	2462	-331	-12%	6.5	2298	2297	-1	0%	0.0	2704	2671	-33	-1%	0.6
M23 - J9 ON to J8 OFF	3842	3825	-17	0%	0.3	3812	3776	-36	-1%	0.6	4245	4248	3	0%	0.1
SOUTHBOUND															
M23 - J8 ON to J9 OFF	4492	3819	-672	-15%	10.4	3869	3770	-99	-3%	1.6	4478	4309	-169	-4%	2.6
M23 - J9 OFF to J9 ON	2793	2462	-331	-12%	6.5	2298	2297	-1	0%	0.0	2704	2671	-33	-1%	0.6
M23 - J9 ON to J10 OFF	3511	3836	325	9%	5.4	3187	3091	-96	-3%	1.7	4525	4233	-292	-6%	4.4
M23 - J10 OFF to J10 ON	2913	2806	-107	-4%	2.0	2140	2035	-105	-5%	2.3	2278	2261	-16	-1%	0.3
M23 - J10 ON to J10a OFF	2791	2899	108	4%	2.0	2726	2666	-60	-2%	1.2	4531	4342	-189	-4%	2.8
M23 - J10a OFF - J11 OFF	2480	2418	-61	-2%	1.2	2438	2245	-193	-8%	4.0	3855	3554	-301	-8%	4.9
M23 - J11 OFF - J11 ON	1582	1662	80	5%	2.0	1670	1712	42	3%	1.0	2607	2707	100	4%	1.9
A23 - B2114 OFF to B2110 ON	2223	2243	21	1%	0.4	2121	2161	40	2%	0.9	3300	3344	45	1%	0.8
A23 - B2110 ON to B2115 OFF	2487	2548	61	2%	1.2	2228	2257	30	1%	0.6	3478	3529	50	1%	0.8
A23 - A272 OFF to A272 ON	2900	2922	22	1%	0.4	1801	1850	49	3%	1.2	2279	2180	-99	-4%	2.1
A23 - A2300 OFF to A2300 ON	2561	2548	-13	0%	0.2	1704	1661	-44	-3%	1.1	1995	1933	-62	-3%	1.4
A23 - A273 ON to A27	3094	3158	63	2%	1.1	2483	2327	-157	-6%	3.2	4157	4006	-151	-4%	2.4

7.6 Journey Time Validation

7.6.1 The TAG acceptability guideline for journey times are in **Table 29**.

Table 29. Journey Time Validation Criteria and Acceptability Guideline

CRITERIA	ACCEPTABILITY GUIDELINE
Modelled times along routes should be within 15% of surveyed times (or 1 minute, if higher)	> 85% of routes

7.6.2 The validation by route is shown in **Table 30**. This analysis uses journey times from Google. The table shows if the modelled time falls within the TAG criteria of 15%/1 minute and an additional 25% criterion, when compared to the Google range midpoint.

7.6.3 The table shows that 80% of AM journey times and 73% of PM journey times are within 15% of the observation and therefore meet the criteria. These fall slightly short of the TAG guideline.

7.6.4 Considering the good results for the 25% criterion it is considered that the models are satisfactory for the purpose of undertaking the transport study, however the locations of the poorer performing routes should be accounted for in this work and other applications.

7.6.5 Locations that do not meet the criteria were studied to identify where the differences occur. Most of these journey times begin or end in the Crawley urban area, where in some locations the model is underestimating journey times. It is considered that these locations are not critical to the transport study.

Table 30. Journey Time Route Validation

			AM				PM			
ID	Journey Time Route	Distance (km)	Observed (mm:ss)	Model (mm:ss)	Within 15%	Within 25%	Observed (mm:ss)	Model (mm:ss)	Within 15%	Within 25%
1EB	Cowfold - Burgess Hill	13.92	20:00	19:35	✓	✓	19:00	20:54	✓	✓
1WB	Burgess Hill - Cowfold	13.92	18:00	19:18	✓	✓	18:00	19:18	✓	✓
2NB	Burgess Hill - Crawley	24.00	39:00	32:41	✗	✓	35:30	25:04	✗	✗
2SB	Crawley - Burgess Hill	23.68	32:00	27:45	✓	✓	35:30	27:25	✗	✓
3NB	Burgess Hill - East Grinstead	22.72	35:00	32:06	✓	✓	32:30	31:58	✓	✓
3SB	East Grinstead - Burgess Hill	23.04	34:00	33:17	✓	✓	31:30	32:46	✓	✓
4NB	Burgess Hill - Haywards Heath	6.08	11:30	10:08	✓	✓	09:30	09:59	✓	✓
4SB	Haywards Heath - Burgess Hill	6.24	10:30	10:04	✓	✓	10:30	10:08	✓	✓
5NB	Hurstpierpoint - Burgess Hill	8.64	15:00	17:06	✓	✓	15:00	18:24	✗	✓
5SB	Burgess Hill - Hurstpierpoint	8.64	15:00	15:44	✓	✓	14:00	14:00	✓	✓
6NB	Cowfold - Crawley	22.08	27:30	25:55	✓	✓	30:00	21:17	✗	✗
6SB	Crawley - Cowfold	22.88	30:00	21:32	✗	✗	30:00	23:47	✗	✓
7NB	Cowfold - East Grinstead	27.20	35:00	34:01	✓	✓	35:00	34:10	✓	✓
7SB	East Grinstead - Cowfold	27.52	37:30	33:13	✓	✓	35:00	34:00	✓	✓
8EB	Cowfold - Haywards Heath	13.28	20:00	21:54	✓	✓	17:00	16:44	✓	✓
8WB	Haywards Heath - Cowfold	13.28	20:00	16:45	✗	✓	20:00	20:09	✓	✓
9NB	Hurstpierpoint - Cowfold	13.12	14:00	15:07	✓	✓	14:00	15:14	✓	✓
9SB	Cowfold - Hurstpierpoint	12.96	15:00	13:53	✓	✓	16:00	14:07	✓	✓
10EB	Crawley - East Grinstead	12.96	26:30	22:53	✓	✓	26:30	20:57	✗	✓
10WB	East Grinstead - Crawley	12.80	29:00	18:14	✗	✗	20:00	17:59	✓	✓
11NB	Haywards Heath - Crawley	19.36	27:30	25:55	✓	✓	22:00	22:33	✓	✓
11SB	Crawley - Haywards Heath	19.36	27:30	23:23	✓	✓	27:30	25:09	✓	✓
12NB	Hurstpierpoint - Crawley	24.32	32:00	28:10	✓	✓	31:00	22:15	✗	✗
12SB	Crawley - Hurstpierpoint	24.48	27:30	22:52	✗	✓	31:00	24:56	✗	✓
13NB	Haywards Heath - East Grinstead	17.60	25:00	24:01	✓	✓	23:00	24:01	✓	✓
13SB	East Grinstead - Haywards Heath	17.92	26:00	25:28	✓	✓	24:00	24:57	✓	✓
14NB	Hurstpierpoint - East Grinstead	35.68	40:00	40:34	✓	✓	42:30	37:51	✓	✓
14SB	East Grinstead - Hurstpierpoint	35.52	40:00	31:59	✗	✓	37:30	34:02	✓	✓
15NB	Hurstpierpoint - Haywards Heath	12.00	20:00	21:18	✓	✓	18:00	16:08	✓	✓
15SB	Haywards Heath - Hurstpierpoint	12.00	17:00	16:08	✓	✓	17:00	19:26	✓	✓
Total					**80%**	**93%**			**73%**	**90%**

7.7 Convergence and Stability

7.7.1 The acceptability guideline for model convergence are reproduced in Table 31.

Table 31. Summary of Convergence Measures and Base Model Acceptable Values

MEASURE OF CONVERGENCE	BASE MODEL ACCEPTABLE VALUES
Delta and %GAP	less than 0.1% or at least stable with convergence fully documented and all other criteria met
Percentage of links with flow change (P)<1%	four consecutive iterations greater than 98%
Percentage of links with cost change (P2)<1%	four consecutive iterations greater than 98%

7.7.2 There are several important parameters in SATURN that are used to ensure convergence is acceptable. These are:

KONSTOP "KONtrol of StoPping Criteria"
This defines the type of the conditions required for the assignment to end. The stopping criteria for assignment – simulation loops are based on either: ISTOP (KONSTP = 0); %GAP value (1); CPU time (2); RSTOP and/or CPU (3); %GAP and/or CPU (4); %GAP and RSTOP (5); %GAP or (6) %ISTOP. The assignment will also end when the number of assignment loops reaches MASL (see below).
TAG: N/A *SATURN Default: 5* *MSSHM Base: 5*
Therefore unless MASL is reached the assignment will only stop if %GAP and RSTOP criteria are reached.

MASL
This the maximum number of assignment/simulation loops.
TAG: N/A *SATURN Default: 15* *MSSHM Base: 150*

NISTOP
The number of successive loops which must satisfy the RSTOP criteria in the test for convergence of the assignment/simulation loops.
TAG: 4 *SATURN Default: 4* *MSSHM Base: 4*

STPGAP
TAG: 0.1% *SATURN Default: 1.0%* *MSSHM Base: 0.02%*

PCNEAR
Percentage change in flows judged to be "near" in successive assignments.
TAG: 1.0% *SATURN Default: 1.0%* *MSSHM Base: 1.0%*

RSTOP
Used in the test for convergence of the assignment/simulation loops. The loops stop automatically if RSTOP % of the link flows change by less than "PCNEAR" percent (default 5%) from one assignment to the next.
TAG: 98% *SATURN Default: 97.5%* *MSSHM Base: 99%*

7.7.3 **Table 32** below shows the performance of the model for the key criteria. The stopping criteria set for the model are also shown and these exceed the guidelines. The results demonstrate well-converged models that comfortably meet the TAG guidelines.

Table 32. Convergence and Stability Model Results

MEASURE OF CONVERGENCE	SATURN PARA-METER	BASE MODEL ACCEPTABLE VALUES (TAG)	MODEL STOPPING CRITERIA	AM PEAK	INTER-PEAK	PM PEAK
%GAP	**NISTOP STPGAP**	less than **0.1%** or at least stable with convergence fully documented and all other criteria met	**<0.02%** (for base model)	0.015 0.019 0.015 0.016	0.002 0.002 0.002 0.002	0.008 0.008 0.009 0.010
Percentage of links with flow change (P)<1% **(for final four iterations)**	**NISTOP PCNEAR RSTOP**	four consecutive iterations greater than **98%**	four consecutive iterations >**99%**	99.1 99.5 99.3 99.5	99.1 99.4 99.5 99.6	100.0 99.4 99.4 99.1
Percentage of links with cost change (P2)<1% **(for final four iterations)**	NONE	four consecutive iterations greater than **98%**	four consecutive iterations >**99%**	99.6 99.6 99.6 99.6	100.0 100.0 100.0 100.0	100.0 99.8 99.8 99.6

8. SUMMARY OF MODEL FITNESS FOR PURPOSE

Model Production

The Mid Sussex Strategic Highway Model (MSSHM) was produced in accordance with standard good practice as set out in the DfT's TAG guidelines, in particular TAG unit M3-1 Highway Assignment Modelling. As such, the approaches to data processing, matrices and network production, along with model calibration are consistent with those of similar strategic highways models.

The model production made significant and appropriate use of existing local data and models. A very small programme of surveys was undertaken to fill in some gaps in data.

Validation of Trip Matrices

The results show a satisfactory performance across the three periods. While some screenlines do not meet the 5% TAG criteria, other analyses including use of GEH-based criteria have provided confidence that the results are satisfactory for the purposes of the transport study. The areas of weaker performance will be accounted for and local improvements made as part of the transport study work if deemed necessary.

Validation of Network and Links

The results show good performance across the three periods. In all periods 80% or above of links meet the percentage and absolute TAG guidelines which is good for a relatively large strategic model. As in the case of the matrices, areas of weaker performance will be accounted for and local improvements will be made as part of the transport study work if deemed necessary.

Validation of Journey Times

The results show a satisfactory performance across the three periods. The results fall short of the TAG 15%/1 minute guideline, but considering the good results for the 25% criterion it is considered that the models are fit for the purpose of undertaking the transport study.

Model Convergence

The convergence results demonstrate well-converged models that comfortably meet the TAG guidelines.

Conclusion

The MSSHM was produced in accordance with good practice, making significant and appropriate use of existing data and models.

Overall, the model is considered satisfactory for the purpose of undertaking the transport study work. Locations where the model quality is less strong will be considered for local improvements where necessary as the study proceeds, particularly if in the vicinity of developments being tested and impacted junctions. This will include the roads that make up the screenlines and cordons listed in paragraph 7.5.6.

SYSTRA provides advice on transport, to central, regional and local government, agencies, developers, operators and financiers.

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Other locations:

France:
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Africa:
Abidjan, Douala, Johannesburg, Kinshasa, Libreville, Nairobi

Latin America:
Lima, Mexico, Rio de Janeiro, Santiago, São Paulo

North America:
Little Falls, Los Angeles, Montreal, New-York, Philadelphia, Washington

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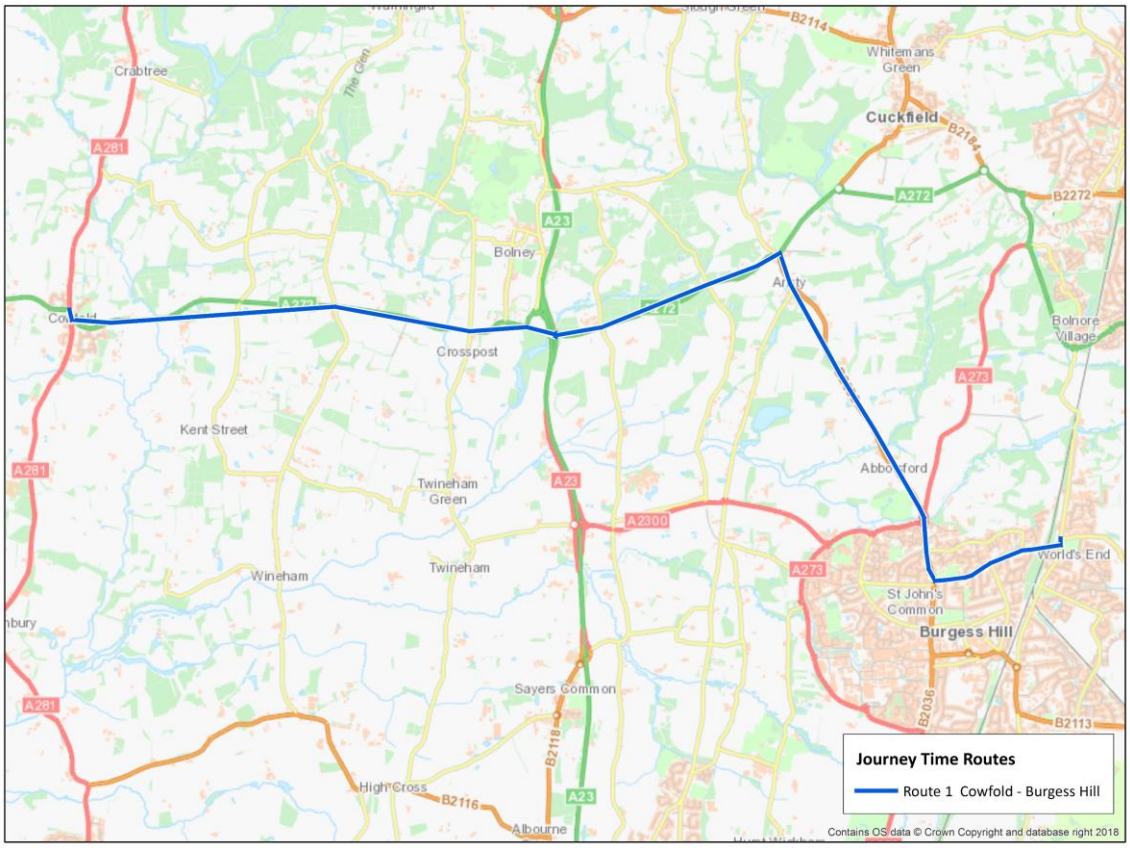
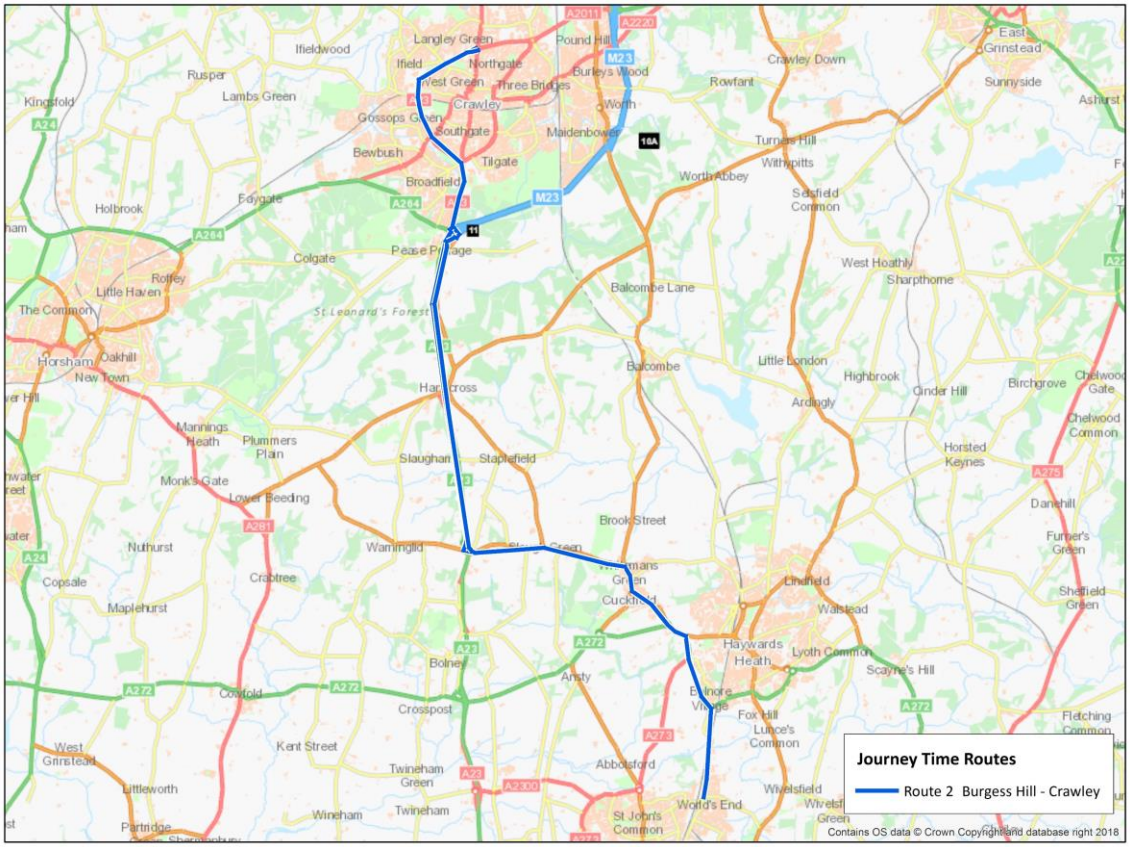
Appendix A – Journey Time Routes

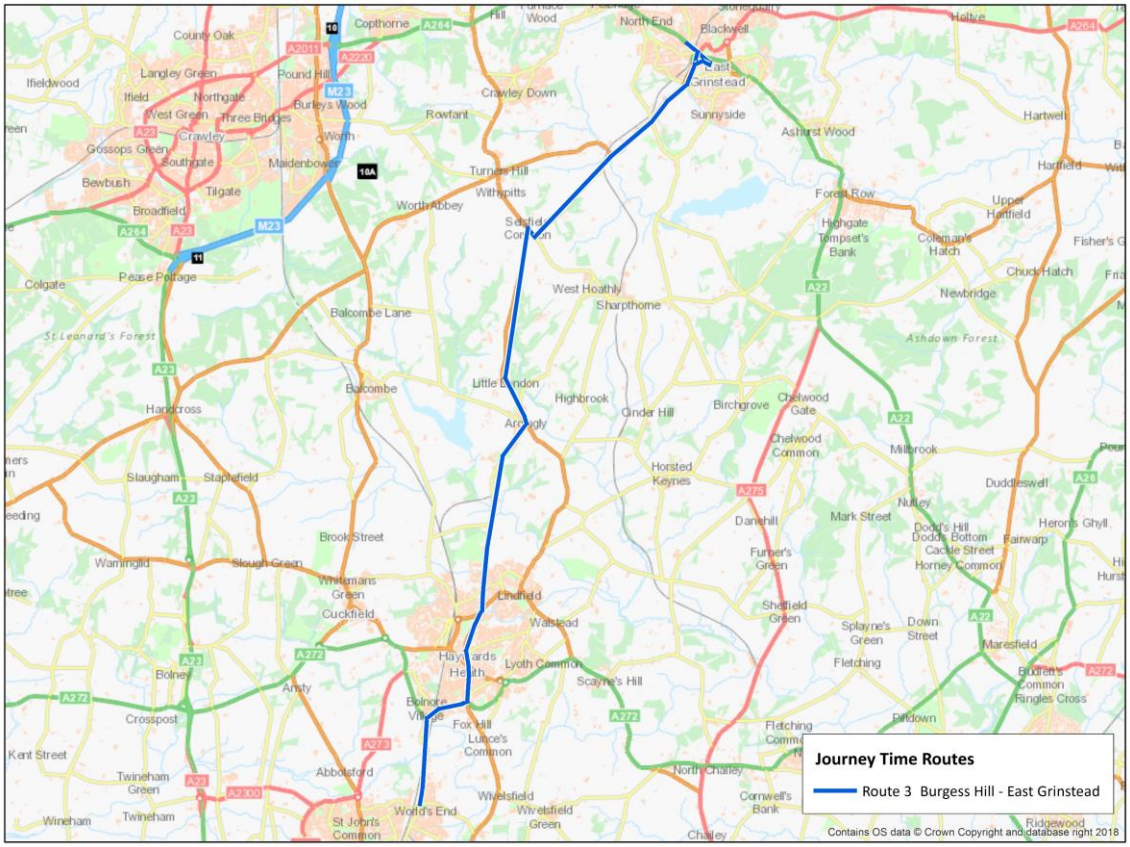
Route 1



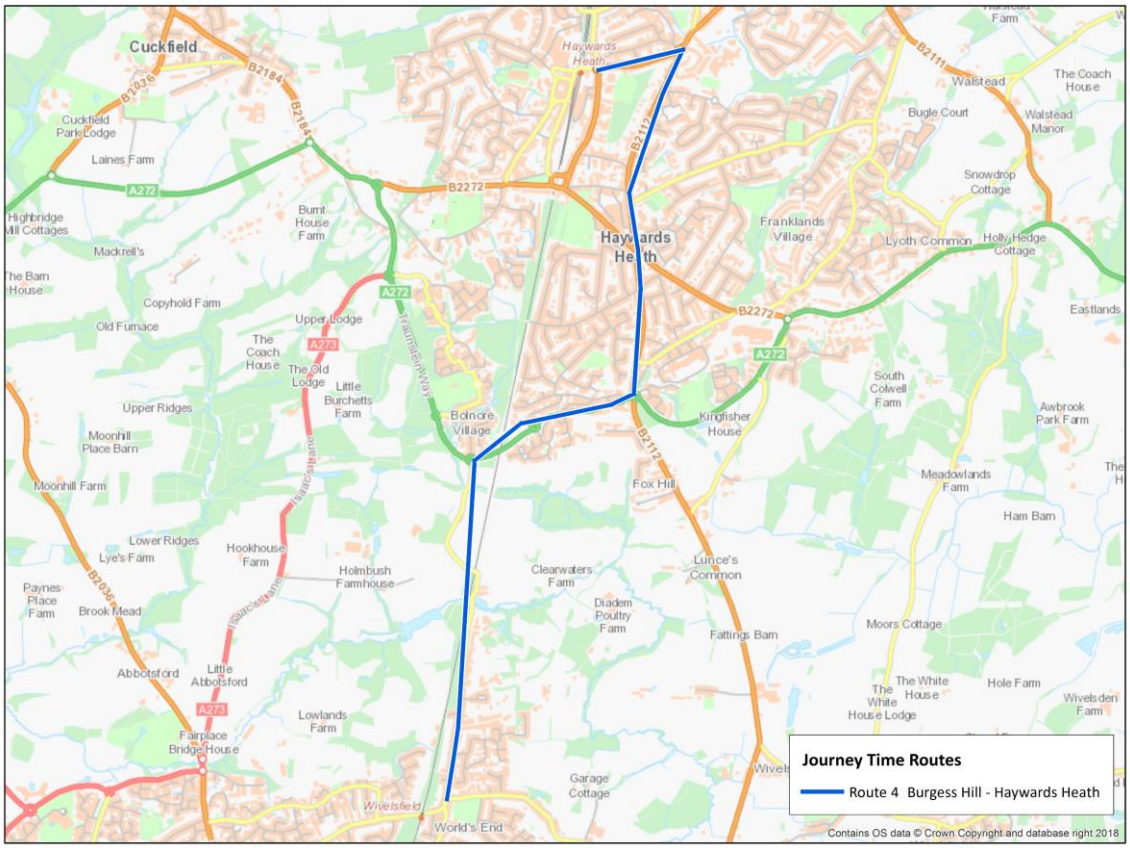
Route 2



Route 3



Route 4



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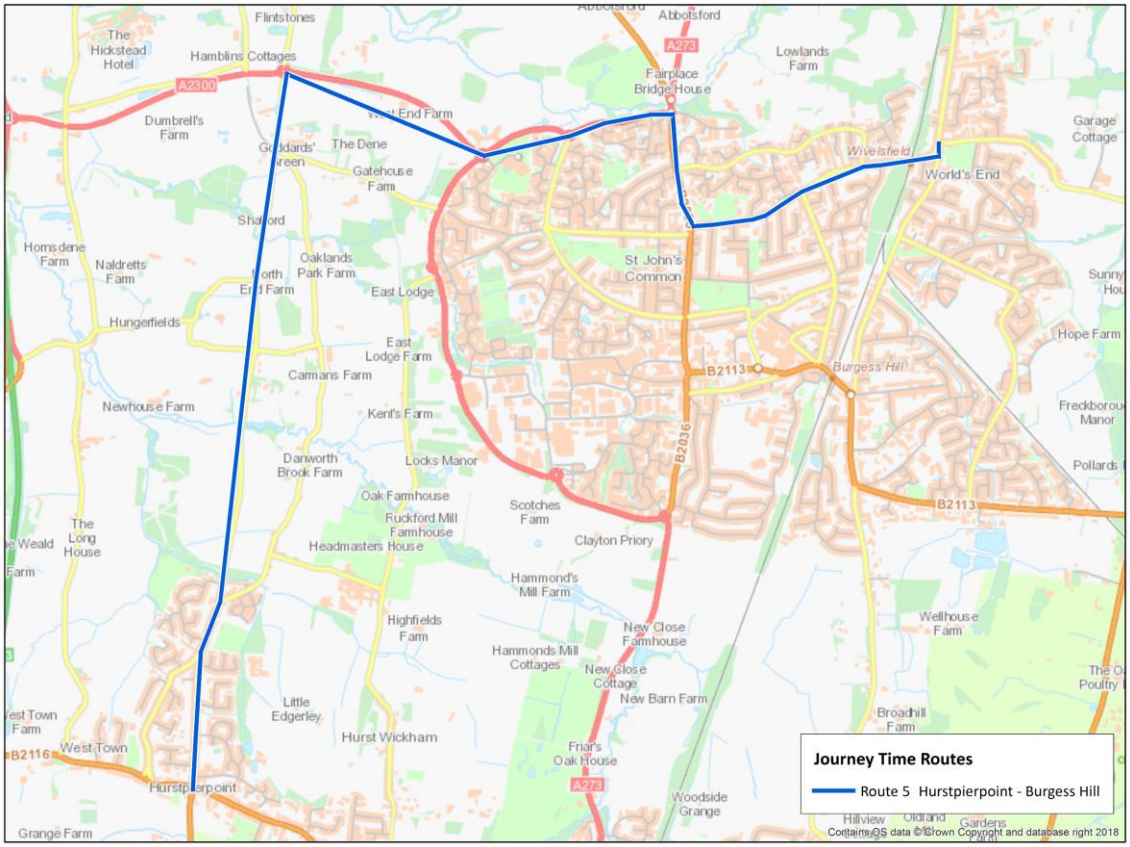
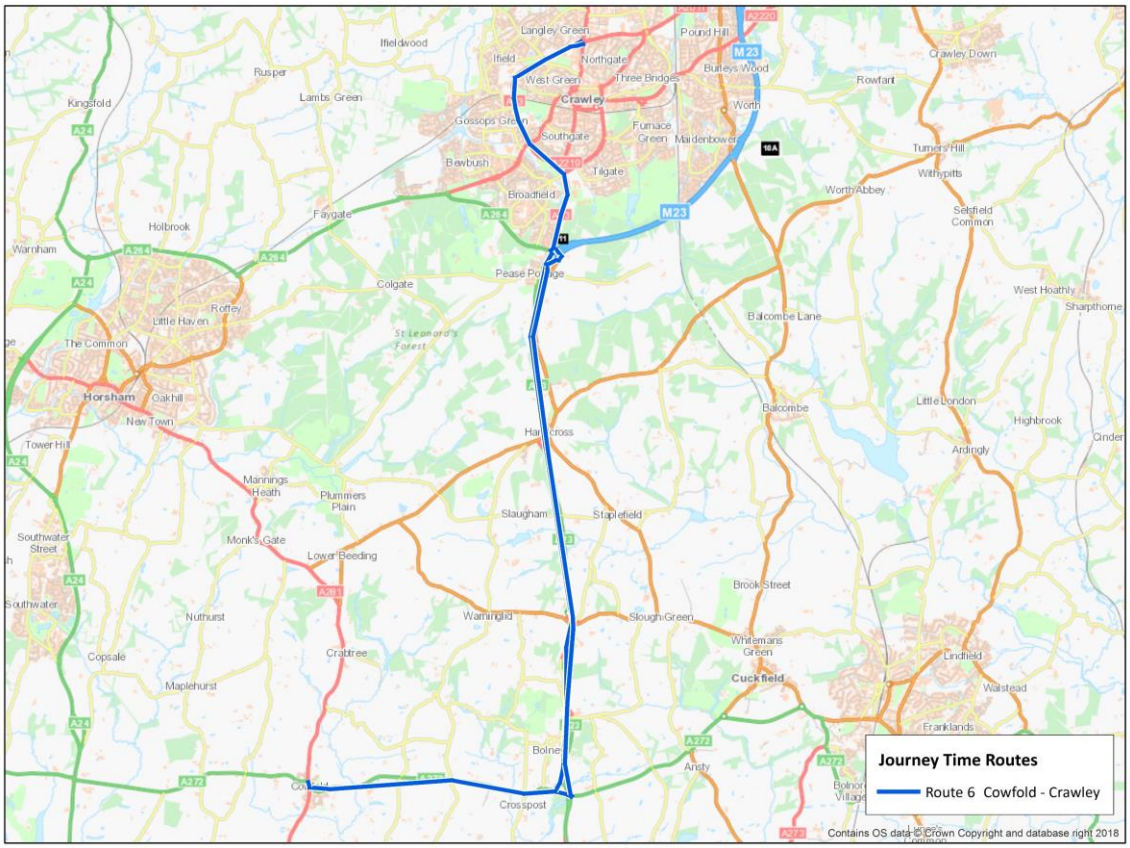
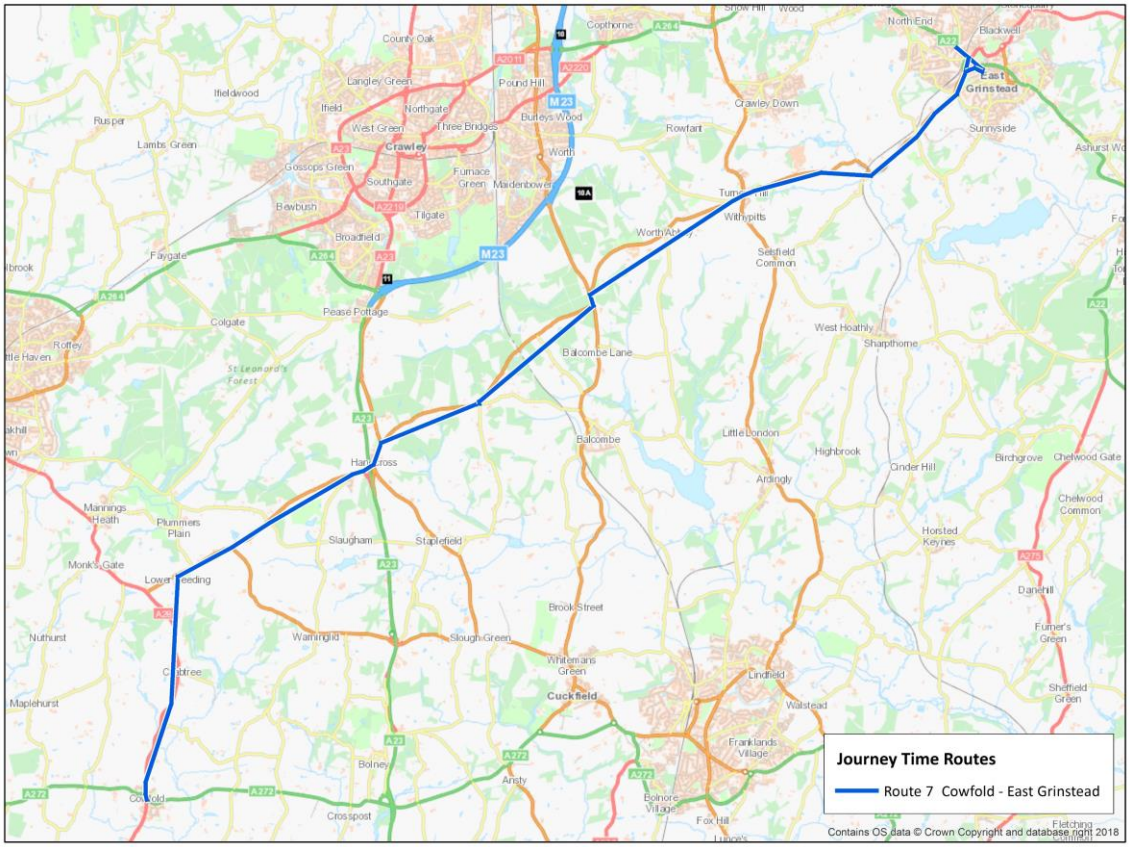


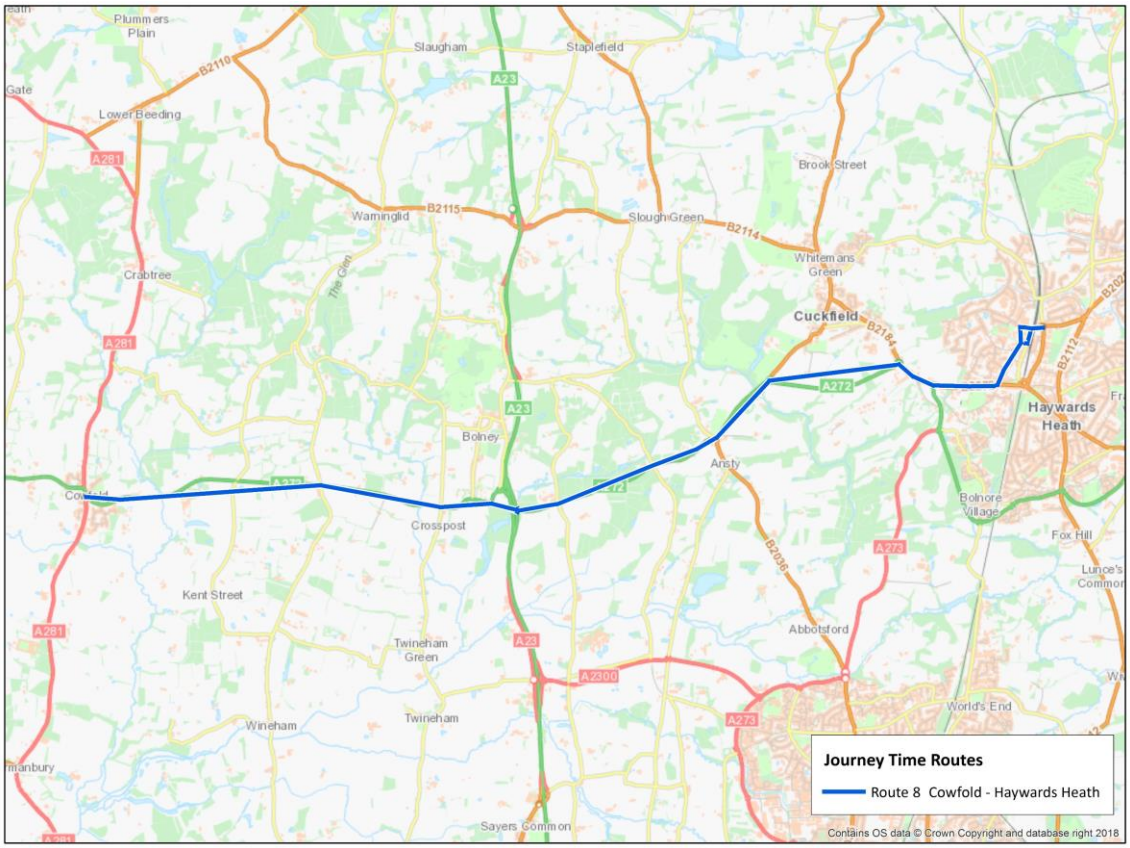
Route 6



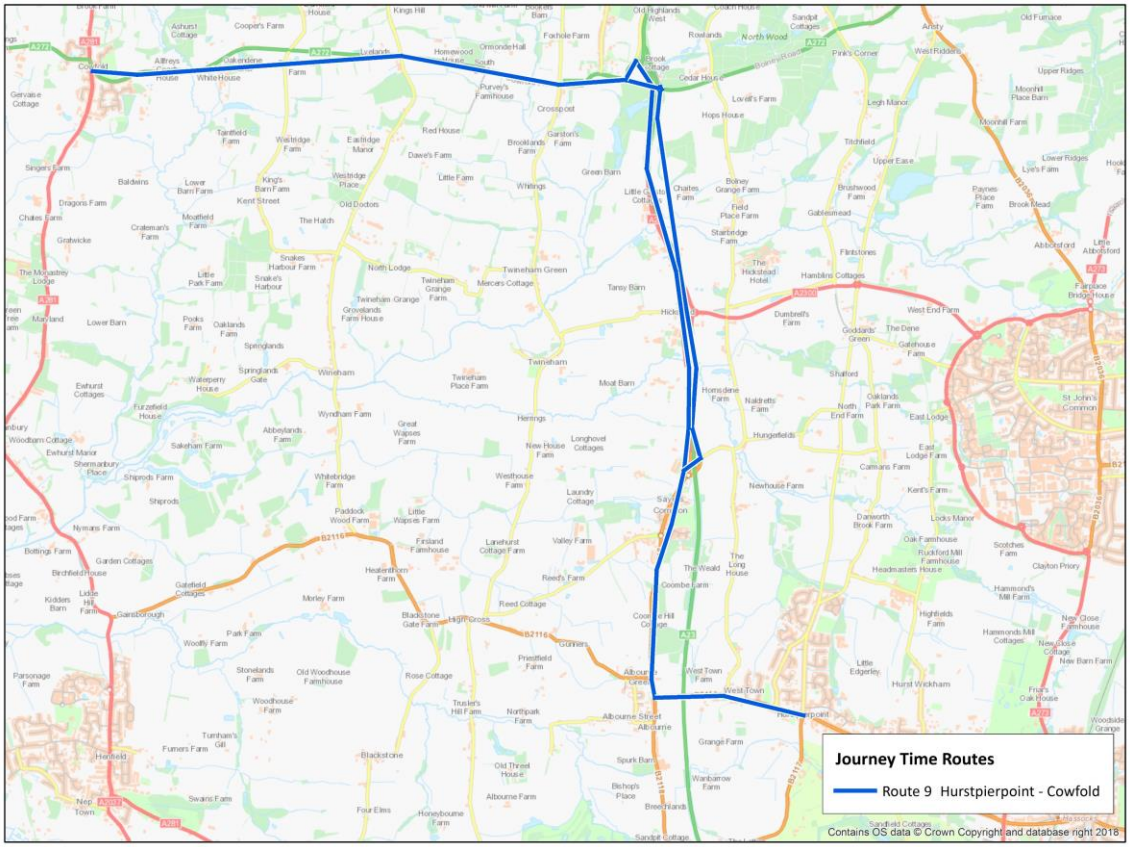
Route 7



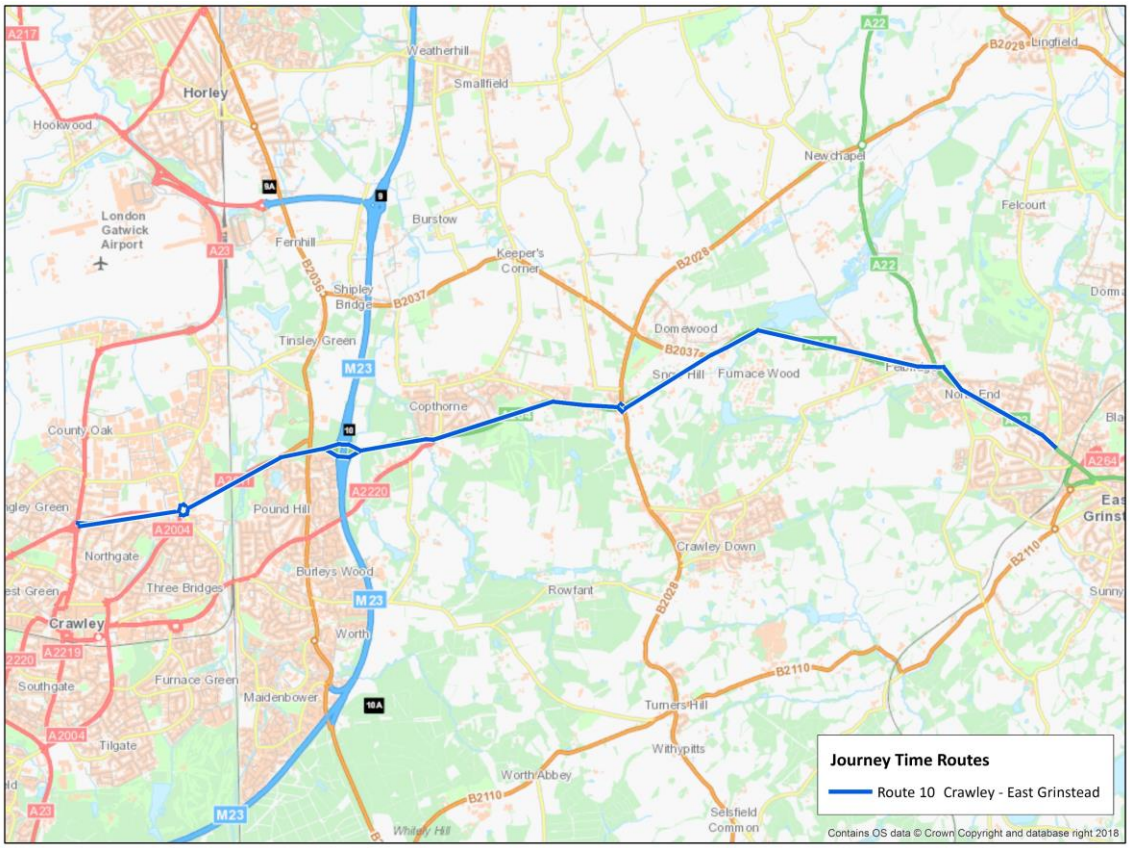
Route 8



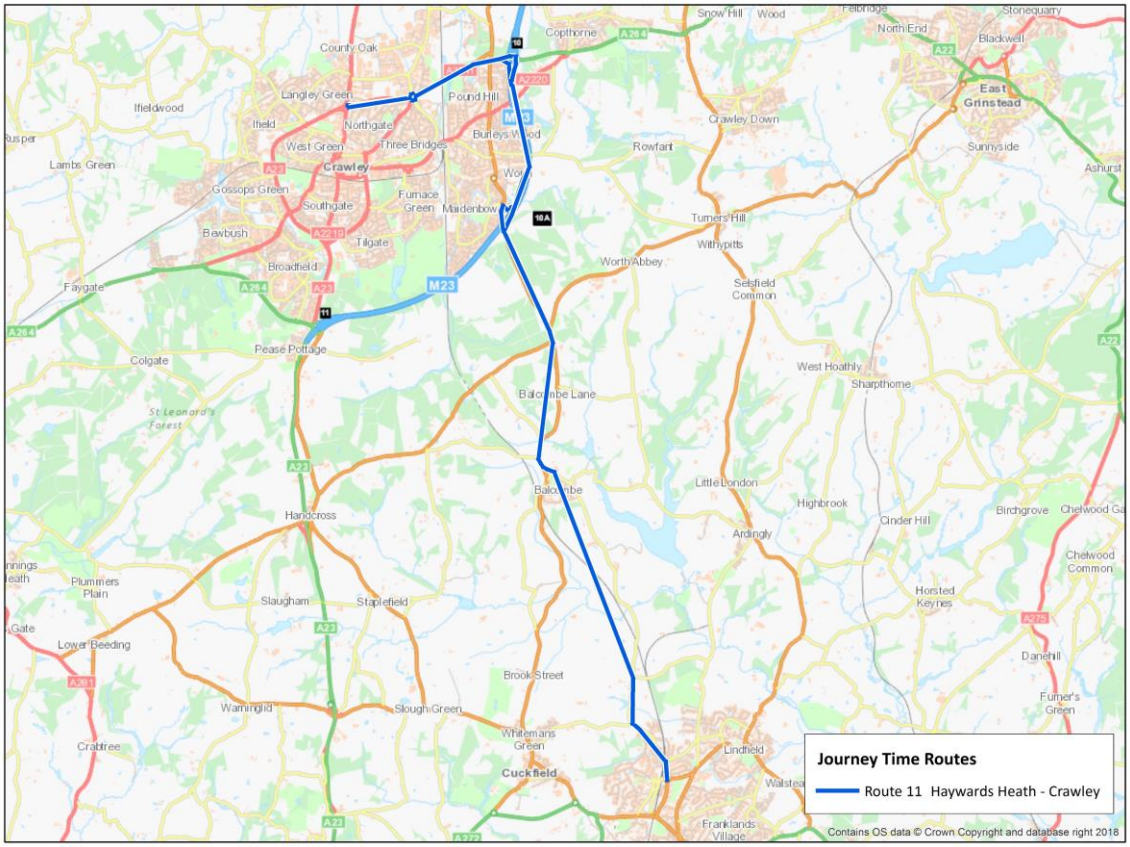
Route 9



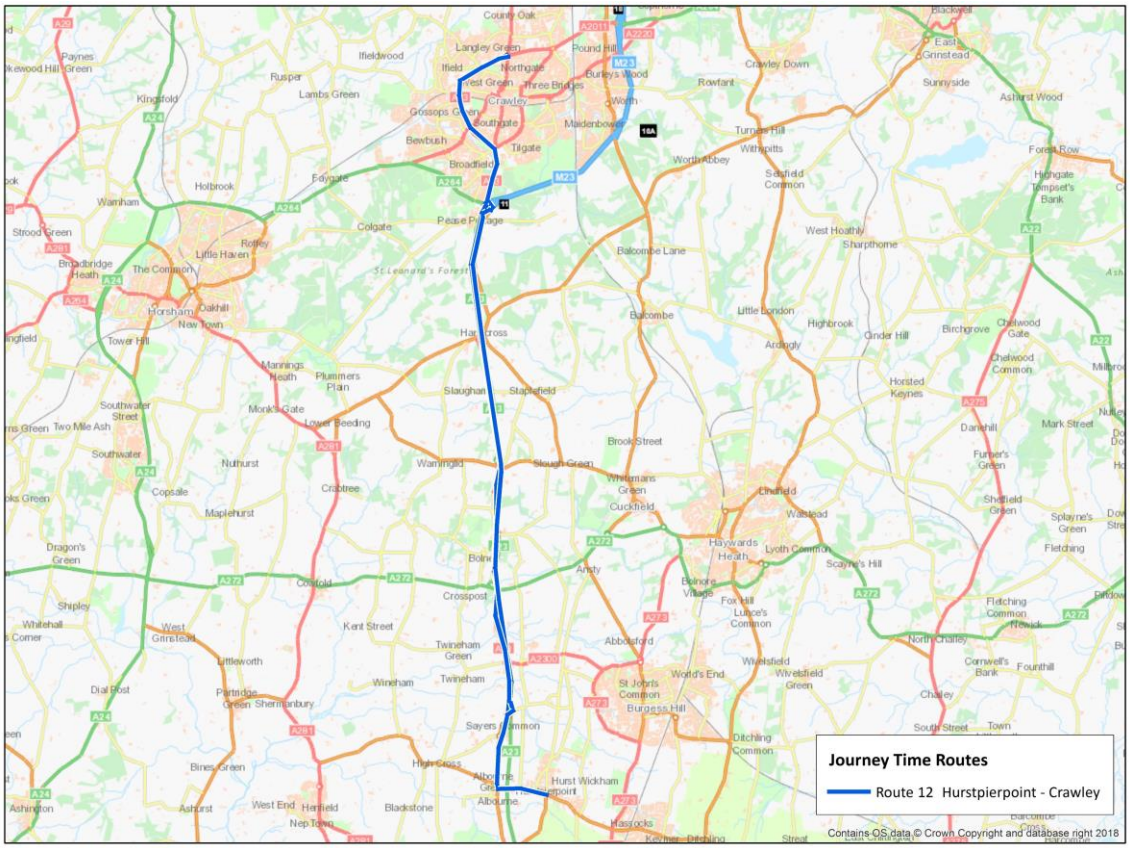
Route 10



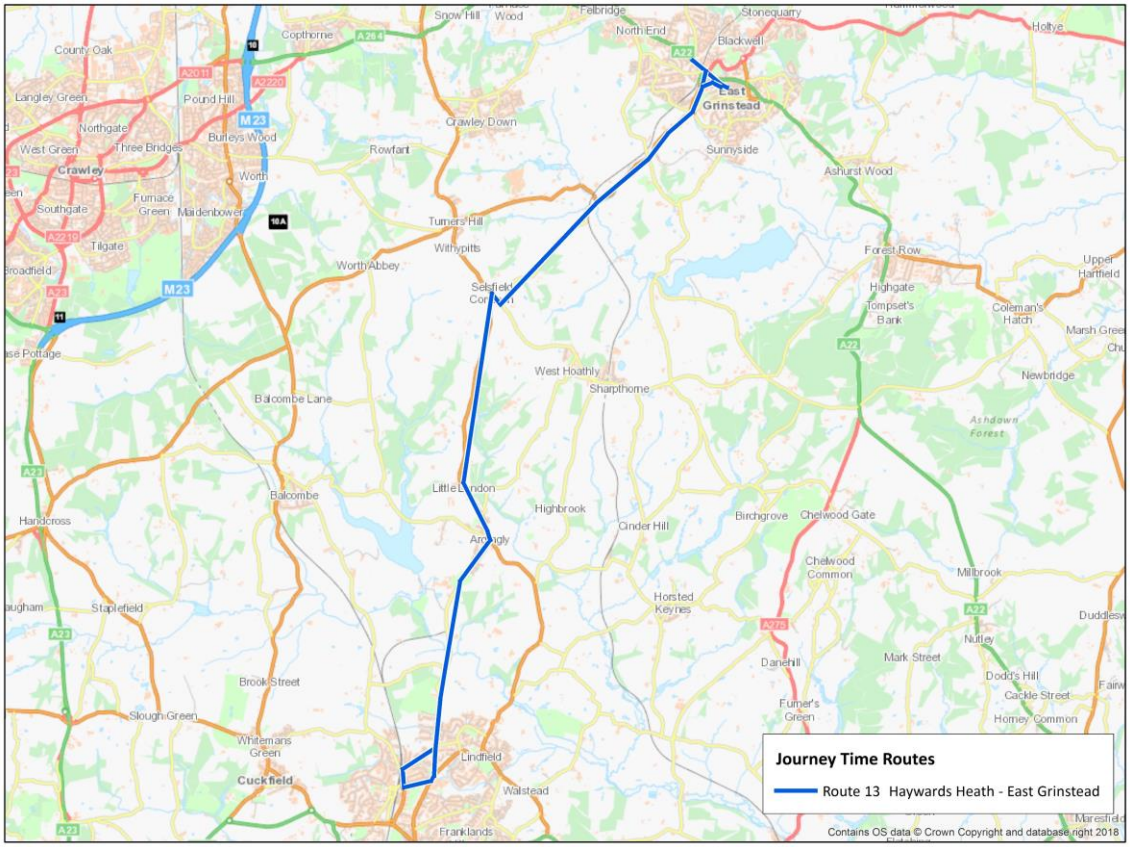
Route 11



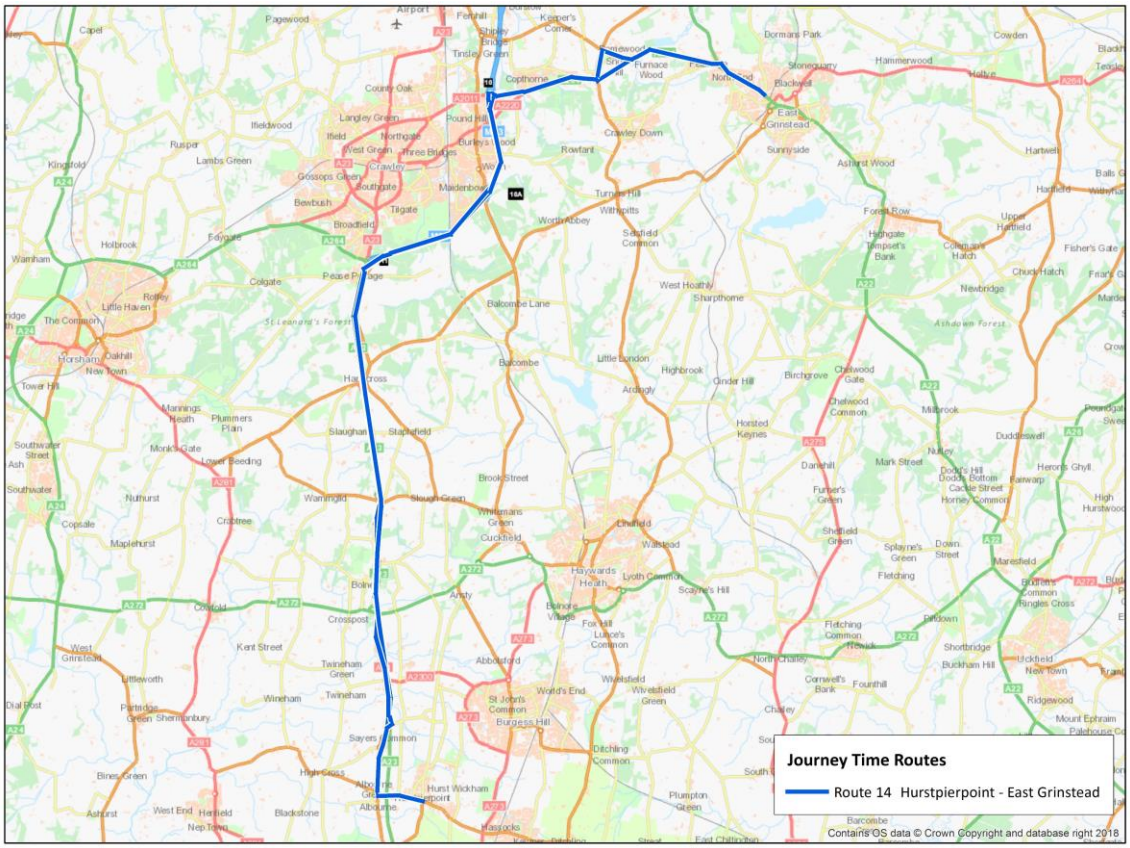
Route 12



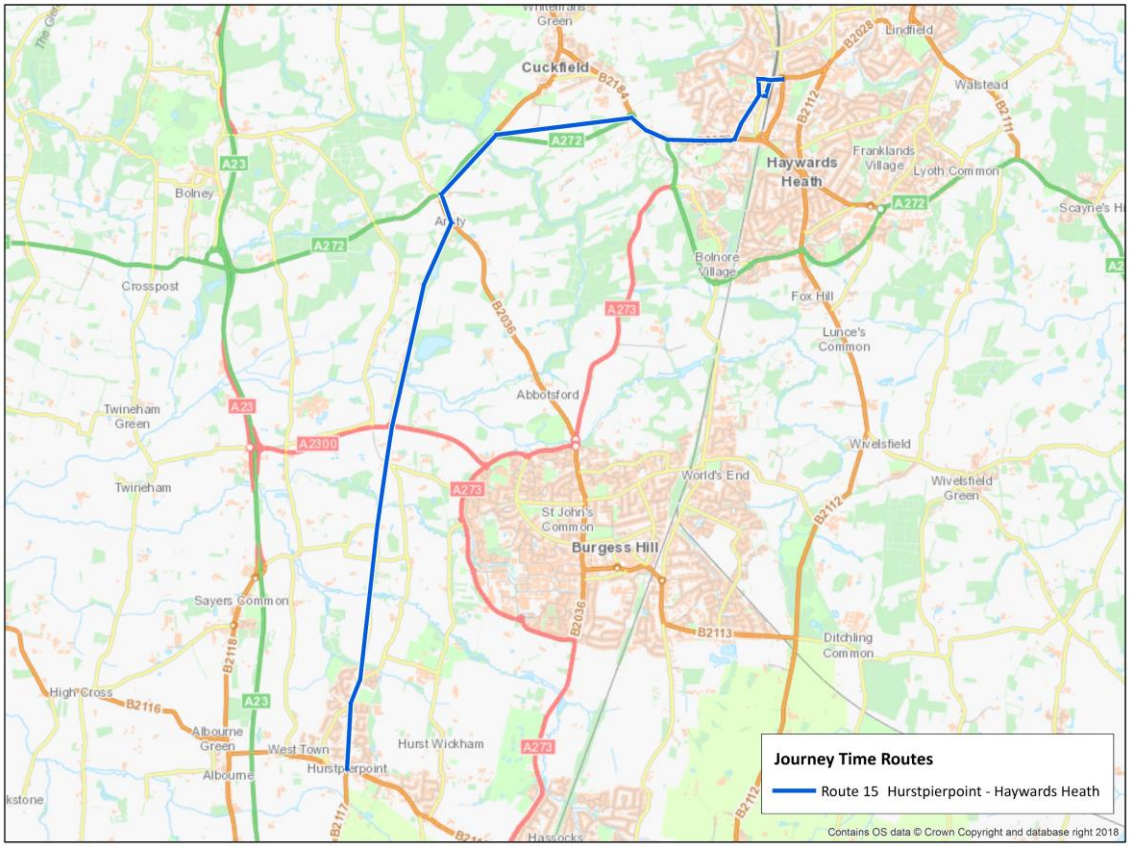
Route 13



Route 14



Route 15


Cuckfield
Haywards Heath
Burgess Hill
Bolney
Crosspost
Twineham Green
Twineham
Sayers Common
High Cross
Albourne Green
Albourne
West Town
Hurstpierpoint
Hurst Wickham
Abbotsford
St John's Common
World's End
Bolnore Village
Fox Hill
Lunce's Common
Franklands Village
Lyoth Common
Lindfield
Walstead
Wivelsfield
Wivelsfield Green
Ditchling Common
Hassocks
A23
A272
A273
A2300
B2036
B2112
B2113
B2116
B2118
B2117
Journey Time Routes
Route 15 Hurstpierpoint - Haywards Heath
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MID SUSSEX STRATEGIC HIGHWAY MODEL (MSSH

CORDONS AND SCREENLINES

	Site Description	Dir	AM VEHICLES Obs	Model	Diff	% Diff	GEH	Abs/ %	GEH= 5	GEH= 10	GEH= 15	IP VEHICLES Obs	Model	Diff	% Diff	GEH	Abs/ %	GEH= 5	GEH= 10	GEH= 15	PM VEHICLES Obs	Model	Diff	% Diff	GEH	Abs/ %	GEH= 5	GEH= 10	GEH= 15
			WebTAG Within									WebTAG Within									WebTAG Within								
	1 Mid Sussex District Cordon																											
	1 Outbound																											
1	Church Road, Burstow (very minor)	N	no link	no link								no link	no link								no link	no link						
2	Redehall Road	N	457	no link								171	no link								300	no link						
3	Dowlands Lane (very minor)	N	no link	no link								no link	no link								no link	no link						
4	B2028 W Park Road	N	463	413	-49	-11%	2	Y	Y	Y	Y	272	28	-244	-90%	20	N	N	N	N	490	435	-54	-11%	3	Y	Y	Y	Y
5	A22 Eastbourne Road	N	409	379	-29	-7%	1	Y	Y	Y	Y	366	353	-13	-4%	1	Y	Y	Y	Y	457	430	-26	-6%	1	Y	Y	Y	Y
6	Lingfield Road/Felcourt Road	N	407	278	-129	-32%	7	N	N	Y	Y	194	176	-19	-10%	1	Y	Y	Y	Y	241	305	64	27%	4	Y	Y	Y	Y
7	A264 Holtye Road	E	528	673	145	28%	6	N	N	Y	Y	381	411	30	8%	2	Y	Y	Y	Y	594	559	-35	-6%	1	Y	Y	Y	Y
8	Lynton Park Avenue	N	no link	no link								no link	no link								no link	no link						
9	A22 Lewes Road	S	690	701	11	2%	0	Y	Y	Y	Y	584	596	12	2%	0	Y	Y	Y	Y	769	769	0	0%	0	Y	Y	Y	Y
10	Legsheath Lane	E	0	0	0							0	0	0							0	0	0						
11	Plawhatch Lane	E	251	273	23	9%	1	Y	Y	Y	Y	217	214	-2	-1%	0	Y	Y	Y	Y	493	523	30	6%	1	Y	Y	Y	Y
12	Birchgrove Lane	E	no link	no link								no link	no link								no link	no link						
13	Birchgrove Road, Horsted Keynes	E	80	86	6	8%	1	Y	Y	Y	Y	84	102	17	20%	2	Y	Y	Y	Y	132	134	2	1%	0	Y	Y	Y	Y
14	Monteswood Lane	E	92	74	-18	-19%	2	Y	Y	Y	Y	58	49	-8	-15%	1	Y	Y	Y	Y	106	118	12	12%	1	Y	Y	Y	Y
15	A272 Lewes Road, Scayne's Hill	E	584	596	11	2%	0	Y	Y	Y	Y	507	517	10	2%	0	Y	Y	Y	Y	853	848	-5	-1%	0	Y	Y	Y	Y
16	Slugwash Lane	S	no link	no link								no link	no link								no link	no link						
17	B2112 Lunce's Hill	S	498	511	13	3%	1	Y	Y	Y	Y	400	408	8	2%	0	Y	Y	Y	Y	577	616	39	7%	2	Y	Y	Y	Y
18	Jane's Lane, Burgess Hill	E	252	289	38	15%	2	Y	Y	Y	Y	154	131	-22	-15%	2	Y	Y	Y	Y	232	253	21	9%	1	Y	Y	Y	Y
19	B2113 Folder's Lane, Burgess Hill	E	503	472	-31	-6%	1	Y	Y	Y	Y	297	327	30	10%	2	Y	Y	Y	Y	414	424	10	2%	0	Y	Y	Y	Y
20	B2116 Keymer Road	E	333	300	-33	-10%	2	Y	Y	Y	Y	191	106	-85	-44%	7	Y	N	Y	Y	311	240	-71	-23%	4	Y	Y	Y	Y
21	Lodge Lane	S	338	306	-32	-9%	2	Y	Y	Y	Y	137	73	-64	-46%	6	Y	N	Y	Y	276	228	-48	-17%	3	Y	Y	Y	Y
22	B2112 New Road	E	484	552	68	14%	3	Y	Y	Y	Y	209	370	162	77%	9	N	N	Y	Y	357	495	138	39%	7	N	N	Y	Y
23	Underhill Lane	E	no link	no link								no link	no link								no link	no link						
24	A23	S	3094	3158	63	2%	1	Y	Y	Y	Y	2483	2327	-157	-6%	3	Y	Y	Y	Y	4157	4006	-151	-4%	2	Y	Y	Y	Y
25	Saddlescombe Road	S	114	214	99	87%	8	Y	N	Y	Y	117	146	29	25%	3	Y	Y	Y	Y	208	241	32	16%	2	Y	Y	Y	Y
26	Devils Dyke Road	W	no link	no link								no link	no link								no link	no link						
27	Edburton Road	W	27	25	-2	-8%	0	Y	Y	Y	Y	36	73	38	106%	5	Y	Y	Y	Y	48	70	22	46%	3	Y	Y	Y	Y
28	Horn Lane	W	120	30	-89	-75%	10	Y	N	Y	Y	97	35	-62	-64%	8	Y	N	Y	Y	203	170	-33	-16%	2	Y	Y	Y	Y
29	A281 Brighton Rd	W	190	221	31	16%	2	Y	Y	Y	Y	186	232	46	25%	3	Y	Y	Y	Y	286	352	67	23%	4	Y	Y	Y	Y
30	B2116 Henfield Road	W	191	203	11	6%	1	Y	Y	Y	Y	138	141	3	2%	0	Y	Y	Y	Y	286	314	28	10%	2	Y	Y	Y	Y
31	A272 Cowfold Rd	W	732	775	43	6%	2	Y	Y	Y	Y	609	620	11	2%	0	Y	Y	Y	Y	796	788	-8	-1%	0	Y	Y	Y	Y
32	Picts Lane	W	no link	no link								no link	no link								no link	no link						
33	B2110 Sandygate Lane	W	457	352	-105	-23%	5	N	Y	Y	Y	267	200	-67	-25%	4	Y	Y	Y	Y	567	522	-45	-8%	2	Y	Y	Y	Y
34	Hammerpond Road	W	55	158	103	186%	10	N	N	Y	Y	19	95	76	409%	10	Y	N	Y	Y	18	81	62	346%	9	Y	N	Y	Y
35	A23 - B2110 ON to J11 OFF	N	3496	3811	315	9%	5	Y	Y	Y	Y	2138	2300	163	8%	3	Y	Y	Y	Y	2637	2787	150	6%	3	Y	Y	Y	Y
36	B2114 North of Handcross	N	292	218	-73	-25%	5	Y	Y	Y	Y	168	91	-76	-46%	7	Y	N	Y	Y	199	94	-105	-53%	9	N	N	Y	Y
37	B2036 Balcombe Road	N	789	884	95	12%	3	Y	Y	Y	Y	243	328	85	35%	5	Y	Y	Y	Y	352	467	115	33%	6	N	N	Y	Y
38	Turners Hill Road	W	564	798	234	41%	9	N	N	Y	Y	305	422	117	39%	6	N	N	Y	Y	481	554	73	15%	3	Y	Y	Y	Y
39	A2220 Copthorne Road	W	759	469	-290	-38%	12	N	N	N	Y	368	263	-105	-29%	6	N	N	Y	Y	520	465	-55	-11%	2	Y	Y	Y	Y
40	A264 Copthorne Way	W	1274	1256	-18	-1%	1	Y	Y	Y	Y	837	852	15	2%	1	Y	Y	Y	Y	1123	1176	53	5%	2	Y	Y	Y	Y
41	Shipley Bridge Lane	W	161	130	-31	-19%	3	Y	Y	Y	Y	81	62	-19	-23%	2	Y	Y	Y	Y	86	85	-1	-2%	0	Y	Y	Y	Y
42	B2037 Antlands Lane	W	505	540	35	7%	2	Y	Y	Y	Y	243	270	27	11%	2	Y	Y	Y	Y	273	284	11	4%	1	Y	Y	Y	Y
	TOTAL / OVERALL		**19187**	**19145**	**-42**	**0%**	**0**	**81%**	**78%**	**97%**	**100%**	**12556**	**12320**	**-236**	**-2%**	**2**	**88%**	**72%**	**97%**	**97%**	**18842**	**18833**	**-9**	**0%**	**0**	**91%**	**88%**	**100%**	**100%**

MID SUSSEX STRATEGIC HIGHWAY MODEL (MSSH

CORDONS AND SCREENLINES

			AM									IP									PM								
			VEHICLES					WebTAG Within				VEHICLES					WebTAG Within				VEHICLES					WebTAG Within			
	Site Description	Dir	Obs	Model	Diff	% Diff	GEH	Abs/ %	GEH= 5	GEH= 10	GEH= 15	Obs	Model	Diff	% Diff	GEH	Abs/ %	GEH= 5	GEH= 10	GEH= 15	Obs	Model	Diff	% Diff	GEH	Abs/ %	GEH= 5	GEH= 10	GEH= 15
	1 Mid Sussex District Cordon																												
	2 Inbound																												
1	Church Road, Burstow (very minor)	S	no link	no link								no link	no link								no link	no link							
2	Redehall Road	S	217	no link								177	no link								370	no link							
3	Dowlands Lane (very minor)	S	no link	no link								no link	no link								no link	no link							
4	B2028 W Park Road	S	375	378	2	1%	0	Y	Y	Y	Y	234	112	-122	-52%	9	N	N	Y	Y	362	353	-8	-2%	0	Y	Y	Y	Y
5	A22 Eastbourne Road	S	332	320	-12	-4%	1	Y	Y	Y	Y	355	362	7	2%	0	Y	Y	Y	Y	518	519	1	0%	0	Y	Y	Y	Y
6	Lingfield Road/Felcourt Road	S	270	409	139	52%	8	N	N	Y	Y	217	258	41	19%	3	Y	Y	Y	Y	348	211	-137	-39%	8	N	N	Y	Y
7	A264 Holtye Road	W	576	456	-120	-21%	5	N	Y	Y	Y	366	337	-29	-8%	2	Y	Y	Y	Y	507	681	174	34%	7	N	N	Y	Y
8	Lynton Park Avenue	S	no link	no link								no link	no link								no link	no link							
9	A22 Lewes Road	N	789	801	11	1%	0	Y	Y	Y	Y	573	585	12	2%	0	Y	Y	Y	Y	671	681	10	1%	0	Y	Y	Y	Y
10	Legsheath Lane	W	0	0	0							0	0	0							0	0	0						
11	Plawhatch Lane	W	433	421	-12	-3%	1	Y	Y	Y	Y	203	170	-33	-16%	2	Y	Y	Y	Y	275	277	1	0%	0	Y	Y	Y	Y
12	Birchgrove Lane	W	no link	no link								no link	no link								no link	no link							
13	Birchgrove Road, Horsted Keynes	W	136	143	7	5%	1	Y	Y	Y	Y	79	112	33	42%	3	Y	Y	Y	Y	94	108	13	14%	1	Y	Y	Y	Y
14	Monteswood Lane	W	138	148	10	7%	1	Y	Y	Y	Y	58	75	17	29%	2	Y	Y	Y	Y	101	92	-9	-9%	1	Y	Y	Y	Y
15	A272 Lewes Road, Scayne's Hill	W	851	867	16	2%	1	Y	Y	Y	Y	483	497	14	3%	1	Y	Y	Y	Y	575	583	8	1%	0	Y	Y	Y	Y
16	Slugwash Lane	N	no link	no link								no link	no link								no link	no link							
17	B2112 Lunce's Hill	N	709	711	2	0%	0	Y	Y	Y	Y	401	410	8	2%	0	Y	Y	Y	Y	495	503	7	1%	0	Y	Y	Y	Y
18	Jane's Lane, Burgess Hill	W	246	205	-41	-17%	3	Y	Y	Y	Y	145	127	-18	-12%	2	Y	Y	Y	Y	207	208	1	0%	0	Y	Y	Y	Y
19	B2113 Folder's Lane, Burgess Hill	W	429	479	50	12%	2	Y	Y	Y	Y	325	353	27	8%	1	Y	Y	Y	Y	513	533	20	4%	1	Y	Y	Y	Y
20	B2116 Keymer Road	W	360	196	-163	-45%	10	N	N	Y	Y	218	136	-81	-37%	6	Y	N	Y	Y	299	295	-4	-1%	0	Y	Y	Y	Y
21	Lodge Lane	N	214	175	-39	-18%	3	Y	Y	Y	Y	101	192	91	90%	8	Y	N	Y	Y	225	247	21	9%	1	Y	Y	Y	Y
22	B2112 New Road	W	412	608	196	47%	9	N	N	Y	Y	214	251	37	18%	2	Y	Y	Y	Y	375	302	-73	-19%	4	Y	Y	Y	Y
23	Underhill Lane	W	no link	no link								no link	no link								no link	no link							
24	A23	N	3702	3589	-113	-3%	2	Y	Y	Y	Y	2304	2307	3	0%	0	Y	Y	Y	Y	2954	2993	39	1%	1	Y	Y	Y	Y
25	Saddlescombe Road	N	215	102	-113	-53%	9	N	N	Y	Y	133	159	26	20%	2	Y	Y	Y	Y	175	204	29	17%	2	Y	Y	Y	Y
26	Devils Dyke Road	E	no link	no link								no link	no link								no link	no link							
27	Edburton Road	E	36	248	211	583%	18	N	N	N	N	32	41	8	26%	1	Y	Y	Y	Y	31	50	18	60%	3	Y	Y	Y	Y
28	Horn Lane	E	204	151	-52	-26%	4	Y	Y	Y	Y	86	57	-29	-34%	3	Y	Y	Y	Y	102	69	-33	-33%	4	Y	Y	Y	Y
29	A281 Brighton Rd	E	273	321	48	18%	3	Y	Y	Y	Y	182	231	49	27%	3	Y	Y	Y	Y	230	266	36	16%	2	Y	Y	Y	Y
30	B2116 Henfield Road	E	279	294	15	5%	1	Y	Y	Y	Y	129	132	2	2%	0	Y	Y	Y	Y	163	167	4	2%	0	Y	Y	Y	Y
31	A272 Cowfold Rd	E	753	743	-10	-1%	0	Y	Y	Y	Y	551	574	23	4%	1	Y	Y	Y	Y	801	825	24	3%	1	Y	Y	Y	Y
32	Picts Lane	E	no link	no link								no link	no link								no link	no link							
33	B2110 Sandygate Lane	E	644	565	-79	-12%	3	Y	Y	Y	Y	273	264	-9	-3%	1	Y	Y	Y	Y	437	413	-23	-5%	1	Y	Y	Y	Y
34	Hammerpond Road	E	30	155	125	425%	13	N	N	N	Y	20	34	14	70%	3	Y	Y	Y	Y	31	93	62	198%	8	Y	N	Y	Y
35	A23 - B2114 OFF to B2110 ON	S	2223	2243	21	1%	0	Y	Y	Y	Y	2121	2161	40	2%	1	Y	Y	Y	Y	3300	3344	45	1%	1	Y	Y	Y	Y
36	B2114 North of Handcross	S	485	483	-2	0%	0	Y	Y	Y	Y	319	223	-96	-30%	6	Y	N	Y	Y	605	634	29	5%	1	Y	Y	Y	Y
37	B2036 Balcombe Road	S	470	552	82	17%	4	Y	Y	Y	Y	277	384	108	39%	6	N	N	Y	Y	869	867	-2	0%	0	Y	Y	Y	Y
38	Turners Hill Road	E	445	336	-109	-25%	6	N	N	Y	Y	266	348	82	31%	5	Y	Y	Y	Y	561	580	19	3%	1	Y	Y	Y	Y
39	A2220 Copthorne Road	E	449	561	112	25%	5	N	Y	Y	Y	343	286	-57	-17%	3	Y	Y	Y	Y	647	669	22	3%	1	Y	Y	Y	Y
40	A264 Copthorne Way	E	909	931	22	2%	1	Y	Y	Y	Y	851	857	7	1%	0	Y	Y	Y	Y	1094	1059	-36	-3%	1	Y	Y	Y	Y
41	Shipley Bridge Lane	E	76	135	60	79%	6	Y	N	Y	Y	77	172	95	123%	8	Y	N	Y	Y	228	73	-155	-68%	13	N	N	N	Y
42	B2037 Antlands Lane	E	276	297	21	8%	1	Y	Y	Y	Y	246	155	-91	-37%	6	Y	N	Y	Y	626	778	152	24%	6	N	N	Y	Y
	TOTAL / OVERALL		**17957**	**18022**	**65**	**0%**	**0**	**72%**	**75%**	**94%**	**97%**	**12358**	**12361**	**3**	**0%**	**0**	**94%**	**78%**	**100%**	**100%**	**18790**	**18675**	**-115**	**-1%**	**1**	**88%**	**84%**	**97%**	**100%**

MID SUSSEX STRATEGIC HIGHWAY MODEL (MSSH	AM									IP									PM								
CORDONS AND SCREENLINES	VEHICLES								WebTAG Within	VEHICLES								WebTAG Within	VEHICLES								WebTAG Within
	Site Description	Dir	Obs	Model	Diff	% Diff	GEH	Abs/ %	GEH= 5	GEH= 10	GEH= 15	Obs	Model	Diff	% Diff	GEH	Abs/ %	GEH= 5	GEH= 10	GEH= 15	Obs	Model	Diff	% Diff	GEH	Abs/ %	GEH= 5	GEH= 10	GEH= 15
	2 East Grinstead Cordon																										
	1 Outbound																										
1	Lingfield Road/Felcourt Road	N	407	278	-129	-32%	7	N	N	Y	Y	194	176	-19	-10%	1	Y	Y	Y	Y	241	305	64	27%	4	Y	Y	Y	Y
2	A264 Holtye Road	E	528	673	145	28%	6	N	N	Y	Y	381	411	30	8%	2	Y	Y	Y	Y	594	559	-35	-6%	1	Y	Y	Y	Y
3	Lynton Park Avenue	N	no link	no link								no link	no link								no link	no link							
4	A22 Lewes Road	S	690	701	11	2%	0	Y	Y	Y	Y	584	596	12	2%	0	Y	Y	Y	Y	769	769	0	0%	0	Y	Y	Y	Y
5	Dunnings Road	S	138	107	-31	-22%	3	Y	Y	Y	Y	88	43	-45	-51%	6	Y	N	Y	Y	103	166	63	61%	5	Y	Y	Y	Y
6	B2110 Turner's Hill Road	W	608	493	-115	-19%	5	N	Y	Y	Y	294	319	24	8%	1	Y	Y	Y	Y	549	411	-139	-25%	6	N	N	Y	Y
7	Imberhorne Lane	S	146	298	152	104%	10	N	N	Y	Y	120	152	32	27%	3	Y	Y	Y	Y	213	354	141	66%	8	N	N	Y	Y
8	A22 London Road	N	1080	1087	7	1%	0	Y	Y	Y	Y	923	943	20	2%	1	Y	Y	Y	Y	1096	1084	-12	-1%	0	Y	Y	Y	Y
	TOTAL / OVERALL		**3597**	**3638**	**41**	**1%**	**1**	**43%**	**57%**	**100%**	**100%**	**2584**	**2639**	**54**	**2%**	**1**	**100%**	**86%**	**100%**	**100%**	**3565**	**3648**	**83**	**2%**	**1**	**71%**	**71%**	**100%**	**100%**
	2 East Grinstead Cordon																										
	2 Inbound																										
1	Lingfield Road/Felcourt Road	S	270	409	139	52%	8	N	N	Y	Y	217	258	41	19%	3	Y	Y	Y	Y	348	211	-137	-39%	8	N	N	Y	Y
2	A264 Holtye Road	W	576	456	-120	-21%	5	N	Y	Y	Y	366	337	-29	-8%	2	Y	Y	Y	Y	507	681	174	34%	7	N	N	Y	Y
3	Lynton Park Avenue	S	no link	no link								no link	no link								no link	no link							
4	A22 Lewes Road	N	789	801	11	1%	0	Y	Y	Y	Y	573	585	12	2%	0	Y	Y	Y	Y	671	681	10	1%	0	Y	Y	Y	Y
5	Dunnings Road	N	109	141	32	29%	3	Y	Y	Y	Y	83	70	-13	-16%	2	Y	Y	Y	Y	146	110	-36	-25%	3	Y	Y	Y	Y
6	B2110 Turner's Hill Road	E	592	526	-66	-11%	3	Y	Y	Y	Y	283	268	-15	-5%	1	Y	Y	Y	Y	463	489	26	6%	1	Y	Y	Y	Y
7	Imberhorne Lane	N	226	272	46	20%	3	Y	Y	Y	Y	116	155	39	33%	3	Y	Y	Y	Y	139	182	43	31%	3	Y	Y	Y	Y
8	A22 London Road	S	1005	948	-58	-6%	2	Y	Y	Y	Y	930	927	-3	0%	0	Y	Y	Y	Y	1161	1109	-52	-4%	2	Y	Y	Y	Y
	TOTAL / OVERALL		**3568**	**3553**	**-15**	**0%**	**0**	**71%**	**86%**	**100%**	**100%**	**2569**	**2600**	**31**	**1%**	**1**	**100%**	**100%**	**100%**	**100%**	**3435**	**3462**	**27**	**1%**	**0**	**71%**	**71%**	**100%**	**100%**
	3 Haywards Heath Cordon																										
	1 Outbound																										
1	Haywards Heath Road	N	345	542	198	57%	9	N	N	Y	Y	159	183	24	15%	2	Y	Y	Y	Y	210	226	16	8%	1	Y	Y	Y	Y
2	College Road	N	474	369	-105	-22%	5	N	Y	Y	Y	172	130	-42	-24%	3	Y	Y	Y	Y	353	268	-85	-24%	5	Y	Y	Y	Y
3	B2028 Buxhalls Hill	N	312	416	104	33%	5	N	Y	Y	Y	194	252	59	30%	4	Y	Y	Y	Y	243	350	108	44%	6	N	N	Y	Y
4	East Mascall's Lane	E	287	122	-165	-58%	12	N	N	N	Y	70	39	-31	-45%	4	Y	Y	Y	Y	103	75	-28	-27%	3	Y	Y	Y	Y
5	A272 Lewes Road	E	584	596	11	2%	0	Y	Y	Y	Y	507	517	10	2%	0	Y	Y	Y	Y	853	848	-5	-1%	0	Y	Y	Y	Y
6	Slugwash Lane	S	no link	no link								no link	no link								no link	no link							
7	B2112 Lunce's Hill	S	498	511	13	3%	1	Y	Y	Y	Y	400	408	8	2%	0	Y	Y	Y	Y	577	616	39	7%	2	Y	Y	Y	Y
8	A272 Rocky Lane	W	668	690	22	3%	1	Y	Y	Y	Y	467	483	16	3%	1	Y	Y	Y	Y	635	666	31	5%	1	Y	Y	Y	Y
9	B2272 Butler's Green Road	W	796	823	27	3%	1	Y	Y	Y	Y	758	774	15	2%	1	Y	Y	Y	Y	1120	949	-171	-15%	5	Y	Y	Y	Y
10	Hanlye Lane	W	355	358	3	1%	0	Y	Y	Y	Y	163	165	2	1%	0	Y	Y	Y	Y	311	385	73	24%	4	Y	Y	Y	Y
	TOTAL / OVERALL		**4318**	**4427**	**109**	**3%**	**2**	**56%**	**78%**	**89%**	**100%**	**2889**	**2950**	**61**	**2%**	**1**	**100%**	**100%**	**100%**	**100%**	**4406**	**4384**	**-22**	**-1%**	**0**	**89%**	**89%**	**100%**	**100%**
	3 Haywards Heath Cordon																										
	2 Inbound																										
1	Haywards Heath Road	S	252	417	165	65%	9	N	N	Y	Y	183	230	48	26%	3	Y	Y	Y	Y	379	581	202	53%	9	N	N	Y	Y
2	College Road	S	278	154	-125	-45%	8	N	N	Y	Y	168	118	-49	-29%	4	Y	Y	Y	Y	275	159	-117	-42%	8	N	N	Y	Y
3	B2028 Buxhalls Hill	S	256	383	127	49%	7	N	N	Y	Y	213	228	15	7%	1	Y	Y	Y	Y	296	229	-67	-23%	4	Y	Y	Y	Y
4	East Mascall's Lane	W	210	91	-120	-57%	10	N	N	Y	Y	77	75	-1	-2%	0	Y	Y	Y	Y	128	120	-8	-6%	1	Y	Y	Y	Y
5	A272 Lewes Road	W	851	867	16	2%	1	Y	Y	Y	Y	483	497	14	3%	1	Y	Y	Y	Y	575	583	8	1%	0	Y	Y	Y	Y
6	Slugwash Lane	N	no link	no link								no link	no link								no link	no link							
7	B2112 Lunce's Hill	N	709	711	2	0%	0	Y	Y	Y	Y	401	410	8	2%	0	Y	Y	Y	Y	495	503	7	1%	0	Y	Y	Y	Y
8	A272 Rocky Lane	E	641	657	17	3%	1	Y	Y	Y	Y	451	459	8	2%	0	Y	Y	Y	Y	660	677	17	3%	1	Y	Y	Y	Y
9	B2272 Butler's Green Road	E	1210	1066	-144	-12%	4	Y	Y	Y	Y	733	755	21	3%	1	Y	Y	Y	Y	823	847	24	3%	1	Y	Y	Y	Y
10	Hanlye Lane	E	489	503	14	3%	1	Y	Y	Y	Y	159	162	3	2%	0	Y	Y	Y	Y	263	271	8	3%	0	Y	Y	Y	Y
	TOTAL / OVERALL		**4897**	**4849**	**-49**	**-1%**	**1**	**56%**	**56%**	**100%**	**100%**	**2867**	**2935**	**68**	**2%**	**1**	**100%**	**100%**	**100%**	**100%**	**3894**	**3969**	**75**	**2%**	**1**	**78%**	**78%**	**100%**	**100%**

MID SUSSEX STRATEGIC HIGHWAY MODEL (MSSH			AM					WebTAG Within				IP					WebTAG Within					PM					WebTAG Within			
CORDONS AND SCREENLINES			VEHICLES									VEHICLES										VEHICLES									
	Site Description	Dir	Obs	Model	Diff	% Diff	GEH	Abs/ %	GEH= 5	GEH= 10	GEH= 15	Obs	Model	Diff	% Diff	GEH	Abs/ %	GEH= 5	GEH= 10	GEH= 15	Obs	Model	Diff	% Diff	GEH	Abs/ %	GEH= 5	GEH= 10	GEH= 15		
	4 Haywards Heath West Screenline																													
	1 Eastbound																													
1	Hanlye Lane	E	489	503	14	3%	1	Y	Y	Y	Y	159	162	3	2%	0	Y	Y	Y	Y	263	271	8	3%	0	Y	Y	Y	Y		
2	B2184 Broad Street	S	386	359	-26	-7%	1	Y	Y	Y	Y	290	305	15	5%	1	Y	Y	Y	Y	471	521	50	11%	2	Y	Y	Y	Y		
3	A272	E	477	490	13	3%	1	Y	Y	Y	Y	323	326	4	1%	0	Y	Y	Y	Y	465	473	8	2%	0	Y	Y	Y	Y		
4	A273 Isaacs Lane	N	565	574	9	2%	0	Y	Y	Y	Y	392	400	8	2%	0	Y	Y	Y	Y	546	565	19	3%	1	Y	Y	Y	Y		
	TOTAL / OVERALL		**1916**	**1926**	**10**	**1%**	**0**	**100%**	**100%**	**100%**	**100%**	**1163**	**1193**	**30**	**3%**	**1**	**100%**	**100%**	**100%**	**100%**	**1746**	**1830**	**84**	**5%**	**2**	**100%**	**100%**	**100%**	**100%**		
	4 Haywards Heath West Screenline																													
	2 Westbound																													
1	Hanlye Lane	W	355	358	3	1%	0	Y	Y	Y	Y	163	165	2	1%	0	Y	Y	Y	Y	311	385	73	24%	4	Y	Y	Y	Y		
2	B2184 Broad Street	N	634	651	16	3%	1	Y	Y	Y	Y	296	306	11	4%	1	Y	Y	Y	Y	328	334	6	2%	0	Y	Y	Y	Y		
3	A272	W	488	487	-2	0%	0	Y	Y	Y	Y	348	341	-7	-2%	0	Y	Y	Y	Y	610	599	-11	-2%	0	Y	Y	Y	Y		
4	A273 Isaacs Lane	S	508	478	-30	-6%	1	Y	Y	Y	Y	384	392	8	2%	0	Y	Y	Y	Y	485	512	27	6%	1	Y	Y	Y	Y		
	TOTAL / OVERALL		**1986**	**1974**	**-12**	**-1%**	**0**	**100%**	**100%**	**100%**	**100%**	**1191**	**1205**	**14**	**1%**	**0**	**100%**	**100%**	**100%**	**100%**	**1734**	**1829**	**95**	**5%**	**2**	**100%**	**100%**	**100%**	**100%**		
	5 Burgess Hill Cordon																													
	1 Outbound																													
1	Cuckfield Road	N	193	301	108	56%	7	N	N	Y	Y	81	72	-9	-11%	1	Y	Y	Y	Y	161	235	74	46%	5	Y	Y	Y	Y		
2	B2036 Pains Flat	N	366	293	-73	-20%	4	Y	Y	Y	Y	175	80	-95	-54%	8	Y	N	Y	Y	214	72	-142	-66%	12	N	N	N	Y		
3	A273 Isaacs Lane	N	565	574	9	2%	0	Y	Y	Y	Y	392	400	8	2%	0	Y	Y	Y	Y	546	565	19	3%	1	Y	Y	Y	Y		
4	Valebridge Road	N	412	402	-10	-2%	1	Y	Y	Y	Y	221	334	113	51%	7	N	N	Y	Y	300	385	85	28%	5	Y	Y	Y	Y		
5	Jane's Lane	E	252	289	38	15%	2	Y	Y	Y	Y	154	131	-22	-15%	2	Y	Y	Y	Y	232	253	21	9%	1	Y	Y	Y	Y		
6	B2113 Folders Ln	E	514	472	-42	-8%	2	Y	Y	Y	Y	295	327	32	11%	2	Y	Y	Y	Y	379	424	44	12%	2	Y	Y	Y	Y		
7	Ockley Lane	S	321	231	-90	-28%	5	Y	Y	Y	Y	193	156	-37	-19%	3	Y	Y	Y	Y	386	217	-169	-44%	10	N	N	Y	Y		
8	A273 London Road	S	527	409	-118	-22%	5	N	Y	Y	Y	536	472	-64	-12%	3	Y	Y	Y	Y	728	568	-160	-22%	6	N	N	Y	Y		
9	Wickham Drive	W	13	79	66	493%	10	Y	N	Y	Y	10	123	112	1074%	14	N	N	N	Y	10	151	142	1481%	16	N	N	N	N		
10	Cuckfield Road	S	222	407	185	83%	10	N	N	Y	Y	134	137	3	2%	0	Y	Y	Y	Y	199	410	211	106%	12	N	N	N	Y		
11	Western Road	S	67	no link								54	no link								95	no link									
12	Mill Lane	W	310	310	0							257	257	0							373	373	0								
13	A2300	W	865	875	10	1%	0	Y	Y	Y	Y	578	594	16	3%	1	Y	Y	Y	Y	804	805	1	0%	0	Y	Y	Y	Y		
	TOTAL / OVERALL		**4628**	**4644**	**15**	**0%**	**0**	**73%**	**73%**	**100%**	**100%**	**3079**	**3083**	**3**	**0%**	**0**	**82%**	**73%**	**91%**	**100%**	**4426**	**4455**	**29**	**1%**	**0**	**55%**	**55%**	**73%**	**91%**		
	5 Burgess Hill Cordon																													
	2 Inbound																													
1	Cuckfield Road	S	147	97	-51	-34%	5	Y	Y	Y	Y	76	32	-44	-58%	6	Y	N	Y	Y	140	114	-26	-18%	2	Y	Y	Y	Y		
2	B2036 Pains Flat	S	310	393	83	27%	4	Y	Y	Y	Y	175	63	-112	-64%	10	N	N	Y	Y	296	363	67	23%	4	Y	Y	Y	Y		
3	A273 Isaacs Lane	S	508	478	-30	-6%	1	Y	Y	Y	Y	384	392	8	2%	0	Y	Y	Y	Y	485	512	27	6%	1	Y	Y	Y	Y		
4	Valebridge Road	S	313	363	49	16%	3	Y	Y	Y	Y	232	399	167	72%	9	N	N	Y	Y	388	376	-12	-3%	1	Y	Y	Y	Y		
5	Jane's Lane	W	246	205	-41	-17%	3	Y	Y	Y	Y	145	127	-18	-12%	2	Y	Y	Y	Y	207	208	1	0%	0	Y	Y	Y	Y		
6	B2113 Folders Ln	W	400	479	78	20%	4	Y	Y	Y	Y	309	353	43	14%	2	Y	Y	Y	Y	494	533	39	8%	2	Y	Y	Y	Y		
7	Ockley Lane	N	356	439	84	24%	4	Y	Y	Y	Y	204	401	197	97%	11	N	N	N	Y	285	430	146	51%	8	N	N	Y	Y		
8	A273 London Road	N	853	833	-20	-2%	1	Y	Y	Y	Y	530	422	-108	-20%	5	N	Y	Y	Y	536	505	-30	-6%	1	Y	Y	Y	Y		
9	Wickham Drive	E	24	55	31	129%	5	Y	Y	Y	Y	12	24	12	104%	3	Y	Y	Y	Y	15	39	24	155%	5	Y	Y	Y	Y		
10	Cuckfield Road	N	169	167	-2	-1%	0	Y	Y	Y	Y	121	38	-83	-69%	9	Y	N	Y	Y	210	105	-105	-50%	8	N	N	Y	Y		
11	Western Road	N	91	no link								50	no link								59	no link									
12	Mill Lane	E	135	135	0							112	112	0							145	145	0								
13	A2300	E	950	943	-6	-1%	0	Y	Y	Y	Y	567	578	11	2%	0	Y	Y	Y	Y	1032	1020	-11	-1%	0	Y	Y	Y	Y		
	TOTAL / OVERALL		**4501**	**4586**	**85**	**2%**	**1**	**100%**	**100%**	**100%**	**100%**	**2918**	**2942**	**24**	**1%**	**0**	**64%**	**55%**	**91%**	**100%**	**4290**	**4351**	**61**	**1%**	**1**	**82%**	**82%**	**100%**	**100%**		

MID SUSSEX STRATEGIC HIGHWAY MODEL (MSSH	AM									IP									PM								
CORDONS AND SCREENLINES	VEHICLES									VEHICLES									VEHICLES								
	Site Description	Dir	Obs	Model	Diff	% Diff	GEH	Abs/ %	GEH= 5	GEH= 10	GEH= 15	Obs	Model	Diff	% Diff	GEH	Abs/ %	GEH= 5	GEH= 10	GEH= 15	Obs	Model	Diff	% Diff	GEH	Abs/ %	GEH= 5	GEH= 10	GEH= 15
	6 Burgess Hill North / South Screenline																										
	1 Eastbound																										
1	Leylands Road	E	562	486	-76	-14%	3	Y	Y	Y	Y	430	497	67	16%	3	Y	Y	Y	Y	714	838	125	17%	4	N	Y	Y	Y
2	B2113 Station Road	S	602	747	145	24%	6	N	N	Y	Y	559	543	-16	-3%	1	Y	Y	Y	Y	856	793	-63	-7%	2	Y	Y	Y	Y
3	B2116 Keymer Road	E	432	365	-67	-15%	3	Y	Y	Y	Y	372	223	-150	-40%	9	N	N	Y	Y	457	367	-90	-20%	4	Y	Y	Y	Y
4	B2112 New Road	E	484	552	68	14%	3	Y	Y	Y	Y	209	370	162	77%	9	N	N	Y	Y	357	495	138	39%	7	N	N	Y	Y
	TOTAL / OVERALL		**2080**	**2151**	**70**	**3%**	**2**	**75%**	**75%**	**100%**	**100%**	**1570**	**1633**	**63**	**4%**	**2**	**50%**	**50%**	**100%**	**100%**	**2384**	**2494**	**110**	**5%**	**2**	**50%**	**75%**	**100%**	**100%**
	6 Burgess Hill North / South Screenline																										
	2 Westbound																										
1	Leylands Road	W	677	643	-33	-5%	1	Y	Y	Y	Y	417	516	99	24%	5	Y	Y	Y	Y	571	692	121	21%	5	N	Y	Y	Y
2	B2113 Station Road	N	860	899	39	5%	1	Y	Y	Y	Y	563	481	-83	-15%	4	Y	Y	Y	Y	609	532	-77	-13%	3	Y	Y	Y	Y
3	B2116 Keymer Road	W	417	212	-205	-49%	12	N	N	N	Y	364	207	-157	-43%	9	N	N	Y	Y	404	401	-3	-1%	0	Y	Y	Y	Y
4	B2112 New Road	W	412	608	196	47%	9	N	N	Y	Y	214	251	37	18%	2	Y	Y	Y	Y	375	302	-73	-19%	4	Y	Y	Y	Y
	TOTAL / OVERALL		**2366**	**2362**	**-4**	**0%**	**0**	**50%**	**50%**	**75%**	**100%**	**1559**	**1456**	**-103**	**-7%**	**3**	**75%**	**75%**	**100%**	**100%**	**1959**	**1927**	**-32**	**-2%**	**1**	**75%**	**100%**	**100%**	**100%**
	7 Burgess Hill East / West Screenline																										
	1 Northbound																										
1	Langton Lane	N	no link	no link								no link	no link								no link	no link							
2	Cuckfield Road	N	223	227	4	2%	0	Y	Y	Y	Y	120	166	46	39%	4	Y	Y	Y	Y	157	156	-1	-1%	0	Y	Y	Y	Y
3	Danworth Lane	N	no link	no link								no link	no link								no link	no link							
4	Malthouse Lane	N	206	224	18	9%	1	Y	Y	Y	Y	79	36	-43	-55%	6	Y	N	Y	Y	116	142	27	23%	2	Y	Y	Y	Y
5	A273 Jane Murray Way	N	699	732	33	5%	1	Y	Y	Y	Y	600	613	13	2%	1	Y	Y	Y	Y	1048	1082	35	3%	1	Y	Y	Y	Y
6	Victoria Road	W	158	58	-100	-64%	10	N	N	Y	Y	114	34	-80	-70%	9	Y	N	Y	Y	114	30	-84	-73%	10	Y	N	Y	Y
7	Victoria Way	E	264	469	205	78%	11	N	N	N	Y	239	553	314	132%	16	N	N	N	N	449	710	261	58%	11	N	N	N	Y
8	B2036 London Road	N	761	673	-88	-12%	3	Y	Y	Y	Y	584	370	-214	-37%	10	N	N	Y	Y	615	440	-174	-28%	8	N	N	Y	Y
9	Lower Church Road, Burgess Hill	W	145	0	-145	-100%	17	N	N	N	N	154	0	-154	-100%	18	N	N	N	N	238	0	-238	-100%	22	N	N	N	N
10	St. John's Road	N	257	257	0							201	201	0							276	276	0						
11	Park Road	W	147	106	-41	-28%	4	Y	Y	Y	Y	95	66	-29	-30%	3	Y	Y	Y	Y	165	80	-85	-52%	8	Y	N	Y	Y
12	Mill Road	N	167	115	-52	-31%	4	Y	Y	Y	Y	161	225	64	40%	5	Y	Y	Y	Y	217	507	290	134%	15	N	N	N	Y
13	Junction Road	N	155	356	200	129%	13	N	N	N	Y	126	223	97	77%	7	Y	N	Y	Y	180	90	-90	-50%	8	Y	N	Y	Y
14	Kings Way	N	78	150	72	93%	7	Y	N	Y	Y	61	137	76	125%	8	Y	N	Y	Y	118	219	101	85%	8	N	N	Y	Y
15	B2112	N	602	534	-68	-11%	3	Y	Y	Y	Y	337	268	-69	-20%	4	Y	Y	Y	Y	467	378	-89	-19%	4	Y	Y	Y	Y
	TOTAL / OVERALL		**3862**	**3900**	**38**	**1%**	**1**	**67%**	**58%**	**75%**	**92%**	**2870**	**2892**	**22**	**1%**	**0**	**75%**	**42%**	**83%**	**83%**	**4160**	**4113**	**-47**	**-1%**	**1**	**58%**	**33%**	**75%**	**92%**
	7 Burgess Hill East / West Screenline																										
	2 Southbound																										
1	Langton Lane	S	no link	no link								no link	no link								no link	no link							
2	Cuckfield Road	S	217	181	-36	-16%	3	Y	Y	Y	Y	124	140	16	13%	1	Y	Y	Y	Y	274	134	-140	-51%	10	N	N	Y	Y
3	Danworth Lane	S	no link	no link								no link	no link								no link	no link							
4	Malthouse Lane	S	166	245	79	48%	6	Y	N	Y	Y	80	70	-10	-12%	1	Y	Y	Y	Y	175	379	204	116%	12	N	N	N	Y
5	A273 Jane Murray Way	S	1016	868	-148	-15%	5	Y	Y	Y	Y	566	479	-86	-15%	4	Y	Y	Y	Y	706	673	-33	-5%	1	Y	Y	Y	Y
6	Victoria Road	E	196	235	39	20%	3	Y	Y	Y	Y	112	43	-68	-61%	8	Y	N	Y	Y	283	160	-123	-44%	8	N	N	Y	Y
7	Victoria Way	W	551	499	-52	-10%	2	Y	Y	Y	Y	249	210	-39	-16%	3	Y	Y	Y	Y	280	303	24	8%	1	Y	Y	Y	Y
8	B2036 London Road	S	652	795	143	22%	5	N	Y	Y	Y	588	712	124	21%	5	N	Y	Y	Y	766	914	148	19%	5	N	Y	Y	Y
9	Lower Church Road, Burgess Hill	E	110	39	-71	-65%	8	Y	N	Y	Y	104	0	-103	-100%	14	N	N	N	Y	128	17	-111	-87%	13	N	N	N	Y
10	St. John's Road	S	218	218	0							181	181	0							121	121	0						
11	Park Road	E	291	16	-275	-95%	22	N	N	N	N	146	4	-142	-97%	16	N	N	N	N	143	34	-109	-76%	12	N	N	N	Y
12	Mill Road	S	288	353	66	23%	4	Y	Y	Y	Y	169	288	119	71%	8	N	N	Y	Y	190	453	263	138%	15	N	N	N	Y
13	Junction Road	S	232	271	39	17%	2	Y	Y	Y	Y	136	131	-5	-4%	0	Y	Y	Y	Y	166	12	-154	-93%	16	N	N	N	N
14	Kings Way	S	101	129	28	28%	3	Y	Y	Y	Y	55	110	55	99%	6	Y	N	Y	Y	97	137	40	41%	4	Y	Y	Y	Y
15	B2112	S	452	435	-18	-4%	1	Y	Y	Y	Y	350	303	-47	-13%	3	Y	Y	Y	Y	544	515	-29	-5%	1	Y	Y	Y	Y
	TOTAL / OVERALL		**4489**	**4284**	**-205**	**-5%**	**3**	**83%**	**75%**	**92%**	**92%**	**2858**	**2671**	**-187**	**-7%**	**4**	**67%**	**58%**	**83%**	**92%**	**3874**	**3854**	**-20**	**-1%**	**0**	**33%**	**42%**	**58%**	**92%**

MID SUSSEX STRATEGIC HIGHWAY MODEL (MSSH | **AM** | WebTAG Within | **IP** | WebTAG Within | **PM** | WebTAG Within

CORDONS AND SCREENLINES

	Site Description	Dir	VEHICLES Obs	Model	Diff	% Diff	GEH	Abs/ %	GEH= 5	GEH= 10	GEH= 15	VEHICLES Obs	Model	Diff	% Diff	GEH	Abs/ %	GEH= 5	GEH= 10	GEH= 15	VEHICLES Obs	Model	Diff	% Diff	GEH	Abs/ %	GEH= 5	GEH= 10	GEH= 15
	8 South of A272 Screenline																											
	1 Northbound																											
1	**A281 London Road**	N	327	354	27	8%	1	Y	Y	Y	Y	221	180	-41	-19%	3	Y	Y	Y	Y	277	251	-26	-9%	2	Y	Y	Y	Y
2	Kent Street	N	no link	no link								no link	no link								no link	no link							
3	Wineham Lane	N	66	46	-20	-31%	3	Y	Y	Y	Y	32	78	46	144%	6	Y	N	Y	Y	32	63	32	100%	5	Y	Y	Y	Y
4	Bolney Chapel Road	N	37	28	-9	-24%	2	Y	Y	Y	Y	16	9	-7	-43%	2	Y	Y	Y	Y	24	19	-5	-20%	1	Y	Y	Y	Y
5	**A2300 NB Slip Road**	N	837	680	-157	-19%	6	N	N	Y	Y	405	419	15	4%	1	Y	Y	Y	Y	584	555	-29	-5%	1	Y	Y	Y	Y
6	**A23 - A2300 OFF to A2300 ON**	N	2561	2548	-13	0%	0	Y	Y	Y	Y	1704	1661	-44	-3%	1	Y	Y	Y	Y	1995	1933	-62	-3%	1	Y	Y	Y	Y
7	Stairbridge Lane	N	106	106	0							5	5	0							140	140	0						
8	Bishopstone Lane	N	55	55	0							57	57	0							35	35	0						
9	Cuckfield Road	N	193	97	-96	-50%	8	Y	N	Y	Y	81	32	-48	-60%	6	Y	N	Y	Y	161	114	-47	-29%	4	Y	Y	Y	Y
10	**B2036 Pains Flat**	N	366	393	27	7%	1	Y	Y	Y	Y	175	63	-112	-64%	10	N	N	Y	Y	214	363	150	70%	9	N	N	Y	Y
11	**A273 Isaacs Lane**	N	565	478	-87	-15%	4	Y	Y	Y	Y	392	392	1	0%	0	Y	Y	Y	Y	546	512	-34	-6%	1	Y	Y	Y	Y
12	Valebridge Road	N	337	363	25	7%	1	Y	Y	Y	Y	192	399	207	108%	12	N	N	N	Y	255	376	121	47%	7	N	N	Y	Y
13	**B2112 Ditchling Road**	N	822	771	-51	-6%	2	Y	Y	Y	Y	374	375	1	0%	0	Y	Y	Y	Y	613	599	-14	-2%	1	Y	Y	Y	Y
	TOTAL / OVERALL		**6272**	**5917**	**-354**	**-6%**	**5**	**90%**	**80%**	**100%**	**100%**	**3653**	**3670**	**17**	**0%**	**0**	**80%**	**60%**	**90%**	**100%**	**4875**	**4961**	**86**	**2%**	**1**	**80%**	**80%**	**100%**	**100%**
	8 South of A272 Screenline																											
	2 Southbound																											
1	**A281 London Road**	S	210	168	-42	-20%	3	Y	Y	Y	Y	215	200	-15	-7%	1	Y	Y	Y	Y	293	221	-72	-25%	4	Y	Y	Y	Y
2	Kent Street	S	no link	no link								no link	no link								no link	no link							
3	Wineham Lane	S	31	78	47	152%	6	Y	N	Y	Y	33	54	21	63%	3	Y	Y	Y	Y	61	116	55	90%	6	Y	N	Y	Y
4	Bolney Chapel Road	S	13	16	2	16%	1	Y	Y	Y	Y	13	21	8	59%	2	Y	Y	Y	Y	17	18	1	5%	0	Y	Y	Y	Y
5	**A2300 NB Slip Road**	S	15	no link								21	no link								43	no link							
6	**A23 - A272 ON to A2300 OFF**	S	2440	2459	20	1%	0	Y	Y	Y	Y	2158	2235	77	4%	2	Y	Y	Y	Y	3671	3747	76	2%	1	Y	Y	Y	Y
7	Stairbridge Lane	S	2	2	0							1	1	0							1	1	0						
8	Bishopstone Lane	S	16	16	0							5	5	0							9	9	0						
9	Cuckfield Road	S	147	301	154	105%	10	N	N	Y	Y	76	72	-4	-5%	0	Y	Y	Y	Y	140	235	95	68%	7	Y	N	Y	Y
10	**B2036 Pains Flat**	S	310	293	-17	-5%	1	Y	Y	Y	Y	175	80	-94	-54%	8	Y	N	Y	Y	296	72	-225	-76%	17	N	N	N	N
11	**A273 Isaacs Lane**	S	508	574	65	13%	3	Y	Y	Y	Y	384	400	16	4%	1	Y	Y	Y	Y	485	565	80	16%	3	Y	Y	Y	Y
12	Valebridge Road	S	267	402	135	51%	7	N	N	Y	Y	202	334	132	66%	8	N	N	Y	Y	323	385	61	19%	3	Y	Y	Y	Y
13	**B2112 Ditchling Road**	S	575	587	12	2%	0	Y	Y	Y	Y	397	406	10	2%	0	Y	Y	Y	Y	710	690	-19	-3%	1	Y	Y	Y	Y
	TOTAL / OVERALL		**4536**	**4897**	**361**	**8%**	**5**	**78%**	**67%**	**100%**	**100%**	**3679**	**3808**	**129**	**4%**	**2**	**89%**	**78%**	**100%**	**100%**	**6049**	**6057**	**8**	**0%**	**0**	**89%**	**67%**	**89%**	**89%**
	9 East of A23 Screenline																											
	1 Eastbound																											
1	**B2110 High Beeches Lane**	E	311	321	10	3%	1	Y	Y	Y	Y	135	138	3	2%	0	Y	Y	Y	Y	216	216	0	0%	0	Y	Y	Y	Y
2	Brantridge Lane	E	no link	no link								no link	no link								no link	no link							
3	**B2114 Cuckfield Road**	E	153	153	1	0%	0	Y	Y	Y	Y	103	17	-85	-83%	11	Y	N	N	Y	134	63	-70	-53%	7	Y	N	Y	Y
4	**B2115 Sloughgreen Lane**	E	306	313	7	2%	0	Y	Y	Y	Y	147	277	131	89%	9	N	N	Y	Y	283	335	53	19%	3	Y	Y	Y	Y
5	**A272 Bolney Road**	E	627	661	34	5%	1	Y	Y	Y	Y	432	440	9	2%	0	Y	Y	Y	Y	656	698	42	6%	2	Y	Y	Y	Y
6	**A2300**	E	950	943	-6	-1%	0	Y	Y	Y	Y	567	578	11	2%	0	Y	Y	Y	Y	1032	1020	-11	-1%	0	Y	Y	Y	Y
	TOTAL / OVERALL		**2346**	**2390**	**45**	**2%**	**1**	**100%**	**100%**	**100%**	**100%**	**1384**	**1451**	**68**	**5%**	**2**	**80%**	**60%**	**80%**	**100%**	**2320**	**2333**	**13**	**1%**	**0**	**100%**	**80%**	**100%**	**100%**
	9 East of A23 Screenline																											
	2 Westbound																											
1	**B2110 High Beeches Lane**	W	308	305	-3	-1%	0	Y	Y	Y	Y	149	152	3	2%	0	Y	Y	Y	Y	225	248	23	10%	2	Y	Y	Y	Y
2	Brantridge Lane	W	no link	no link								no link	no link								no link	no link							
3	**B2114 Cuckfield Road**	W	210	134	-76	-36%	6	Y	N	Y	Y	95	62	-33	-35%	4	Y	Y	Y	Y	99	98	-1	-1%	0	Y	Y	Y	Y
4	**B2115 Sloughgreen Lane**	W	355	449	93	26%	5	Y	Y	Y	Y	162	212	50	31%	4	Y	Y	Y	Y	248	285	37	15%	2	Y	Y	Y	Y
5	**A272 Bolney Road**	W	681	673	-8	-1%	0	Y	Y	Y	Y	484	445	-39	-8%	2	Y	Y	Y	Y	678	655	-23	-3%	1	Y	Y	Y	Y
6	**A2300**	W	865	875	10	1%	0	Y	Y	Y	Y	578	594	16	3%	1	Y	Y	Y	Y	804	805	1	0%	0	Y	Y	Y	Y
	TOTAL / OVERALL		**2419**	**2435**	**17**	**1%**	**0**	**100%**	**80%**	**100%**	**100%**	**1468**	**1465**	**-3**	**0%**	**0**	**100%**	**100%**	**100%**	**100%**	**2055**	**2092**	**37**	**2%**	**1**	**100%**	**100%**	**100%**	**100%**

MID SUSSEX STRATEGIC HIGHWAY MODEL (MSSH	AM					WebTAG Within				IP					WebTAG Within				PM					WebTAG Within			
CORDONS AND SCREENLINES	**VEHICLES**									**VEHICLES**									**VEHICLES**								
	Site Description	**Dir**	Obs	Model	Diff	% Diff	GEH	Abs/ %	GEH= 5	GEH= 10	GEH= 15	Obs	Model	Diff	% Diff	GEH	Abs/ %	GEH= 5	GEH= 10	GEH= 15	Obs	Model	Diff	% Diff	GEH	Abs/ %	GEH= 5	GEH= 10	GEH= 15
	10 West of A23 Screenline																											
	1 Eastbound																											
1	Horsham Road	E	378	365	-13	-3%	1	Y	Y	Y	Y	197	235	38	19%	3	Y	Y	Y	Y	256	319	62	24%	4	Y	Y	Y	Y
2	B2110 Horsham Road	E	520	474	-46	-9%	2	Y	Y	Y	Y	276	189	-87	-31%	6	Y	N	Y	Y	378	228	-150	-40%	9	N	N	Y	Y
3	Coos Lane	E	22	157	134	603%	14	N	N	N	Y	12	71	59	484%	9	Y	N	Y	Y	13	118	106	843%	13	N	N	N	Y
4	Staplefield Road	E	81	81	0							13	13	0							28	28	0						
5	B2115 Cuckfield Lane	E	205	209	4	2%	0	Y	Y	Y	Y	100	102	2	2%	0	Y	Y	Y	Y	258	263	4	2%	0	Y	Y	Y	Y
6	Cross Colwood Lane	E	no link	no link								no link	no link								no link	no link							
7	A272 Cowfold Road	E	665	670	5	1%	0	Y	Y	Y	Y	562	563	1	0%	0	Y	Y	Y	Y	756	768	12	2%	0	Y	Y	Y	Y
8	Bob Lane	E	no link	no link								no link	no link								no link	no link							
9	B2116 Henfield Road	E	279	294	15	5%	1	Y	Y	Y	Y	129	132	2	2%	0	Y	Y	Y	Y	163	167	4	2%	0	Y	Y	Y	Y
10	A281 Brighton Road	E	429	410	-19	-4%	1	Y	Y	Y	Y	239	246	7	3%	0	Y	Y	Y	Y	346	334	-12	-4%	1	Y	Y	Y	Y
	TOTAL / OVERALL		**2578**	**2660**	**81**	**3%**	**2**	**86%**	**86%**	**86%**	**100%**	**1529**	**1551**	**22**	**1%**	**1**	**100%**	**71%**	**100%**	**100%**	**2198**	**2224**	**26**	**1%**	**1**	**71%**	**71%**	**86%**	**100%**
	10 West of A23 Screenline																											
	2 Westbound																											
1	Horsham Road	W	393	607	215	55%	10	N	N	Y	Y	225	377	152	68%	9	N	N	Y	Y	500	578	78	16%	3	Y	Y	Y	Y
2	B2110 Horsham Road	W	338	171	-167	-49%	10	N	N	Y	Y	232	126	-106	-46%	8	N	N	Y	Y	418	387	-31	-8%	2	Y	Y	Y	Y
3	Coos Lane	W	20	12	-8	-41%	2	Y	Y	Y	Y	14	15	1	8%	0	Y	Y	Y	Y	8	41	33	421%	7	Y	N	Y	Y
4	Staplefield Road	W	92	92	0							57	57	0							54	54	0						
5	B2115 Cuckfield Lane	W	235	234	-1	-1%	0	Y	Y	Y	Y	97	99	3	3%	0	Y	Y	Y	Y	180	179	0	0%	0	Y	Y	Y	Y
6	Cross Colwood Lane	W	no link	no link								no link	no link								no link	no link							
7	A272 Cowfold Road	W	640	644	4	1%	0	Y	Y	Y	Y	562	569	7	1%	0	Y	Y	Y	Y	818	810	-8	-1%	0	Y	Y	Y	Y
8	Bob Lane	E	no link	no link								no link	no link								no link	no link							
9	B2116 Henfield Road	W	191	203	11	6%	1	Y	Y	Y	Y	138	141	3	2%	0	Y	Y	Y	Y	286	314	28	10%	2	Y	Y	Y	Y
10	A281 Brighton Road	W	288	299	11	4%	1	Y	Y	Y	Y	240	245	5	2%	0	Y	Y	Y	Y	488	500	12	2%	1	Y	Y	Y	Y
	TOTAL / OVERALL		**2198**	**2262**	**64**	**3%**	**1**	**71%**	**71%**	**100%**	**100%**	**1565**	**1630**	**65**	**4%**	**2**	**71%**	**71%**	**100%**	**100%**	**2752**	**2863**	**111**	**4%**	**2**	**100%**	**86%**	**100%**	**100%**
	11 Balcombe / Ardingly Screenline																											
	1 Northbound																											
1	B2110 High Street	N	239	242	3	1%	0	Y	Y	Y	Y	120	124	3	3%	0	Y	Y	Y	Y	222	203	-19	-8%	1	Y	Y	Y	Y
2	B2036 London Road	N	582	767	185	32%	7	N	N	Y	Y	216	366	149	69%	9	N	N	Y	Y	301	383	82	27%	4	Y	Y	Y	Y
3	Paddockhurst Lane	N	17	no link								4	no link								5	no link							
4	B2028 Selsfield Road	N	425	214	-211	-50%	12	N	N	N	Y	206	47	-159	-77%	14	N	N	N	Y	269	183	-86	-32%	6	Y	N	Y	Y
5	Cob Lane	E	22	no link								12	no link								21	no link							
	TOTAL / OVERALL		**1286**	**1223**	**-63**	**-5%**	**2**	**33%**	**33%**	**67%**	**100%**	**558**	**536**	**-22**	**-4%**	**1**	**33%**	**33%**	**67%**	**100%**	**818**	**769**	**-49**	**-6%**	**2**	**100%**	**67%**	**100%**	**100%**
	11 Balcombe / Ardingly Screenline																											
	2 Southbound																											
1	B2110 High Street	S	238	236	-2	-1%	0	Y	Y	Y	Y	109	114	4	4%	0	Y	Y	Y	Y	219	230	11	5%	1	Y	Y	Y	Y
2	B2036 London Road	S	374	481	108	29%	5	N	Y	Y	Y	247	334	87	35%	5	Y	Y	Y	Y	663	866	204	31%	7	N	N	Y	Y
3	Paddockhurst Lane	S	14	no link								7	no link								24	no link							
4	B2028 Selsfield Road	S	222	129	-93	-42%	7	Y	N	Y	Y	166	73	-94	-56%	9	Y	N	Y	Y	333	123	-210	-63%	14	N	N	N	Y
5	Cob Lane	W	23	no link								13	no link								17	no link							
	TOTAL / OVERALL		**871**	**847**	**-24**	**-3%**	**1**	**67%**	**67%**	**100%**	**100%**	**543**	**520**	**-22**	**-4%**	**1**	**100%**	**67%**	**100%**	**100%**	**1257**	**1220**	**-37**	**-3%**	**1**	**33%**	**33%**	**67%**	**100%**

MID SUSSEX STRATEGIC HIGHWAY MODEL (MSSH	AM					WebTAG Within				IP					WebTAG Within				PM					WebTAG Within			
CORDONS AND SCREENLINES	VEHICLES									VEHICLES									VEHICLES								
	Site Description	Dir	Obs	Model	Diff	% Diff	GEH	Abs/ %	GEH= 5	GEH= 10	GEH= 15	Obs	Model	Diff	% Diff	GEH	Abs/ %	GEH= 5	GEH= 10	GEH= 15	Obs	Model	Diff	% Diff	GEH	Abs/ %	GEH= 5	GEH= 10	GEH= 15
	12 Crawley Down Screenline																											
	1 Eastbound																											
1	A264 Copthorne Road	E	452	571	119	26%	5	N	Y	Y	Y	519	510	-9	-2%	0	Y	Y	Y	Y	584	577	-8	-1%	0	Y	Y	Y	Y
2	Hophurst Lane	N	167	170	3	2%	0	Y	Y	Y	Y	86	88	2	3%	0	Y	Y	Y	Y	89	93	4	5%	0	Y	Y	Y	Y
3	B2110 East Street	E	448	465	16	4%	1	Y	Y	Y	Y	194	198	4	2%	0	Y	Y	Y	Y	328	330	2	1%	0	Y	Y	Y	Y
	TOTAL / OVERALL		1068	1206	138	13%	4	67%	100%	100%	100%	799	796	-3	0%	0	100%	100%	100%	100%	1002	1000	-2	0%	0	100%	100%	100%	100%
	12 Crawley Down Screenline																											
	2 Westbound																											
1	A264 Copthorne Road	W	702	741	38	5%	1	Y	Y	Y	Y	507	514	7	1%	0	Y	Y	Y	Y	546	531	-15	-3%	1	Y	Y	Y	Y
2	Hophurst Lane	S	111	65	-46	-41%	5	Y	Y	Y	Y	105	109	5	4%	0	Y	Y	Y	Y	199	203	4	2%	0	Y	Y	Y	Y
3	B2110 East Street	W	349	358	9	3%	0	Y	Y	Y	Y	183	188	4	2%	0	Y	Y	Y	Y	352	368	16	5%	1	Y	Y	Y	Y
	TOTAL / OVERALL		1162	1164	2	0%	0	100%	100%	100%	100%	795	811	16	2%	1	100%	100%	100%	100%	1097	1101	5	0%	0	100%	100%	100%	100%
	13 Handcross Screenline																											
	1 Northbound																											
1	A23 - B2110 ON to J11 OFF	N	3496	3811	315	9%	5	Y	Y	Y	Y	2138	2300	163	8%	3	Y	Y	Y	Y	2637	2787	150	6%	3	Y	Y	Y	Y
2	B2110 High Street	N	481	406	-76	-16%	4	Y	Y	Y	Y	274	183	-91	-33%	6	Y	N	Y	Y	375	243	-132	-35%	8	N	N	Y	Y
3	Brantridge Lane	N	14	no link								8	no link								5	no link							
4	Rowhill Lane	N	no link	no link								no link	no link								no link	no link							
	TOTAL / OVERALL		3991	4216	226	6%	4	100%	100%	100%	100%	2420	2483	63	3%	1	100%	50%	100%	100%	3017	3030	13	0%	0	50%	50%	100%	100%
	13 Handcross Screenline																											
	2 Southbound																											
1	A23 - B2114 OFF to B2110 ON	S	2223	2243	21	1%	0	Y	Y	Y	Y	2121	2161	40	2%	1	Y	Y	Y	Y	3300	3344	45	1%	1	Y	Y	Y	Y
2	B2110 High Street	S	623	654	32	5%	1	Y	Y	Y	Y	445	328	-117	-26%	6	N	N	Y	Y	786	815	29	4%	1	Y	Y	Y	Y
3	Brantridge Lane	S	9	no link								5	no link								6	no link							
4	Rowhill Lane	S	no link	no link								no link	no link								no link	no link							
	TOTAL / OVERALL		2854	2898	43	2%	1	100%	100%	100%	100%	2571	2489	-82	-3%	2	50%	50%	100%	100%	4092	4159	67	2%	1	100%	100%	100%	100%

MID SUSSEX STRATEGIC HIGHWAY MODEL (MSSH	AM					WebTAG Within				IP					WebTAG Within				PM					WebTAG Within			
CORDONS AND SCREENLINES	VEHICLES									VEHICLES									VEHICLES								
	Site Description	Dir	Obs	Model	Diff	% Diff	GEH	Abs/ %	GEH= 5	GEH= 10	GEH= 15	Obs	Model	Diff	% Diff	GEH	Abs/ %	GEH= 5	GEH= 10	GEH= 15	Obs	Model	Diff	% Diff	GEH	Abs/ %	GEH= 5	GEH= 10	GEH= 15
	14 Ashdown Forest Cordon																										
	1 Outbound																										
1	A22 Lewes Road	N	789	801	11	1%	0	Y	Y	Y	Y	573	585	12	2%	0	Y	Y	Y	Y	671	681	10	1%	0	Y	Y	Y	Y
2	Maypole Road, Ashurstwood	N	118	120	2	2%	0	Y	Y	Y	Y	55	55	0	1%	0	Y	Y	Y	Y	64	65	1	1%	0	Y	Y	Y	Y
3	B2026 Edenbridge Road	N	336	392	57	17%	3	Y	Y	Y	Y	155	257	101	65%	7	N	N	Y	Y	183	360	177	97%	11	N	N	N	Y
4	B2110	E	168	159	-9	-5%	1	Y	Y	Y	Y	133	109	-24	-18%	2	Y	Y	Y	Y	240	159	-80	-33%	6	Y	N	Y	Y
5	B2188 Church Hill	E	97	65	-32	-33%	4	Y	Y	Y	Y	82	12	-71	-86%	10	Y	N	Y	Y	121	33	-88	-73%	10	Y	N	Y	Y
6	New Road	E	182	192	10	6%	1	Y	Y	Y	Y	188	191	4	2%	0	Y	Y	Y	Y	310	318	7	2%	0	Y	Y	Y	Y
7	Oldlands Hill	E	no link	no link								no link	no link								no link	no link							
8	Underhill	E	no link	no link								no link	no link								no link	no link							
9	High Street	S	231	198	-34	-15%	2	Y	Y	Y	Y	194	87	-107	-55%	9	N	N	Y	Y	398	496	98	25%	5	Y	Y	Y	Y
10	A22 Maresfield Bypass	E	600	595	-5	-1%	0	Y	Y	Y	Y	568	576	8	1%	0	Y	Y	Y	Y	946	826	-120	-13%	4	Y	Y	Y	Y
11	A272 Batts Bridge Road	W	654	710	57	9%	2	Y	Y	Y	Y	354	405	50	14%	3	Y	Y	Y	Y	463	493	30	6%	1	Y	Y	Y	Y
12	Pickett Lane	W	no link	no link								no link	no link								no link	no link							
13	Down Street	S	no link	no link								no link	no link								no link	no link							
14	Bell Lane	W	no link	no link								no link	no link								no link	no link							
15	Chelwood Gate Lane	W	129	no link								49	no link								67	no link							
16	A275 Lewes Road	S	227	231	4	2%	0	Y	Y	Y	Y	167	170	3	2%	0	Y	Y	Y	Y	255	257	2	1%	0	Y	Y	Y	Y
17	Twyford Lane	S	no link	no link								no link	no link								no link	no link							
18	Plawhatch Lane	W	433	421	-12	-3%	1	Y	Y	Y	Y	203	170	-33	-16%	2	Y	Y	Y	Y	275	277	1	0%	0	Y	Y	Y	Y
19	Legsheath Lane	W	0	0	0							0	0	0							0	0	0						
	TOTAL / OVERALL		**3965**	**3885**	**-80**	**-2%**	**1**	**100%**	**100%**	**100%**	**100%**	**2721**	**2616**	**-105**	**-4%**	**2**	**82%**	**73%**	**100%**	**100%**	**3994**	**3964**	**-30**	**-1%**	**0**	**91%**	**73%**	**91%**	**100%**
	14 Ashdown Forest Cordon																										
	2 Inbound																										
1	A22 Lewes Road	S	690	701	11	2%	0	Y	Y	Y	Y	584	596	12	2%	0	Y	Y	Y	Y	769	769	0	0%	0	Y	Y	Y	Y
2	Maypole Road, Ashurstwood	S	93	95	3	3%	0	Y	Y	Y	Y	49	49	0	1%	0	Y	Y	Y	Y	80	82	2	2%	0	Y	Y	Y	Y
3	B2026 Edenbridge Road	S	190	347	157	83%	10	N	N	Y	Y	160	258	98	61%	7	Y	N	Y	Y	334	465	131	39%	7	N	N	Y	Y
4	B2110	W	232	122	-109	-47%	8	N	N	Y	Y	124	81	-43	-35%	4	Y	Y	Y	Y	172	113	-59	-34%	5	Y	Y	Y	Y
5	B2188 Church Hill	W	98	59	-39	-39%	4	Y	Y	Y	Y	71	24	-47	-66%	7	Y	N	Y	Y	95	35	-59	-63%	7	Y	N	Y	Y
6	New Road	W	288	294	6	2%	0	Y	Y	Y	Y	184	188	4	2%	0	Y	Y	Y	Y	200	204	4	2%	0	Y	Y	Y	Y
7	Oldlands Hill	W	no link	no link								no link	no link								no link	no link							
8	Underhill	W	no link	no link								no link	no link								no link	no link							
9	High Street	N	366	380	14	4%	1	Y	Y	Y	Y	169	81	-88	-52%	8	Y	N	Y	Y	200	247	47	23%	3	Y	Y	Y	Y
10	A22 Maresfield Bypass	W	885	876	-9	-1%	0	Y	Y	Y	Y	569	617	48	8%	2	Y	Y	Y	Y	646	620	-26	-4%	1	Y	Y	Y	Y
11	A272 Batts Bridge Road	E	342	404	62	18%	3	Y	Y	Y	Y	289	296	7	2%	0	Y	Y	Y	Y	584	610	26	4%	1	Y	Y	Y	Y
12	Pickett Lane	E	no link	no link								no link	no link								no link	no link							
13	Down Street	N	no link	no link								no link	no link								no link	no link							
14	Bell Lane	E	no link	no link								no link	no link								no link	no link							
15	Chelwood Gate Lane	E	85	no link								53	no link								106	no link							
16	A275 Lewes Road	N	256	245	-11	-4%	1	Y	Y	Y	Y	159	162	3	2%	0	Y	Y	Y	Y	223	227	3	1%	0	Y	Y	Y	Y
17	Twyford Lane	N	no link	no link								no link	no link								no link	no link							
18	Plawhatch Lane	E	251	273	23	9%	1	Y	Y	Y	Y	217	214	-2	-1%	0	Y	Y	Y	Y	493	523	30	6%	1	Y	Y	Y	Y
19	Legsheath Lane	E	0	0	0							0	0	0							0	0	0						
	TOTAL / OVERALL		**3774**	**3797**	**23**	**1%**	**0**	**82%**	**82%**	**100%**	**100%**	**2627**	**2565**	**-62**	**-2%**	**1**	**100%**	**73%**	**100%**	**100%**	**3903**	**3895**	**-8**	**0%**	**0**	**91%**	**82%**	**100%**	**100%**

MID SUSSEX STRATEGIC HIGHWAY MODEL (MSSH			AM					WebTAG Within				IP					WebTAG Within					PM					WebTAG Within			
CORDONS AND SCREENLINES			VEHICLES									VEHICLES										VEHICLES								
	Site Description	Dir	Obs	Model	Diff	% Diff	GEH	Abs/ %	GEH= 5	GEH= 10	GEH= 15	Obs	Model	Diff	% Diff	GEH	Abs/ %	GEH= 5	GEH= 10	GEH= 15	Obs	Model	Diff	% Diff	GEH	Abs/ %	GEH= 5	GEH= 10	GEH= 15	
	15 Ashdown Forest East / West Screenline																													
	1 Northbound																													
1	A275 Lewes Road	N	256	245	-11	-4%	1	Y	Y	Y	Y	159	162	3	2%	0	Y	Y	Y	Y	223	227	3	1%	0	Y	Y	Y	Y	
2	A22 Millbrook Hill	N	699	697	-2	0%	0	Y	Y	Y	Y	325	332	7	2%	0	Y	Y	Y	Y	399	424	25	6%	1	Y	Y	Y	Y	
3	B2026	N	354	330	-23	-7%	1	Y	Y	Y	Y	172	176	3	2%	0	Y	Y	Y	Y	218	211	-7	-3%	0	Y	Y	Y	Y	
4	A26 Uckfield Road	N	672	666	-6	-1%	0	Y	Y	Y	Y	536	526	-11	-2%	0	Y	Y	Y	Y	792	784	-8	-1%	0	Y	Y	Y	Y	
	TOTAL / OVERALL		**1981**	**1938**	**-43**	**-2%**	**1**	**100%**	**100%**	**100%**	**100%**	**1193**	**1195**	**2**	**0%**	**0**	**100%**	**100%**	**100%**	**100%**	**1633**	**1646**	**13**	**1%**	**0**	**100%**	**100%**	**100%**	**100%**	
	15 Ashdown Forest East / West Screenline																													
	2 Southbound																													
1	A275 Lewes Road	S	227	231	4	2%	0	Y	Y	Y	Y	167	170	3	2%	0	Y	Y	Y	Y	255	257	2	1%	0	Y	Y	Y	Y	
2	A22 Millbrook Hill	S	321	442	120	37%	6	N	N	Y	Y	354	386	33	9%	2	Y	Y	Y	Y	783	801	19	2%	1	Y	Y	Y	Y	
3	B2026	S	222	226	3	1%	0	Y	Y	Y	Y	205	209	4	2%	0	Y	Y	Y	Y	406	323	-84	-21%	4	Y	Y	Y	Y	
4	A26 Uckfield Road	S	787	636	-151	-19%	6	N	N	Y	Y	538	455	-83	-15%	4	Y	Y	Y	Y	680	704	25	4%	1	Y	Y	Y	Y	
	TOTAL / OVERALL		**1557**	**1534**	**-24**	**-2%**	**1**	**50%**	**50%**	**100%**	**100%**	**1264**	**1220**	**-43**	**-3%**	**1**	**100%**	**100%**	**100%**	**100%**	**2124**	**2085**	**-39**	**-2%**	**1**	**100%**	**100%**	**100%**	**100%**	
	16 Ashdown Forest North / South Screenline																													
	1 Eastbound																													
1	B2110 Forest Row	E	229	233	4	2%	0	Y	Y	Y	Y	221	160	-62	-28%	4	Y	Y	Y	Y	353	252	-101	-29%	6	N	N	Y	Y	
2	Colemans Hatch Road	E	70	71	0	0%	0	Y	Y	Y	Y	73	75	2	3%	0	Y	Y	Y	Y	106	123	17	16%	2	Y	Y	Y	Y	
3	Crowborough Road	E	162	172	10	6%	1	Y	Y	Y	Y	112	158	46	41%	4	Y	Y	Y	Y	125	141	16	13%	1	Y	Y	Y	Y	
	TOTAL / OVERALL		**462**	**476**	**15**	**3%**	**1**	**100%**	**100%**	**100%**	**100%**	**406**	**393**	**-14**	**-3%**	**1**	**100%**	**100%**	**100%**	**100%**	**584**	**516**	**-68**	**-12%**	**3**	**67%**	**67%**	**100%**	**100%**	
	16 Ashdown Forest North / South Screenline																													
	2 Westbound																													
1	B2110 Forest Row	W	409	155	-255	-62%	15	N	N	N	Y	228	179	-49	-22%	3	Y	Y	Y	Y	220	219	-1	0%	0	Y	Y	Y	Y	
2	Colemans Hatch Road	W	98	108	10	10%	1	Y	Y	Y	Y	67	70	3	4%	0	Y	Y	Y	Y	74	79	5	6%	1	Y	Y	Y	Y	
3	Crowborough Road	W	109	156	46	42%	4	Y	Y	Y	Y	111	127	16	15%	1	Y	Y	Y	Y	183	189	5	3%	0	Y	Y	Y	Y	
	TOTAL / OVERALL		**617**	**418**	**-199**	**-32%**	**9**	**67%**	**67%**	**67%**	**100%**	**407**	**376**	**-31**	**-8%**	**2**	**100%**	**100%**	**100%**	**100%**	**478**	**487**	**9**	**2%**	**0**	**100%**	**100%**	**100%**	**100%**	