

**A Report Summarising the Findings of a Traffic
Data Collection Exercise for Ditchling Village**

Transport Strategy Section
East Sussex County Council
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1 INTRODUCTION

Background to the Report

1.1 In January 2005, Ditchling Parish Council submitted a report to East Sussex County Council called "A Report by Ditchling Parish Council on Core Traffic Issues". This describes the traffic problems experienced by residents in the village, including:

- excessive traffic volume on the narrow historic streets in the centre of the village;
- traffic speed and its impact on the safety of vulnerable road users, and;
- HGV movements through the village.

1.2 In response, East Sussex County Council proposes to develop a Local Area Transport Strategy (LATS) for Ditchling Village and the surrounding area. This will be developed in close consultation with the local community and will set out a programme of local transport improvements for possible implementation.

1.3 Before commencing work on the LATS it was considered that a traffic survey should be undertaken to quantify the traffic problems identified in the Parish Council's report. The results of this survey would then be available to assist in the development of the LATS and could be used help identify a package of transport measures that would address the issues identified in the Parish Council's report.

1.4 In July 2006, East Sussex County Council undertook a comprehensive survey of traffic in Ditchling. This included a number of roadside interviews as well as manual classified and automatic traffic counts at various locations in the village. The purpose of this report is to set out the results of those surveys.

Aims and Objectives of the Report

1.5 This report aims to quantify the level of traffic in the village. More specifically, the objectives of the report are to determine:

- the volume of traffic;
- the amount of traffic generated by Ditchling village itself;
- the amount of 'through-traffic';
- the origin and destination of journeys made through the village;
- the type or classification of traffic travelling through the village (e.g. Heavy Goods Vehicles, motorbikes, cars etc);
- the purpose of the journeys through the village, and;
- the volume of traffic using Spatham Lane.

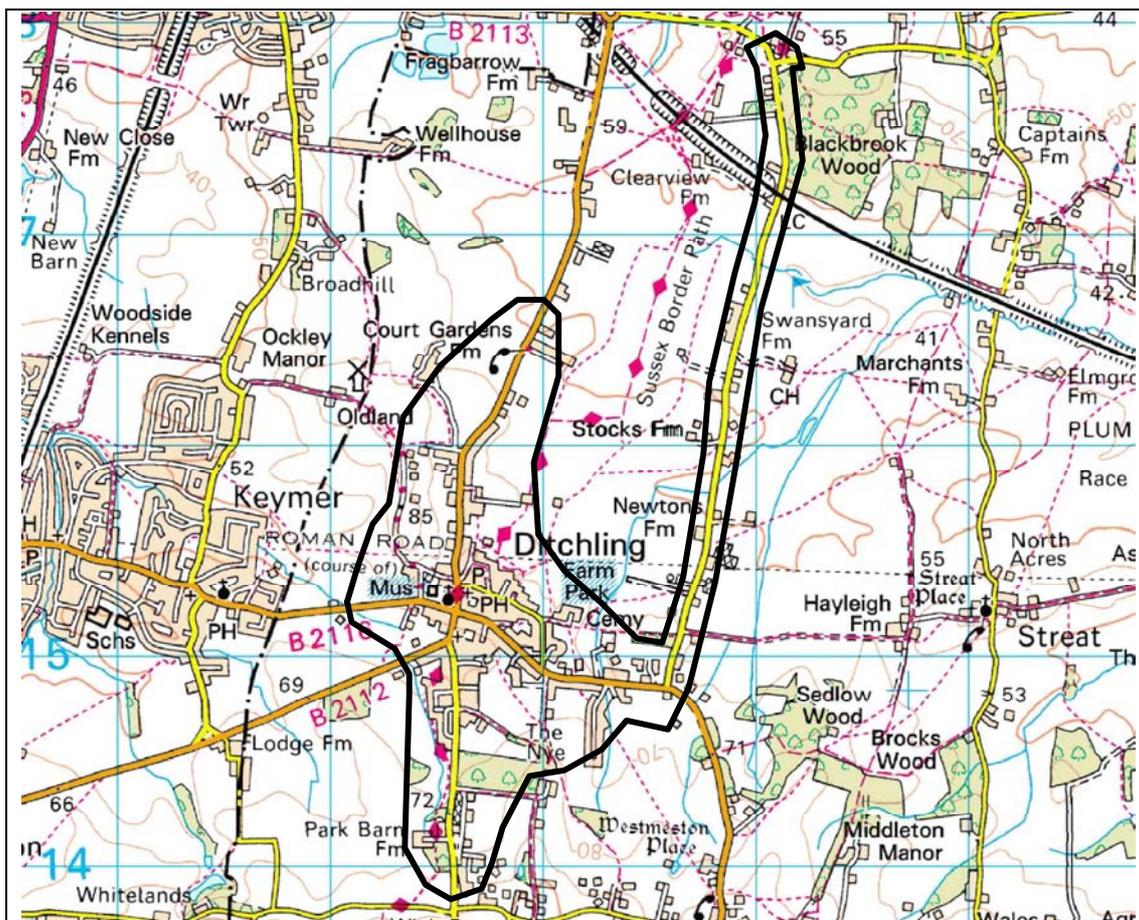
The report also includes an estimate of the number of journeys that might reasonably be made via routes that avoid the village.

2 SURVEY METHODOLOGY

Survey Area

2.1 The survey area is shown in Figure 1 below, and includes all of Ditchling Village and Spatham Lane.

Figure 1 – Survey Area



Method of Data Collection

2.2 All data was collected by East Sussex County Council's Transport Policy and Monitoring Team. Five methods of data collection were used as follows :

- Roadside Interviews (**RSI**) – Vehicles are stopped by Police Officers and the drivers are asked to answer questions about the origin, destination and purpose of their journey.
- Automatic Traffic Count (**ATC**) – Machines automatically count the number of passing vehicles.

- Number Plate Recognition Survey (**NPRS**) – The number plates of passing vehicles are recorded by observers at two different sites. The records are compared to determine how many vehicles passed through both sites within a 15 minute period.
- Manual Classified Count (**MCC**) – Observers count the number of vehicles passing a given point on a road and classify them according to vehicle type (e.g. Heavy Goods vehicles, cars, motorbikes etc).
- Manual Classified Turning Count (**MCTC**) – Observers count the number of vehicles passing through a junction according to the manoeuvre they make at the junction, and classify the vehicles according to type (e.g. cars, motorbikes etc).

Road Side Interviews

2.3 With RSIs it is not possible to interview the driver of every vehicle making a journey through the village. Not every driver is prepared to participate, and the presence of a RSI site can cause congestion and actually influence the traffic that is being measured – thereby resulting in the measurement of non-typical traffic flows. To avoid this, the convention is to interview a sample of the passing traffic, assume that it is representative of the entire flow, and factor up the data (origin, destination, journey purpose) according to the actual traffic flow recorded simultaneously with a MCC. It was not possible to hold all of the RSIs on the same day due to limited resources. The timetable for the RSI and the other traffic surveys undertaken is shown in Table 1.

2.4 A RSI site with an accompanying MCC was set up on each of the roads leading out of the village to intercept drivers *on the way out of* (rather on the way into) the village. This approach is taken to avoid the double counting of vehicles (on the way in and then on the way out of the village). The dates on which the RSIs were undertaken are shown in Table 1 and the location of the surveys is shown in Figure 2.

Other Traffic Surveys

2.5 An MCTC survey at the mini-roundabout (B2112 / B2116) junction in the centre of the village was undertaken to determine the turning movements of vehicles. Two further MCTC surveys were carried out at the junctions of Spatham Lane / Folders Lane East and Spatham Lane / Lewes Road to determine the turning movements and vehicle classification of vehicles using this route. MCTC and NPRS surveys were also undertaken to determine the number of vehicles using Spatham Lane.

2.6 Clearly it is important to validate the data once it has been collected i.e. determine whether the traffic conditions during the RSI surveys were typical. A number of ATC surveys were undertaken over a period of one week to determine whether the traffic flows recorded during the RSIs were typical of

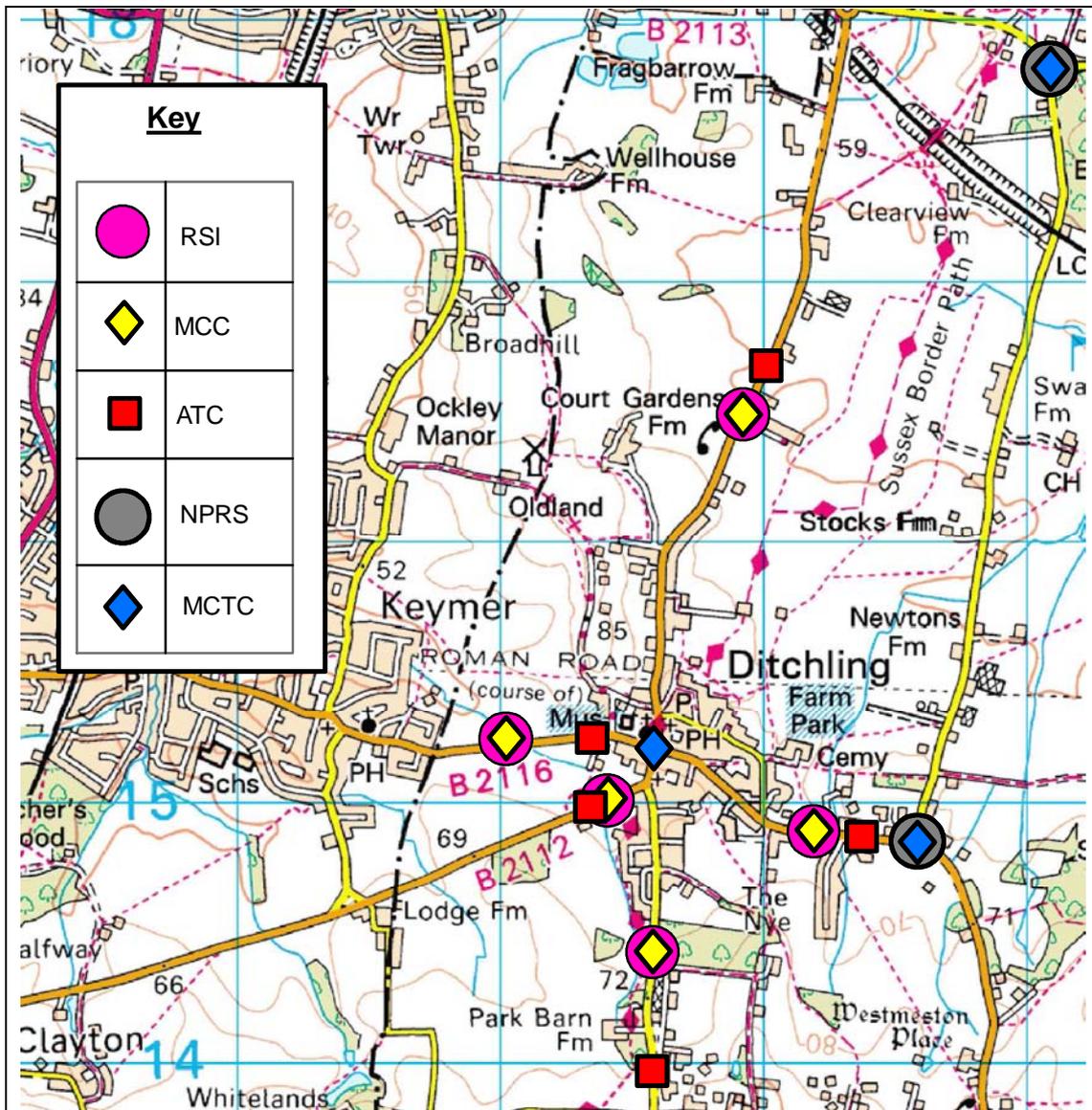
those observed over a week long period. A timetable for the various traffic surveys undertaken in Ditchling is presented in Table 1.

Table 1 – Traffic Survey Timetable

Survey Type	Location	Grid reference	Date	Time
RSI	B2116 Lewes Rd	533193-114875	06/07/06	7am-7pm
RSI	B2112 Beacon Rd	532584-114427	06/07/06	7am-7pm
RSI	Clayton Rd	532411-114978	29/06/06	7am-7pm
RSI	Keymer Road	532029-115199	29/06/06	7am-7pm
RSI	North End	532934-116483	27/06/06	7am-7pm
MCC	B2116 Lewes Rd	533193-114875	06/07/06	7am-7pm
MCC	B2112 Beacon Rd	532584-114427	06/07/06	7am-7pm
MCC	Clayton Rd	532411-114978	29/06/06	7am-7pm
MCC	Keymer Road	532029-115199	29/06/06	7am-7pm
MCC	North End	532934-116483	27/06/06	7am-7pm
ATC	B2116 Lewes Rd	533376-114852	05/07/06 to 19/07/06	24hrs
ATC	B2116 Keymer Rd	532119-115199	27/06/06 to 19/07/06	24hrs
ATC	B2112 Clayton Rd	532351-114957	27/06/06 to 19/07/06	24hrs
ATC	North End	533037-116669	26/06/06 to 19/07/06	24hrs
ATC	Beacon Rd	532600-113968	05/07/06 to 12/07/06	24hrs
MCTC	B2116 / B2112 Mini-roundabout	53260-11520	08/06/04	7am-7pm
MCTC	B2116 / B2112 Mini-roundabout	53260-11520	27/06/06	7am-7pm
MCTC	B2116 Lewes Rd / Spatham Lane	533598-114842	06/07/06	7am-7pm
MCTC	Middleton Common Lane / Spatham Lane	547244-120989	06/07/06	7am-7pm
NPRS	B2116 Lewes Rd / Spatham Lane	533598-114842	06/07/06	7am-7pm
	Middleton Common Lane / Spatham Lane	547244-120989	06/07/06	7am-7pm

The location of the various traffic surveys undertaken is shown in Figure 2.

Figure 2 – Location of Traffic Surveys



3. DATA ANALYSIS

3.1 The RSI data was entered into a spreadsheet and was checked for obvious data-entry errors.

3.2 An assumption was made that the RSIs intercepted a truly representative sample of the traffic in Ditchling village. In fact, 65% of the total traffic recorded by the MTCs was intercepted and 'sampled' by the RSIs.

3.3 It was assumed that combining the RSI data collected on different days will form a reasonable approximation of a 'typical 7am-7pm working day'. The validity of this assumption was then tested by comparing the volume of vehicles on the day of each RSI (recorded by the MCCs) with the average working day traffic volume recorded by the ATCs over a period of one week. The results of this comparison reveals that the RSI and MCC survey data is able to provide a reliable and reasonable representation of traffic in Ditchling as there is only a 2.1% difference in the levels of traffic recorded by the two types of survey.

3.4 The next stage of data analysis was to 'factor up' the sample intercepted by the RSIs to match the data recorded by the MCCs at each RSI site. This process takes account of the volume *and* type of vehicles recorded by the MCCs and includes the information on the origin, destination and purpose of journeys recorded by the RSIs.

3.5 With any RSI survey there is a tendency for the number of journeys originating or terminating at a particular location to decrease as the distance between that particular location and the survey area increases. This was true for the Ditchling surveys with far more journeys recorded in Ditchling originated in Keymer than destinations further way such as Hastings and Eastbourne.

3.6 The level of detail required for a meaningful analysis of the data decreases for journeys that originate or terminate at increasing distances from the survey area. For example, it does not matter if a particular journey originates in Braybrooke Road or Cornwallice Place in Hastings – for the purposes of the analysis it is sufficient to say that both journeys originated in the Rother area.

3.7 The next step in analysing the data was to produce a map of the local area that includes a number of 'reporting zones'. These reporting zones increase in size with increasing distance from the survey area. East and West Sussex was divided into 28 reporting zones with one further reporting zone for the rest of the UK. The chosen reporting zones are shown in Appendix A.

3.8 A Computer programme developed by East Sussex County Council's ICT Services was used to assign each journey to the reporting zone origin and reporting zone destination corresponding to the origins and destinations of each journey. For example, a journey from Hailsham to Angmering was

assigned the Eastbourne reporting zone origin and the Arundel area reporting zone destination.

3.9 The programme uses the factored-up RSI data and automatically calculates the number of journeys made between each reporting zone, and provides output that includes information on the classification of vehicles making those journeys, and the purpose of those journeys.

3.10 The output from the computer programme was then checked for consistency with the MCC data to ensure that the computation had not introduced significant errors and that the total number of vehicles was the same as that recorded during the MCCs. Comparison showed that the overall difference was less than 1% of the total number of journeys.

3.11 The output from the computer programme is presented in Appendix B.

- Table B1 shows the criteria the computer programme used to analyse the data;
- Table B2 shows the classification (type) of the vehicles within the factored-up RSI data;
- Table B3 shows the purpose of the journeys made from the factored-up RSI data, and;
- Table B4 shows the number of journeys made between each of the reporting zones within the factored-up RSI data.

3.12 A key objective for the analysis was to produce an estimate of the proportion of journeys that could be made via routes that avoid Ditchling village. To determine this, each reporting zone journey was considered individually and the extent to which trips could be made using alternative routes was assessed.

3.13 The Automobile Association's (AA) journey planner on their website (www.theaa.com) was used to compare the journey time and distance of journeys made through the village with the time and distance of alternative routes for the journey suggested by the website. It is important to note that this method of analysis does *not* take account of the many other factors that influence route choice. These other factors will include local knowledge of congestion hotspots and general travel conditions during the period of travel.

3.14 The reporting zone journeys were split into three broad categories:

- **Category A** – Alternative routes exist that avoid Ditchling village and appear to reduce the journey time and distance.
- **Category B** – Alternative routes exist that do not appear to *significantly* increase journey time and distance.
- **Category C** – Realistic alternative routes do not exist. Avoiding Ditchling village means a *significant* increase in journey time or distance.

3.15 For example, considering a journey from the Brighton reporting zone to the Newhaven reporting zone it is clear that this journey could be made without driving through Ditchling. A route using the A27 and A259 offers alternatives that are both shorter and quicker than any route that includes Ditchling village. As a result this journey was classified as “Category A” journey.

4. RESULTS

The Total Number of Journeys Made in Ditchling Village

4.1 The results of the surveys indicate that some 10,416 journeys were estimated to have been made though or originated in Ditchling village between 7am to 7pm on a typical weekday.

4.2 The RSIs were arranged to intercept and interview drivers *on their way out* of Ditchling village. So, although the RSIs and associated MCC data provides an estimate of the number of journeys that either originate or pass through Ditchling village, it does not provide an estimate of the number of journeys that terminate in the village.

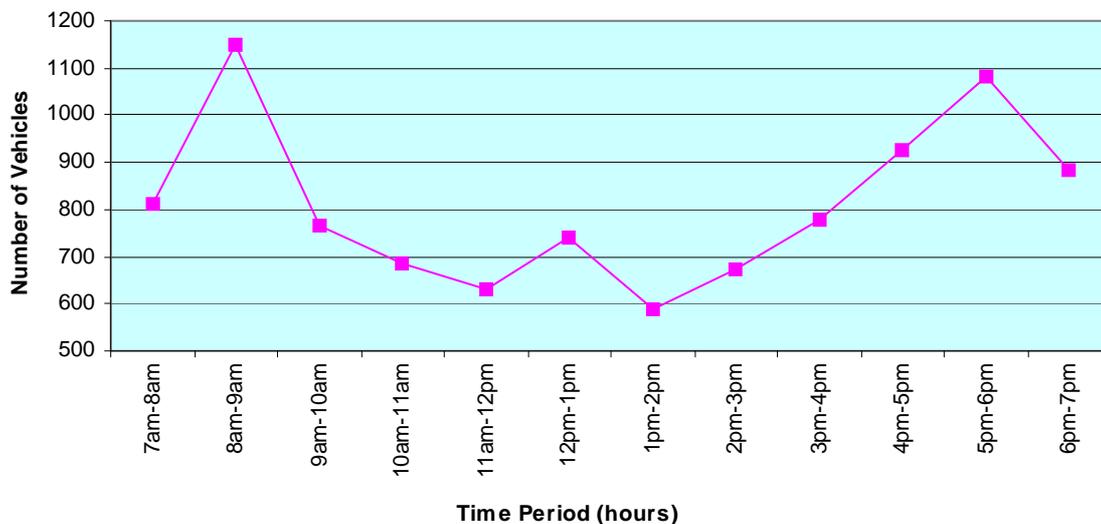
4.3 To produce this figure it was assumed that the number of journeys that terminated in Ditchling village is equal to the number of journeys that originated there. Based on this assumption, it is estimated that 466 journeys terminated in the village during the 7am to 7pm weekday.

4.4 Taking account of the journeys that terminate in Ditchling village, it is estimated that the total number of journeys travelling through, to or from Ditchling Village from 7am to 7pm on a typical weekday is 10,882.

The Flow of Traffic during the Day

4.5 A graph showing the level of traffic recorded arriving at the mini-roundabout in the centre of Ditchling village in each hour from 7am to 7pm on 27th June 2006 is presented in Figure 3. This data was collected from an MCTC survey.

Figure 3 – Graph Showing the Traffic Arriving at the Mini-Roundabout in the Centre of Ditchling Village in Each Hour from 7am to 7pm on 27th June 2006



4.6 As shown in Figure 3, there are two very strong traffic-flow peaks, with the highest flow of vehicles recorded in the peak hours of 7am-8am and 5pm-6pm. The peak flow is approximately double that recorded between 1pm and 2pm. There is also an increase in the level of flow recorded during the lunchtime period of 12pm to 1pm.

Traffic Volume at the Centre of Ditchling Village

4.7 The MCTC survey of 27 June 2006 at the centre of Ditchling village shows that some 9723 vehicles arrived at the mini-roundabout between 7am-7pm on that day.

4.8 There is a perception in the village that there has been a gradual increase in traffic levels travelling through the village over a number of years. Ditchling Parish Council requested that a comparison of MTC data for vehicle movements at the mini-roundabout at the centre of Ditchling Village for 08 June 2004 and 27 June 2006 be included in this report. The results of the two turning movement counts are shown in Appendix C. A comparison of the data shows that 9% fewer vehicles arrived at the mini-roundabout on 27 June 2006 than on 08 June 2004.

4.9 However, each survey was undertaken from 7am to 7pm **on one day only** and so can not account for the inevitable day to day variation in traffic volume that will naturally occur. As such it would not be reasonable to make any conclusions about the growth (or reduction) of traffic in Ditchling village based upon the two MCTC surveys of 08 June 2004 and 27 June 2006.

Traffic Volume on Roads In to and Out of Ditchling Village

4.10 The ATC data recorded over a period of one week can tell us something about the volume of traffic using the roads that lead into Ditchling village (North End, Keymer Road, Lewes Road, Clayton Road and Beacon Road). Table 2 shows the number of vehicles recorded by the ATCs on each road into Ditchling village.

Table 2 – The Average Number of Vehicles Counted by the ATCs Per 7am-7pm Week Day in Each Direction.

Road	Vehicles Travelling Towards Ditchling Village		Vehicles Travelling Away From Ditchling Village	
North End	3033	(29%)	3092	(31%)
Keymer Road	1840	(17%)	1248	(13%)
Lewes Road	1425	(14%)	1454	(15%)
Clayton Road	2312	(22%)	2330	(23%)
Beacon Road	1926	(18%)	1841	(18%)
	10,536		9,965	

4.11 The difference between the estimate of the total number of journeys made in Ditchling Village and the total number of vehicles counted, on average, by the ATCs can be accounted for, in part, by the fact that the MTCs and ATCs were not located in exactly the same locations. This means that vehicles counted by the ATCs may not have been counted by the MTCs in some circumstances. Notably, the largest discrepancies occur on Keymer Road and Beacon Road, where the distance between the site of the MTC and the ATC was greatest.

Traffic Generated by Ditchling Village Itself

4.12 The number of journeys generated by Ditchling village is the sum of the journeys originating in the village and the journeys terminating in the village. The estimated number of journeys generated by Ditchling is 932, which is 9% of the estimated total number of journeys between 7am-7pm on a weekday.

The Proportion of 'Through-Traffic'

4.13 Of the 10,882 reporting zone journeys recorded, 9,950 (91%) did not originate or terminate in Ditchling village. Some 7,220 journeys (66%) did not originate or terminate within Ditchling Parish (which includes the village).

Origin and Destination of 'Through-Traffic' Journeys

4.14 The 20 most frequent reporting zone journeys are shown in Table 2.

Table 2 - The twenty most frequent origin and destination pairings recorded.

Origin Zone	Destination Zone	Number of Journeys	Percent
Haywards Heath	Brighton	1,112	10%
Brighton	Haywards Heath	1,087	10%
Brighton	Burgess Hill	398	4%
Ditchling Parish	Brighton	375	3%
Burgess Hill	Brighton	327	3%
Ditchling Parish	Hurstpierpoint	320	3%
Brighton	Ditchling Parish	273	3%
Brighton	Hurstpierpoint	181	2%
Crawley area	Brighton	156	1%
Hurstpierpoint	Brighton	151	1%
Westmeston	Hurstpierpoint	146	1%
Ditchling Parish	Burgess Hill	140	1%
Lewes area	Hurstpierpoint	138	1%
Hurstpierpoint	Ditchling Parish	135	1%
Hurstpierpoint	Lewes area	123	1%
Brighton	Crawley area	123	1%
Wivelsfield	Brighton	109	1%
Brighton	Wivelsfield	105	1%
Ditchling Village	Hurstpierpoint	105	1%
Hurstpierpoint	Ditchling Village	105	1%

4.15 As shown in Table 2, the 20 most frequent origin and destination pairings account for 5,608 journeys, or 52% of the estimated total number of journeys.

4.16 The two most frequently recorded origin and destination zones (Haywards Heath to Brighton and Brighton to Haywards Heath) account for 2,199 journeys, or 20% of the estimated total number of journeys.

4.17 Journeys made from Burgess Hill to Brighton and visa-versa make up 7% of the estimated total traffic.

4.18 Table B4 in Appendix B shows the number of journeys made between each of the reporting zones.

Vehicle Classification

4.19 Table 3 shows the classification of vehicles recorded by the MCCs associated with each RSI site.

Table 3 - The Classification of Vehicles Recorded During the Traffic Surveys

Vehicle Classification	Number of Journeys	Percentage of Total Reporting Zone Journeys
Car	8,902	85%
Light Goods	1,259	12%
Heavy 2/3 axle	121	1%
Motorcycle	95	1%
Heavy 4+ axle	24	0%
Minibus	15	0%
Coach	0	0%

4.20 As shown in Table 3, cars accounted for 85% of journeys and HGV's accounted for 1% of journeys from 7am to 7pm on a weekday.

Journey Purpose

4.21 The purpose of the journeys is shown in Table 4.

Table 4 - The 20 most frequent purposes for journeys recorded in Ditchling

Journey Purpose	Number of Journeys	Percentage of Total Reporting Zone Journeys
Home to Work	2,186	20%
Work to Home	1,758	16%
Home to Recreation	1,090	10%
Work to Work	807	7%
Recreation to Home	669	6%
Home to Shopping	552	5%
Employer Business ¹ to Employer Business	483	4%
Shopping to Home	379	3%
Home to Other	273	3%
Home to Health	216	2%
Recreation to Recreation	211	2%
Health to Home	170	2%
Home to Education	167	2%
Education to Home	162	1%
Other to Home	154	1%
Work to Recreation	134	1%
Work to Employers Business	115	1%
Shopping to Shopping	78	1%
Work to Shopping	68	1%
Employer Business to Home	52	0%

¹ Employer Business – this includes people travelling during the course of work (e.g. a salesman visiting a number of clients)

4.22 Notably, Some 3,276 journeys through the village represent commuter trips from home to work or visa-versa. This is 36% of the total number of journeys estimated to have been made through Ditchling village on a weekday between 7am to 7pm. These commuter trips will be undertaken regularly and the choice of route will be based upon knowledge of the local area and traffic conditions during the time of travel.

4.23 Some 16% of journeys are made from home to recreation or visa-versa.

Vehicles Using Spatham Lane

4.24 Spatham Lane lies immediately to the east of Ditchling village and provides part of an alternative north south route for journeys that might otherwise be made through Ditchling Village.

4.25 MCTCs were undertaken at each end of Spatham Lane and these reveal that during a 7am-7pm weekday, 708 vehicles entered Spatham Lane from the north. Of those 708 vehicles, the NPRS recorded 453 vehicles (64%) leaving Spatham Lane from the south within 15 minutes of entering from the north.

4.26 The MCTCs reveal that during a 7am-7pm weekday, 878 vehicles entered Spatham Lane from the south. Of those 878 vehicles, the NPRS recorded 407 vehicles (46%) leaving Spatham Lane from the north within 15 minutes of entering from the south.

4.27 It is important to note that any measures which may be introduced in Ditchling village to discourage traffic from passing through the village could result in a corresponding increase in the number of journeys made via Spatham Lane.

The Proportion of Journeys with Realistic Alternative Routes

4.28 The AA route finder was used to compare the journey time and distance for each of the reporting zone journeys with possible alternative routes that avoid Ditchling village. This analysis revealed that:

- 15% of journeys fell into Category A – alternative routes exist that avoid Ditchling village and appear to reduce the journey time and distance.
- 45% of journeys fell into Category B – alternative routes exist that do not appear to *significantly* increase journey time and distance.
- 40% of journeys fell into Category C – realistic alternative routes do not exist. Avoiding Ditchling village means a *significant* increase in journey time or distance.

4.29 It is interesting to note that 15% of the journeys recorded through Ditchling village fall into Category A. The fact that an attractive alternative exists and is not used tends to suggest that there are other factors that are affecting route choice.

4.30 For some 45% of journeys there are alternative routes that do not appear to significantly increase journey time and distance. Again, it is important to note that this does not take account of other factors that influence the route choices made by drivers. The proportion of Category B journeys that might be diverted away from Ditchling village *in practice* would depend upon the type and extent of any measures introduced in the village or surrounding

area to deter vehicles and influence route choice. The route a driver takes is very much a matter of choice – indeed, some drivers may decide they will continue to drive through Ditchling no matter what measures are introduced.

4.31 It is estimated that 40% of journeys could not realistically be made via routes that avoid Ditchling Village. These journeys are largely those that originate or terminate in Ditchling village, or nearby villages such as Westmeston and Keymer.

4.32 Appendix D includes a table that shows the estimated diversion potential for every origin and destination pairing.

5. CONCLUSIONS

5.1 A number of traffic surveys were undertaken in Ditchling Village in July 2006 to quantify the number of journeys being made through, to, and from the village.

5.2 The results of the surveys show that on an average weekday some 10,882 journeys are made in Ditchling village between 7am to 7pm. Of these, 9% either originate or terminate within Ditchling village itself, and 91% are through movements.

5.3 The number of journeys made in the village (and hence amount of traffic) varies considerably across the day. The results of the surveys show that there are two strong peaks in the level of traffic between at 7am to 8am and between 5pm and 6pm.

5.4 A total of 20% of journeys made through Ditchling village are made from Brighton to Haywards Heath or from Haywards Heath to Brighton. Some 7% of journeys made through Ditchling village are made from Burgess Hill to Brighton or from Brighton to Burgess Hill.

5.8 A total of 15% of journeys were identified as having the potential to use an alternative route that avoids Ditchling village and which would result in a shorter journey time and distance. The fact that these journeys are made through Ditchling at all suggests that there are other factors influencing route choice such as traffic conditions along the route. The choice of route taken for daily journeys (e.g. home to work) will be informed by knowledge of traffic conditions experienced on those routes during the period when the journeys are being made.

5.9 A total of 45% of journeys were identified as having an alternative route that would not appear to significantly increase journey time and distance. Again, it may be the case that Ditchling provides a quicker route during peak hours which will tend to influence the choice of route for journeys. The proportion of these journeys that might be diverted away from Ditchling village *in practice* would be dependent upon the type and extent of any measures introduced in the village or surrounding area to deter vehicles and influence route choice. The remaining 40% of journeys in Ditchling village could not be diverted to other routes without a significant increase in journey time or distance.

5.11 The results of the surveys suggest that a significant proportion of the vehicles currently travelling through Ditchling could use alternative routes to avoid the village. However, there are many factors influencing route choice such that the amount of traffic that would divert will be significantly lower than that which could. Any measures introduced in or around the village could result in the diversion of traffic to other routes in the immediate vicinity of the village (e.g. Spatham Lane). The potential diversionary effects of any measures introduced in or around the village will need to be taken into

account to ensure that traffic reductions in the village do not cause significant increases on other roads in the immediate vicinity of the village.