

### NORTH AND WEST CHELMSFORD PARISHES GROUP

# RESPONSE TO CHELMSFORD LOCAL PLAN PRE-SUBMISSION DOCUMENT TRANSPORT REPORT

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### 1.0 INTRODUCTION AND BACKGROUND

- 1.1 This Technical Note has been produced by TTHC Ltd on behalf of the North and West Chelmsford Parishes Group in response to the Chelmsford Local Plan Pre-Submission Document (PSD) of January 2018.
- 1.2 The PSD include the following policies (extracts shown):

### STRATEGIC POLICY S1 - SPATIAL PRINCIPLES

The Council will apply the following guiding Spatial Principles to deliver the Strategic Priorities and Vision in order to underpin the Spatial Strategy:

- Maximise the use of suitable previously developed land for development
- Continue the renewal of Chelmsford City Centre and Urban Area
- Locate development at well-connected sustainable locations
- Locate development to avoid or manage flood risk
- Protect the Green Belt
- Protect and enhance the character of valued landscapes, heritage and biodiversity
- Respect the pattern and hierarchy of existing settlements
- Ensure development is deliverable
- Ensure new development is served by necessary infrastructure
- Use development to secure new infrastructure
- Plan for the longer-term.

## STRATEGIC POLICY S10 – DELIVERING ECONOMIC GROWTH

( ...)

The following principles will underpin the approach to economic growth and diversification:

 Priority will be given to the use of previously developed land in sustainable locations and also focusing new employment at locations well-served by existing or planned public transport provision;



- Existing employment areas identified on the Policies Map will be safeguarded for employment uses, unless it can be demonstrated that there is no reasonable prospect of the allocated employment area being used for that purpose.
- Support will be given to the sustainable growth and expansion of rural businesses;
- Chelmsford City Centre and sites allocated for employment are the appropriate locations for large new office development; and
- New employment development will be a key component of growth within specific proposed new Strategic Growth Locations.

### STRATEGIC POLICY S11 – INFRASTRUCTURE REQUIREMENTS

Priorities for infrastructure provision or improvements are also contained within relevant Strategic Policies and Site Allocation policies.

New development must be supported by the provision of infrastructure, services and facilities that are identified as necessary to serve its needs.

### Transport and Highways

New development must be supported by sustainable means of transport to serve its need including walking, cycling and public transport modes. New highway infrastructure should help reduce congestion, link new development and provide connections in the strategic road network.

1.3 The PSD also includes a Sustainability Appraisal which includes the following Objective regarding transport:

To reduce the need to travel, promote more sustainable modes of transport, and align investment in infrastructure with growth.



- 1.4 The PSD includes a number of land allocations, of which the following are of particular interest to the Parishes Group:
  - Strategic Growth Site 2 West Chelmsford (north of Roxwell Road)
  - Strategic Growth Site 4 North East Chelmsford
  - Strategic Growth Site 5 Great Leighs, including Existing Commitment EC3
  - Strategic Growth Site 6 North of Broomfield (north of Woodhouse Lane)
- 1.5 According to the PSD, Sites 2, 5a/5b/5c and 6 would primarily rely on existing transport infrastructure, whereas Site 4 is a proposed Garden Community and would include significant additional supporting infrastructure.
- 1.6 The PSD is accompanied by transport modelling work undertaken by Essex Highways.



### 2.0 TRAVEL PATTERNS WITHIN THE CITY OF CHELMSFORD

- 2.1 Travel to work data from the 2011 Census has been obtained for the overall City of Chelmsford district. Origin-destination data for car drivers has been allocated to the local highway network based on peak period journey times from Google Maps, which takes traffic congestion into account. The data is presented in **Appendix A** and summarised in **Figure 1**.
- 2.2 The data shows that around 73% of residents in the City of Chelmsford who drive to work use the A12 south west towards Brentwood or the A130 south towards Southend. In addition, residents in other areas route through Chelmsford to reach the A12 and A130 corridors, for example from Braintree and Colchester.
- 2.3 Furthermore, circa 11,000 people in the City of Chelmsford travel to work by train, of which the vast majority use Chelmsford station on the Great Eastern Main Line (GEML). Most commuters do not live within walking distance of Chelmsford station and so they will use other modes to access the station i.e. cycling, driving, being dropped off, or by bus.
- 2.4 The National Planning Policy Framework states that "Plans and decisions should take account of whether...the opportunities for sustainable transport modes have been taken up depending on the nature and location of the site, to reduce the need for major transport infrastructure".
- 2.5 Therefore, the best approach in transport terms would be to locate future residential development close to the A12 and GEML corridors, including the proposed Beaulieu Park station, and thus avoid generating additional vehicle mileage across central Chelmsford.



### 3.0 SITE ACCESSIBILITY

- 3.1 It is generally recognised that walking is the most important mode of travel at the local level, and has the greatest potential to replace car trips for distances up to 2 kilometres.
- 3.2 The distance that people are prepared to walk depends on the journey purpose.

  The Institute of Highways and Transportation (IHT) produced 'Guidelines for Journeys on Foot' in 2000 which provides 'suggested acceptable walking distances'. The walking thresholds presented in **Table 1** are suggested.

Table 1								
Suggested Acceptable Walking Distances								
Commuting, school and Elsewhere (m)								
	sightseeing (m)							
Desirable	500	400						
Acceptable	1,000	800						
Preferred maximum	2,000	1,200						

3.3 TTHC has considered the above walking distances for each of the site in relation to existing amenities and Local Neighbourhood Centres (from the Chelmsford Core Strategy). These are presented later in this report.



### 4.0 HIGHWAYS ASSESSMENT

- 4.1 Essex Highways carried out transport assessment at the Preferred Option (PO) stage of the Local Plan. This report was re-issued in January 2018 to reflect the latest position for proposed allocations.
- 4.2 The PO report includes a VISUM wide-area model of the Chelmsford highway network and some models of individual junctions, with a horizon year of 2036. The model includes future infrastructure measures such as the Chelmsford North East Bypass (CNEB). References to junction results in the following chapters relate to the full "2036 with Local Plan" scenario.
- 4.3 The report states that "modelled congestion is shown to worsen along corridor routes into the city centre notably along the A1060 Rainsford Road and A1016 Rainsford Lane, Springfield Road in the vicinity of Victoria Road, and B1008 Main Road through Broomfield".
- 4.4 The modelling included a sensitivity test of a possible 5% modal shift from car trips to more sustainable modes, although this potential shift was discounted for the highway capacity modelling.
- 4.5 TTHC has carried out site-specific traffic assessments as set out below.

### **Trip Generation**

The Essex Highways assessment includes generic trip rates for each type of development (PO report Appendix D). These trip rates do not necessarily reflect the accessibility of the individual allocations, so TTHC has used the TRICS database to calculate separate vehicle trip rates, as shown in **Appendix B**. As each allocation includes affordable housing, it has been assumed that 20% affordable housing will be provided and this is reflected in the calculated vehicle trip rates.



### **Trip Distribution**

4.7 Travel to work data from the 2011 Census has been obtained for two smaller-scale areas: Chelmsford 011 (which includes Writtle) and Chelmsford 001 (which includes the Broomfield Hospital area and Great Leighs). Origin-destination flows for car drivers have been allocated to the local highway network based on peak period journey times from Google Maps, in the same manner as the Chelmsford-wide data, as shown in Appendix C.



### 5.0 SGS 2 – WEST CHELMSFORD

- 5.1 This allocation is for 800 dwellings on land north of A1060 Roxwell Road.
- Figure 2 shows that the proposed SGS 2 allocation (West Chelmsford) is within acceptable walking distance for local schools (2km) and retail facilities (1.2km). The allocation is beyond acceptable walking distance to the city centre and Chelmsford railway station for example, the western part of the site is 2.5km from the station. It follows that residents would need to use other transport modes if commuting outside the immediate area, including cars.
- 5.3 The allocation requires improved connections for walking and cycling. It would be desirable to integrate the site with the Chignal Estate including the amenities on Trent Road. However, the allocation and the existing residential area are separated by the River Can and third party land, so this may not be possible.
- The allocation requires a connection for cycling via Lawford Lane to National Cycle Route 1, which runs east to the city centre and railway station. This would require a controlled crossing of the A1060 Roxwell Road, which has a national speed limit past the site. Lawford Lane is an indirect route with has no street lighting and so would not necessarily be an attractive cycling route, particularly during winter months. Roxwell Road itself would be a more direct route, but has no available space to provide on-street cycle facilities.
- The allocation also requires a bus link to/from the site via Avon Road. Buses would presumably route via Chignal Road and the A1060 to reach the city centre and railway station. As identified in the Essex Highways PO report, the A1060 corridor will experience worsening congestion by the end of the Local Plan period, which would impact on the journey time and reliability of bus services. There is also no space within the public highway to provide bus priority measures on Roxwell Road which would improve bus journey times.



- 5.6 The following traffic flow diagrams for the West Chelmsford allocation are presented in **Appendix D**:
  - Existing traffic on A1060 Roxwell Road (from Essex CC count data, 2017)
  - 2036 Base traffic flows
  - Trip distribution from Census data
  - Traffic flows on the local highway network, using the TTHC vehicle trip rates
- 5.7 The trip rates calculated by TTHC are higher than the Essex Highways rates, and suggest that the PO report underestimates the trip generation of the allocation in the AM peak hour by 60-70 vehicle movements. The TTHC and Essex Highways trip rates are similar for the PM peak hour.
- 5.8 The diagrams show that the allocation would generate around 360 vehicle movements on the A1060 corridor, representing an increase of around 17-20% above the 2036 Base flows.
- The proposed allocation would have a single highway access point on the A1060 road. The *Essex Design Guide* states that developments should be divided into elements not exceeding 700 dwellings, including separate highway access points. As proposed, there would be a risk of localised congestion around the site due to the reliance on a single access point.
- 5.10 The Essex CC report *Chelmsford's Future Transport Network* identifies the existing congestion on the A1060 corridor, with traffic travelling significantly below free flow speeds.
- 5.11 The Essex Highways PO report identifies that the A1060/Lordship Road junction would operate "Near Capacity" in the 2036 scenario, and there is currently no mitigation scheme proposed for this junction.
- 5.12 Furthermore, the allocation would generate around 160 vehicle movements on Lordship Road to/from Writtle in each peak hour. This could lead to increased



congestion in this area particularly due to on-street parking, which has not been modelled in the PO report.

5.13 No mitigation scheme has been identified for the A1060/Lordship Road junction, and it is doubtful that the proposed mitigation scheme for the A1060/Chignal Road junction will fully mitigate the effects of the development.



### 6.0 SGS 4 – NORTH EAST CHELMSFORD

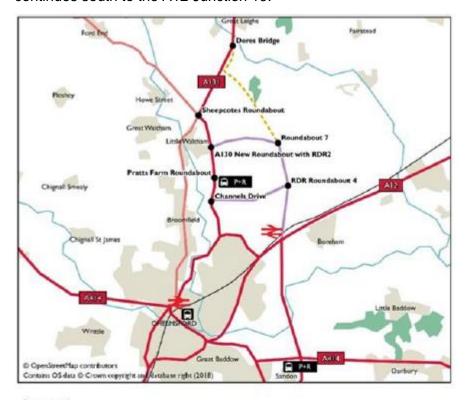
- This allocation is the largest of the four sites of interest, comprising 3,000 dwellings and related amenities as well as 45,000 sqm of employment floorspace on land north east of Chelmsford in the parish of Little Waltham.
- 6.2 The residential component would include on-site amenities including schools, healthcare, small-scale retail and leisure facilities, which would reduce the need for residents to travel off-site once the site is fully developed.
- 6.3 These amenities would be delivered in phases, not all at once, so residents of early developments would need to travel off-site to access some services at least in the short term.
- The trip generation of the site is shown in **Table 2**, using the TTHC vehicle trip rates for the residential component and the Essex Highways vehicle trip rates for the employment component.

Table 2										
Vehicle Trip Generation – North East Chelmsford										
Component Quantum AM Peak Hour PM Peak Hour										
		Arr	Dep	Total	Arr	Dep	Total			
Residential										
Market housing	2,400 units	259	823	1,082	714	403	1,117			
Affordable housing	600 units	87	163	250	163	117	280			
Employment										
Business Park	45,000 sqm	401	86	486	81	351	432			
Overall trips		746	1,072	1,818	958	871	1,828			

As shown, the overall allocation would generate around 1,800 vehicle trips in each of the peak hours. It is estimated that the Annual Average Daily Traffic (AADT) to and from the site would be approximately 20,000 vehicles.



- 6.6 The allocation would require Radial Distributor Road 2 (RDR2) which would form the main vehicular access to the site from the A130 Essex Regiment Way at Little Waltham.
- 6.7 The allocation also requires the CNEB northern section, as a dual carriageway link from Deres Bridge to Chatham Green, then a single carriageway link between Chatham Green and the north end of the existing Radial Distributor Road 1 (RDR 1) within the Beaulieu Park development site. The RDR then continues south to the A12 Junction 19.



# Legend Existing Main Roads Existing Roads Developer Built Chelmsford North East Bypass Northern Section Rail

Figure 4.1: Proposed highway network in vicinity of NE Chelmsford

(Reproduced from Essex Highways – Preferred Option Addendum)



- The traffic impact of this allocation will depend to an extent on the phasing, the location of different land uses within the site, and the final access arrangement. However, it is possible to assess the overall impact on the key routes in the surrounding area.
- The following traffic flow diagrams for the North East Chelmsford allocation are presented in **Appendix E**:
  - Trip distribution using the City of Chelmsford trip distribution from Figure 1
    and the existing/committed highway network (i.e. including Channels Drive,
    RDR 1 and RDR 2, but excluding the CNEB northern section)
  - Development flows on this network using the trip generation from Table 2
  - For comparison, trip distribution using the same trip distribution but with the CNEB northern section in place
  - Development flows on the network with CNEB northern section, using the same trip generation
- The diagrams show that without the CNEB northern section, the allocation would generate around 230 trips on the A131 between Deres Bridge and the new RDR 2 roundabout, and around 200 trips on the A130 south of Channels Drive in each peak hour.
- 6.11 Even with the CNEB northern section in place, there would still be an impact of around 230 trips on the A131 north of Deres Bridge roundabout and around 200 trips on the A130 south of Channels Drive.
- The Essex Highways PO report identifies that the Deres Bridge, Sheepcotes, Pratts Farm and Channels Drive roundabouts on the A131/A130 corridor would all operate "Over Capacity" in 2036 and this is on the basis that the CNEB northern section is delivered. The PO report includes indicative drawings for mitigation schemes at Deres Bridge and Sheepcotes, but also states:



[For Deres Bridge]: The results indicate that the new junction proposed at Deres Bridge to accommodate the CNEB would operate within capacity in the 2036 Local Plan scenario. It should be noted that <u>if, for any reason, the CNEB is not delivered</u>, then the Deres Bridge junction will need to be reviewed to ascertain what other mitigation could be provided given that the modelling suggests that it is currently near capacity and forecast to be overcapacity in the Do Minimum scenario.

[For Sheepcotes]: As this junction is located in the Outer Zone, the focus should be on promoting rail trips to Chelmsford from Braintree and surrounding villages, along with ensuring that strategic trips use the CNEB.

- 6.13 The PO report also identifies that the A12 Junction 19 would operate over capacity in 2036, even with an identified mitigation scheme in place. This means that traffic heading from north of Chelmsford and from the allocation to the the A12 corridor would be likely to divert to other routes further west such as the A130 and B1008 corridors, adding further to the identified traffic congestion on these routes.
- 6.14 There are therefore significant risks that the North East Chelmsford allocation would cause a severe impact on the local highway network if the CNEB northern section is not delivered. This is discussed further in **Chapter 9** of this report.



### 7.0 SGS 5a/5b/5c – GREAT LEIGHS

- 7.1 This allocation comprises three separate sites at the north end of Great Leighs: 750 dwellings (5a); 250 specialist dwellings for elderly residents (5b); and 100 dwellings (5c).
- 7.2 **Figures 3, 4 and 5** show the individual sites and their catchments. Great Leighs is not a designated Local Neighbourhood Centre, but there is a limited "centre" around the School Lane/Boreham Road junction.
- 7.3 Site 5a is within 800m walking distance of the village centre including Great Leighs Primary School.
- 7.4 Site 5b is beyond 1.2km walking distance of the village centre. As this allocation is for specialist housing for elderly residents, with potentially limited mobility, this is of particular concern.
- 7.5 Site 5c is within 1.2km of the village centre including the Primary School.
- 7.6 The following traffic flow diagrams for the Great Leighs allocation are presented in **Appendix F**, referring to the existing highway network:
  - Existing traffic on A131 north of Deres Bridge roundabout, and Main Road through Great Leighs village (from Essex CC count data, 2015)
  - 2036 Base traffic flows
  - Trip distribution from Census data
  - Traffic flows on the local highway network, using the TTHC vehicle trip rates, including EC3
- 7.7 The trip rates calculated by TTHC are similar to the Essex Highways rates in the AM peak hour, but lower in the PM peak hour by around 110 trips, primarily due to the lower trip generation of the specialist housing for older residents.



However, as shown below, the AM peak is particularly critical for the Great Leighs area.

- 7.8 The overall allocation (5a, 5b, 5c and EC3) would generate around 380 vehicle movements in each peak hour. It is estimated that the Annual Average Daily Traffic (AADT) to and from the site would be approximately 4,200 vehicles.
- 7.9 The allocation states that the allocation would need to contribute towards the delivery of the CNEB. However, if the housing at Great Leighs was to come forward before the bypass route is completed, traffic would need to use the existing network, with the majority of traffic routeing to/from the south of the allocation sites.
- 7.10 The ideal existing route for this traffic would be the A131/A130 (Essex Regiment Way), but due to existing congestion, some peak time journeys are already faster via narrow unclassified roads to the east such as Boreham Road and Goodmans Lane, or via the B1008 through Broomfield. This is illustrated with morning peak journey times from Google Maps in **Appendix H**.
- 7.11 As shown in the previous chapter, the performance of the Deres Bridge and Sheepcotes roundabout would then worsen in the absence of the CNEB northern section scheme.
- 7.12 The risks associated with the CNEB northern section are set out further in later subsequent chapters of this report.



### 8.0 SGS 6 – NORTH OF BROOMFIELD

- 8.1 This allocation is for 450 dwellings on land north of Broomfield Hospital. The allocation would include a new access road to/from the B1008 north of Hospital Approach, which would then continue west/south through the allocation to form an additional access route to Broomfield Hospital.
- 8.2 **Figure 6** shows that the proposed SGS 6 allocation (North of Broomfield) is within acceptable walking distance for local schools (2km). The majority of the site is beyond acceptable walking distance to retail facilities in Broomfield and so residents commuting outside the immediate area would be likely to use other modes, including private cars.
- 8.3 The following traffic flow diagrams for the North of Broomfield allocation are presented in **Appendix G**:
  - Existing traffic at the B1008 Main Road/Hospital Approach junction (from Essex CC count data, 2016)
  - 2036 Base traffic flows
  - Trip distribution from Census data
  - Traffic flows on the local highway network, using the TTHC vehicle trip rates
- The new access would result in some Broomfield Hospital traffic diverting away from the existing B1008/Hospital Approach roundabout. It is estimated that approximately two-thirds of the existing traffic turning right into Hospital Approach or left out of Hospital Approach would divert to the new access road, as shown in **Appendix G**.
- 8.5 The trip rates calculated by TTHC are similar to the Essex Highways rates.
- 8.6 The traffic flows show that the proposed allocation would generate around 200 vehicle movements in each peak hour. Around 75% of this traffic would head south on the B1008 through Broomfield, representing an increase of 8-10%



over the 2036 Base flows. This is <u>without</u> any additional traffic which would be generated by the Great Leighs sites in the absence of the CNEB northern section.

- 8.7 The opening of the new access road would result in a net reduction in traffic at the B1008/Hospital Approach junction, but no reduction on the B1008 corridor further south through Broomfield village. Thus there would still be a net increase in traffic on the B1008 corridor between Hospital Approach and the city centre.
- 8.8 Again, due to existing congestion, some peak time journeys are already faster via narrow unclassified roads to the west such as School Lane/Hollow Lane, as shown in **Appendix H**.
- 8.9 The Essex Highways PO report identifies four key junctions on the B1008 corridor; of these, the B1008/School Lane junction would operate "Over Capacity" in 2036. Although a mitigation scheme has been identified for this junction, this was to be delivered by the "Land to the South and West of Broomfield Place" allocation which has not been included in the PSD and so the mitigation will not come forward. The proposed SGS 6 allocation would increase traffic at this junction.
- 8.10 The worsening of congestion on the B1008 corridor is of particular concern as this is one of the principal access routes to Broomfield Hospital with its Accident & Emergency department.



### 9.0 TRANSPORT INFRASTRUCTURE

### **Chelmsford North East Bypass**

- 9.1 The allocations for SGS 4, SGS 5 and SGS 6 all require contributions to the delivery of the **Chelmsford North Eastern Bypass (CNEB)**, and the route for this scheme is safeguarded in the Local Plan.
- 9.2 As originally proposed, the full CNEB scheme would provide a continuous grade-separated dual carriageway link between the A131 at Great Leighs and the A12 at Boreham. This would provide additional capacity and network resilience between Braintree and Chelmsford.
- 9.3 However, the Essex Highways PO Addendum only includes "an aspiration" to deliver a partial single carriageway northern section (from Chatham Green to RDR 1 at Beaulieu Park) by the end of the Local Plan period in 2036. During this time, most of the proposed housing at North East Chelmsford, Great Leighs and North of Broomfield would be constructed and occupied.
- 9.4 The Essex Highways "Summary of Infrastructure Studies" document (Jan 2018) states: "Essex CC have made a bid to the Government's (DCLG) Housing Infrastructure Fund to deliver an initial phase of the CNEB northern section and Beaulieu Rail Station and are awaiting a decision." The government released a list of successful bids on 1 February 2018 which does not include the CNEB northern section. This confirms that partial public funding would be required for the scheme, but also that no funding has so far been agreed.
- 9.5 As well as any potential public funding, the CNEB northern section would be dependent on contributions from multiple development sites, as identified in the Pre-Submission Document. The smaller sites could therefore be built before the bypass, or conversely, could not all come forward during the Local Plan period in time to provide funding towards the scheme. In either case, this would



be contrary to Local Plan Policy S1 as the development would not be "deliverable" or "served by necessary infrastructure".

- 9.6 This creates two risks: firstly, that there would be no mitigation for the congested conditions which will arise on the A131 and B1008 corridors following the delivery of new housing; and secondly, that the quantum of development which could potentially be realised at SGS 4 (North East Chelmsford) would be reduced as there would not be necessary supporting infrastructure.
- 9.7 Even if the CNEB northern section is delivered, RDR 1 would prove insufficient for future traffic needs. The Design Manual for Roads and Bridges¹ identifies that a single carriageway link such as RDR 1 would become congested with AADT in excess of 23,000 vehicles. As the majority of traffic generated by the NE Chelmsford and Great Leighs allocations would route via the CNEB northern section and RDR 1 to/from the A12/A130 corridor, most of its capacity would be absorbed by these two sites alone, before any diversion of existing traffic is considered. The proposed single carriageway link would therefore be insufficient for the overall quantum of development proposed in North Chelmsford by the PSD.
- 9.8 Furthermore, in either case, there would still be capacity issues at the B1008/School Lane junction and A12 Junction 19, as identified in the Essex Highways PO report.
- 9.9 If the CNEB northern section is not delivered during the Local Plan period then, as shown in previous chapters, only a limited quantum of housing could be provided through the NE Chelmsford allocation without resulting in a severe impact on the local highway network; and the Great Leighs and North of

<sup>&</sup>lt;sup>1</sup> DMRB - TA 46/97 - Traffic Flow Ranges for Use in the Assessment of New Rural Roads (Annex D)



Broomfield allocations (in particular) would have a significant cumulative traffic impact elsewhere on the A131/A130 and B1008 north-south corridors.

9.10 Furthermore, although the traffic diagrams illustrate the principal routes to the north and west of Chelmsford, there is also potential for rat-running along unclassified rural roads further west as the A131/A130 and B1008 corridors become more congested. This is illustrated with morning peak journey times for existing 2018 conditions from Google Maps in **Appendix H**. Similarly, there is also potential for further rat-running through the Chignals and Writtle due to the significant flow of traffic to/from the A12 south west of Chelmsford.

### Beaulieu Park railway station

- 9.11 The SGS 4 (North East Chelmsford) allocation also relies heavily on the delivery of **Beaulieu Park railway station**. This station was originally due to open in 2022 but has now been delayed until 2025.
- 9.12 This means that in the intervening three years, there will be limited mode choice for the proposed allocations, particularly at North East Chelmsford. This will lead to a predominance of car trips which would run contrary to Local Plan Policy S11, as the sites would not "help reduce congestion, link new development and provide connections in the strategic road network".

### **Sustainable Transport Modes**

9.13 All of the allocations include a requirement for "appropriate measures to promote and enhance sustainable modes of transport". There is a risk that developers would only be obliged to provide transport services or Travel Plantype measures for a relatively short initial period, which could then change or cease to exist in the future.



### 10.0 ALTERNATIVE SITES

- 10.1 An allocation for 3,000 dwellings at Hammonds Farm was included in earlier stages of the Local Plan process, but has not been included in the Pre-Submission Document.
- 10.2 Hammonds Estates LLP control all of the land. Their consultants WSP carried out extensive transport technical assessment, and consultation with Essex County Council and Highways England on transport matters.
- This site is of sufficient scale to include on-site amenities including primary and secondary schools, employment areas, retail and leisure facilities, which would reduce the need for residents to travel off-site. The single ownership provides more certainty for the delivery of supporting amenities and infrastructure.
- This site benefits from a location close to the A12 and GEML corridor and would also deliver significant measures to promote transport by non-car modes including a Park & Ride scheme, upgrades to National Cycle Route 1, and a bridge over the A12.
- The Essex Highways PO report identifies that J18 would operate "Over Capacity" in 2036 with no suitable mitigation identified. In particular, the A414 East approach would operate above capacity in the morning peak with the cumulative traffic from the other PSD sites (ref Table 4.29).
- As identified in **Appendix A**, around 73% of City of Chelmsford residents who drive to work use the A12 southwest or the A130 south corridors. The site is located closer to both of these corridors than the SGS 2, SGS 4, SGS 5 and SGS 6 allocations, and unlike these sites, would not generate significant volumes of traffic across the city centre and on the congested A131 and B1008 routes.



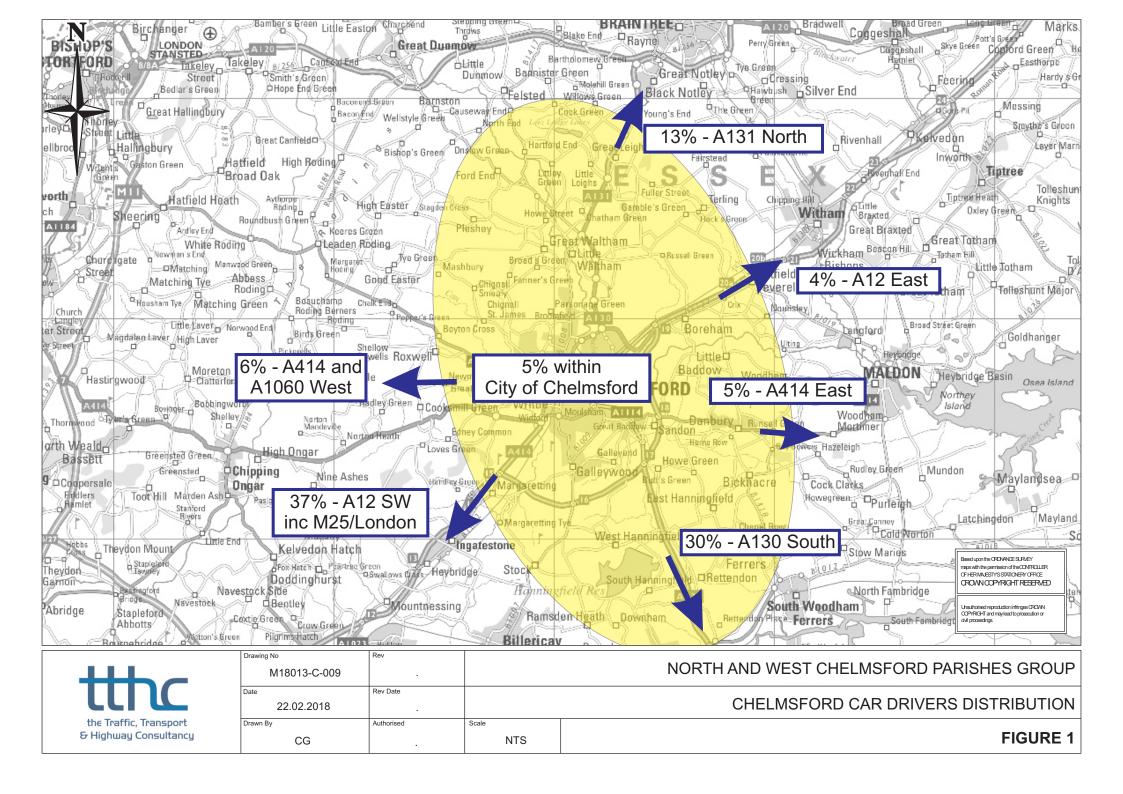
- 10.7 Other sites close to the A12 and A130 corridors including Boreham, Howe Green and Rettendon could also be developed.
- 10.8 At J18, the Hammonds Farm development would generate significant traffic volumes on the A414 East approach in the morning peak, and the A12 northbound approach in the evening peak.
- The development includes significant transport mitigation measures including a new wider alignment for the A414 East approach to J18, and the new bridge over the A12 dual carriageway. Together, these measures would reduce traffic flows through J18 and provide additional capacity for the remaining traffic, particularly on the critical A414 East approach in the morning peak.
- 10.10 It follows that the site would generate significant traffic volumes on the A12 corridor to and from the south west. However, this would also be the case for the North East Chelmsford allocation which is of similar scale. As set out in previous chapters, there is more risk that the required infrastructure would not be delivered for North East Chelmsford, which calls into question the likelihood of the full quantum of development being delivered at that site when compared with the alternative option of development at Hammonds Farm.
- 10.11 The Essex Highways modelling work in previous stages did not reflect the proposed mitigation measures which would be provided as part of the Hammonds Farm development, and therefore has not provided a reasonable basis for excluding this site from the Local Plan.

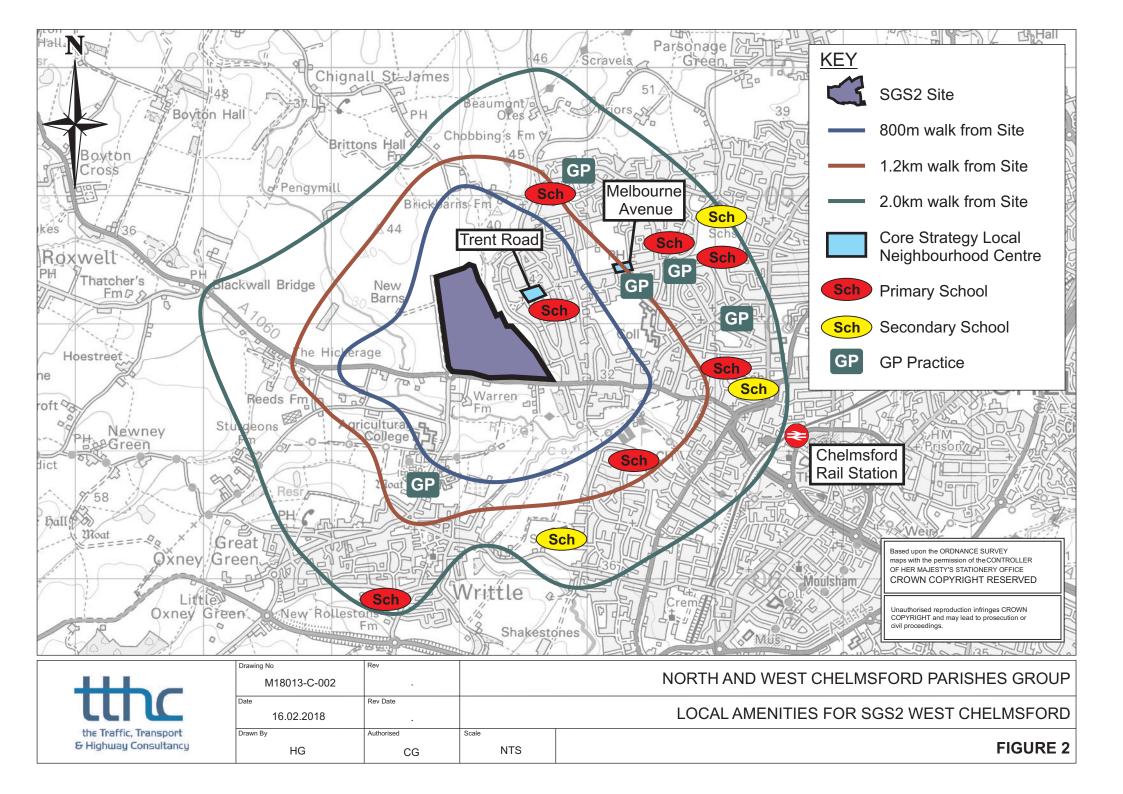


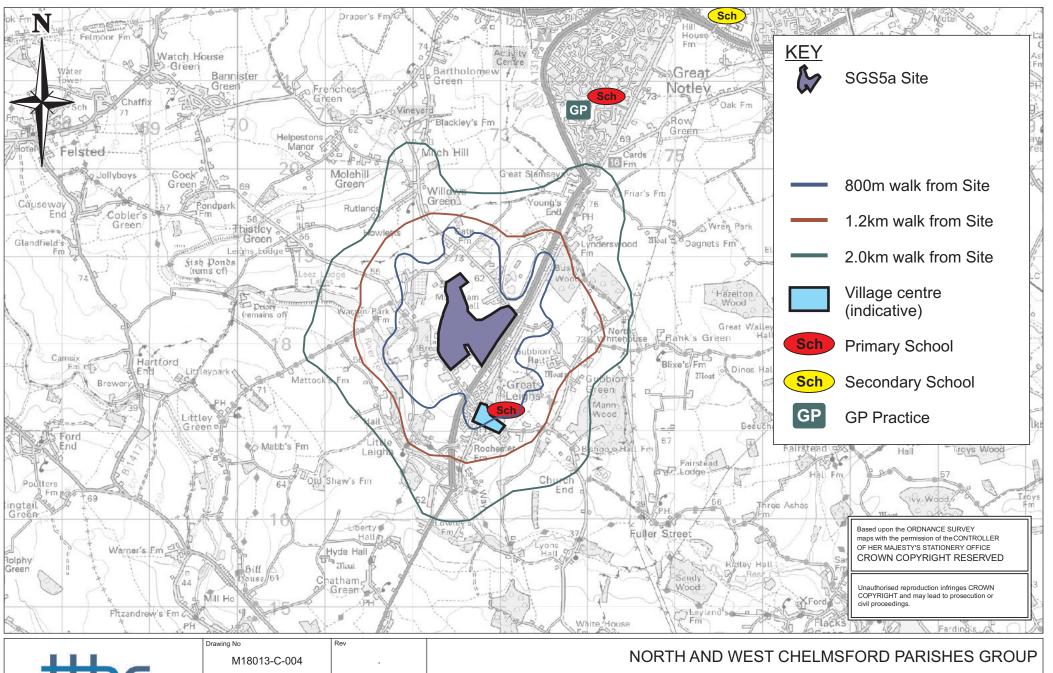
### 11.0 SUMMARY AND CONCLUSIONS

- 11.1 This report has examined transport and highways matters associated with sites allocated in the Chelmsford Local Plan Pre-Submission Document.
- The allocations SGS 2 (West Chelmsford), SGS 5 (Great Leighs) and SGS 6 (North of Broomfield) are poorly located with respect to local amenities.
- 11.3 Allocations SGS 4 (North East Chelmsford) and SGS 5 (Great Leighs) rely on delivery of the Chelmsford North East Bypass northern section, and it has not been demonstrated that this could be funded or delivered within the Local Plan period.
- 11.4 The cumulative impact of the above allocations would generate a greater (and unreasonable) impact on the existing highway network than is assumed by the Essex Highways modelling in more than one growth area, and would not reduce congestion.
- 11.5 The proposed development at these sites would thus be contrary to Strategic Policy S11 of the Local Plan.
- The Plan is not sufficiently robust in terms of the funding and timing of infrastructure provision, particularly the Chelmsford North East Bypass and Beaulieu Park railway station, which places considerable risk in terms of the delivery of development. This would be contrary to Strategic Policy S1 of the Local Plan.
- 11.7 Development can be delivered elsewhere within the City of Chelmsford, such as at Hammonds Farm, which is better located with respect to existing traffic patterns and other infrastructure which can support more growth; and where additional infrastructure is required, there would be more certainty of its delivery within the Local Plan period.

# **Figures**









Drawing No	Rev		
M18013-C-004			N
Date	Rev Date		
16.02.2018			
Drawn By	Authorised	Scale	

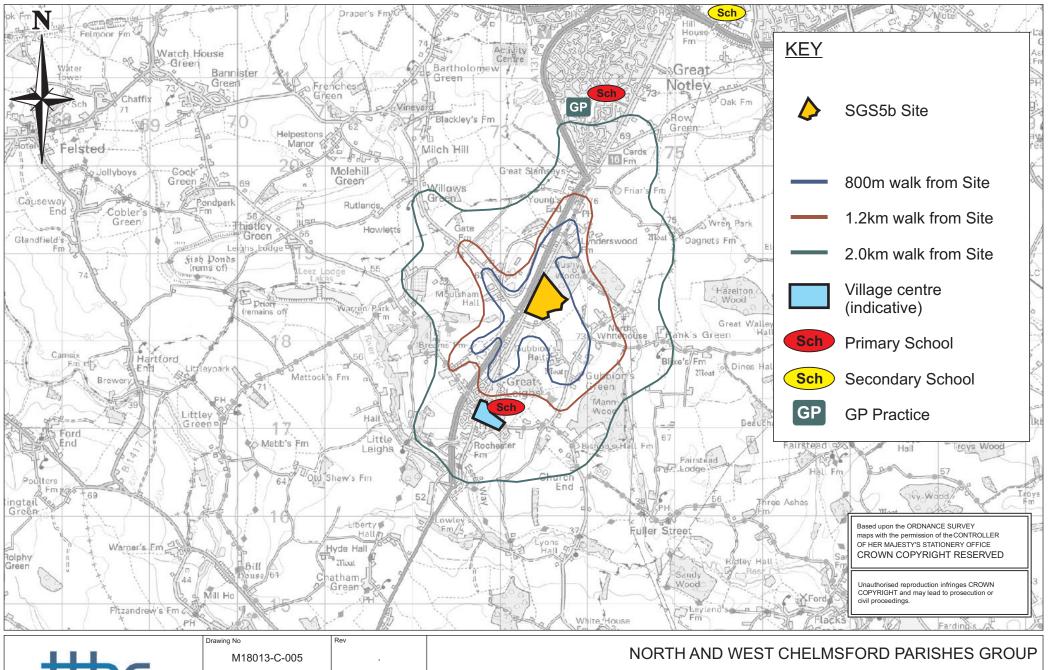
CG

NTS

HG

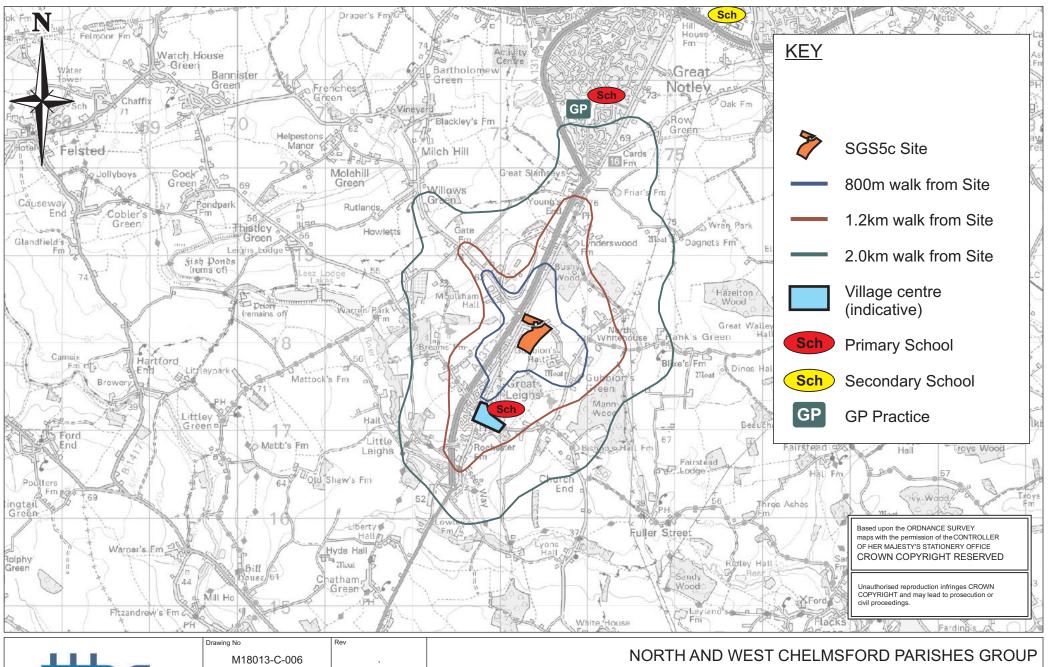
LOCAL AMENITIES FOR SGS5a GREAT LEIGHS

FIGURE 3



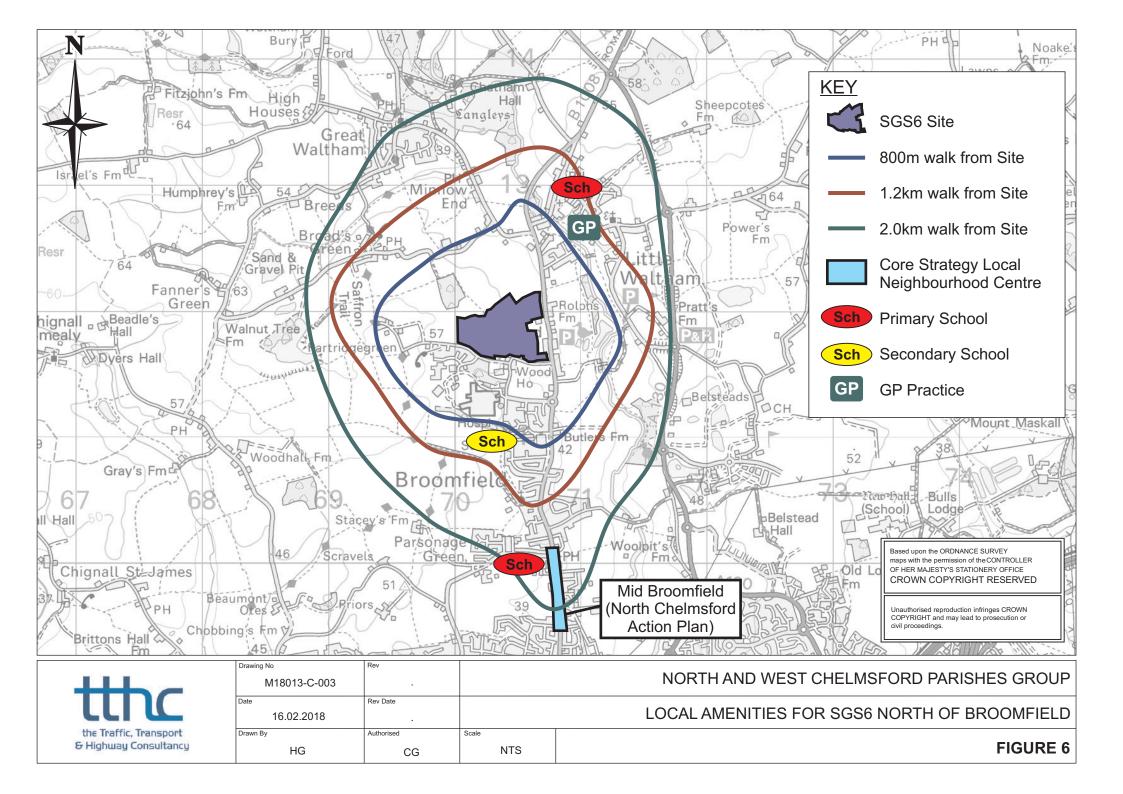


Drawn By HG	Authorised	Scale NTS	FIGURE 4
Date 16.02.2018	Rev Date		LOCAL AMENITIES FOR SGS5b GREAT LEIGHS
M18013-C-005			NORTH AND WEST CHELMSFORD PARISHES GROUP





Drawn By HG	Authorised	Scale NTS	FIGURE 5				
Date 16.02.2018	Rev Date		LOCAL AMENITIES FOR SGS5c GREAT LEIGHS				
M18013-C-006		NORTH AND WEST CHELMSFORD PARISHES GR					



# **Appendix A**

City of Chelmsford – Census Trip Distribution

### M18013 North and West Chelmsford Parishes

### Trip Distribution Initial Calculations (removed places of work with <5 residents)

### WU03EW ( - Location of usual residence and place of work by method of travel to work )

ONS Crown Copyright Reserved [from Nomis on 14 February 2018]

population All usual residents aged 16 and over in employment the week before the census

units Persons date 2011

method of travel to work Driving a car or van

usual residence: City of Chelmsford Route (based on Google Maps, AM Peak)

usuai residence:	Route (based on Google Maps, AM Peak)								
place of work		Add %	A131 N of Chelmsford	A12 SW of Chelmsford	A130 South	A414 East	A12 NE of Chelmsford	A1060 West of Chelmsford	A414 West of Chelmsford
Regions of UK (excl the	e East which is below):								
East Midlands	54	0.3%	0.30%						
London	3857	17.9%		17.90%					
South East	587	2.7%		2.70%					
South West	68	0.3%		0.30%					
West Midlands	89	0.4%		0.40%					
Districts of the East of	England region								
Basildon	4079	18.9%			18.90%				
Braintree	2245	10.4%	10.40%						
Brentwood	2224	10.3%		10.30%					
Broxbourne	113	0.5%							0.50%
Castle Point	351	1.6%			1.60%				
Chelmsford	1119	5.2%	5% within Chelmsf	ford					
Colchester	807	3.7%					3.70%		
East Hertfordshire	233	1.1%						1.10%	
Epping Forest	689	3.2%		3.20%					
Harlow	488	2.3%						1.15%	1.15%
Hertsmere	57	0.3%		0.30%					
Maldon	1500	6.9%			2.28%	4.66%			
Rochford	580	2.7%			2.02%	0.67%			
Southend-on-Sea	778	3.6%			3.60%				
Thurrock	719	3.3%		1.65%	1.65%				
Uttlesford	849	3.9%	1.95%					1.95%	
Welwyn Hatfield	98	0.5%		0.50%					
Total	21,584	100.0%	13%	37%	30%	5%	4%	4%	2%
			A131 N of Chelmsford	A12 SW of Chelmsford	A130 South	A414 East	A12 NE of Chelmsford	A1060 West of Chelmsford	A414 West of Chelmsford

In order to protect against disclosure of personal information, records have been swapped between different geographic areas. Some counts will be affected, particularly small counts at the lowest geographies.

# **Appendix B**

**TRICS** Assessment

### TRICS - Private Housing (Suburban/Edge of Town)

RANK ORDER for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED Ranking Type: TOTALS Time Range: 08:00-09:00

85th/15th Percentile Survey Not Highlighted

Rank	Site Ref	Description	Town/City	DWELLS	Day	Date	Arrivals	Departures	Totals
1	WS-03-A-06	MIXED HOUSES	WEST HORSHAM	805	Thursday	02/03/2017	0.163	0.46	0.623
2	NE-03-A-02	SEMI DETACHED & DETACHED	SCUNTHORPE	432	Monday	12/05/2014	0.067	0.354	0.421
3	WS-03-A-04	MIXED HOUSES	HORSHAM	151	Thursday	11/12/2014	0.139	0.278	0.417
4	FA-03-A-02	MIXED HOUSES	FALKIRK	161	Wednesday	29/05/2013	0.062	0.28	0.342
						Average	0.108	0.343	•

RANK ORDER for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED Ranking Type: TOTALS Time Range: 17:00-18:00
85th/15th Percentile Survey Not Highlighted

						Average	0.298	0.168	
4	4 WS-03-A-04	MIXED HOUSES	HORSHAM	151	Thursday	11/12/2014	0.252	0.119	0.371
;	8 NE-03-A-02	SEMI DETACHED & DETACHED	SCUNTHORPE	432	Monday	12/05/2014	0.257	0.162	0.419
	2 WS-03-A-06	MIXED HOUSES	WEST HORSHAM	805	Thursday	02/03/2017	0.364	0.166	0.53
	1 FA-03-A-02	MIXED HOUSES	FALKIRK	161	Wednesday	29/05/2013	0.317	0.224	0.541
Rank	Site Ref	Description	Town/City	DWELLS	Day	Date	Arrivals	Departures	Totals

### TRICS - Affordable Housing (Suburban/Edge of Town)

RANK ORDER for Land Use 03 - RESIDENTIAL/B - AFFORDABLE/LOCAL AUTHORITY HOUSES Ranking Type: TOTALS Time Range: 08:00-09:00 85th/15th Percentile Survey Not Highlighted

Rank	Site Ref	Description	Town/City	DWELLS	Day	Date	Arrivals	Departures	Totals
1	WM-03-B-01	SEMI DET./TERRACED	BIRMINGHAM	97	Monday	17/10/2011	0.186	0.33	0.516
2	NB-03-B-01	SEMI DET. & TERRACED	BEDLINGTON	97	Monday	19/11/2012	0.186	0.309	0.495
3	CH-03-B-01	HOUSES & FLATS	CHESTER	80	Monday	17/11/2014	0.063	0.175	0.237
						Average	0.145	0.271	

RANK ORDER for Land Use 03 - RESIDENTIAL/B - AFFORDABLE/LOCAL AUTHORITY HOUSES

Ranking Type: TOTALS Time Range: 17:00-18:00 85th/15th Percentile Survey Not Highlighted

Rank	Site Ref	Description	Town/City	DWELLS	Day	Date	Arrivals	Departures	Totals
1	WM-03-B-01	SEMI DET./TERRACED	BIRMINGHAM	97	Monday	17/10/2011	0.402	0.309	0.711
2	NB-03-B-01	SEMI DET. & TERRACED	BEDLINGTON	97	Monday	19/11/2012	0.361	0.227	0.588
3	CH-03-B-01	HOUSES & FLATS	CHESTER	80	Monday	17/11/2014	0.05	0.05	0.1
						Average	0.271	0.195	

### TRICS - Sheltered Housing (Suburban/Edge of Town)

RANK ORDER for Land Use 03 - RESIDENTIAL/F - SHELTERED ACCOMMODATION

Ranking Type: TOTALS Time Range: 08:00-09:00

85th/15th Percentile Survey Not Highlighted

Rank	Site Ref	Description	Town/City	DWELLS	Day	Date	Arrivals	Departures
1	LE-03-F-02	SHELTERED HOUSING	LEICESTER	49	Thursday	27/09/2012	0.122	0.102
2	LE-03-F-01	SHELTERED HOUSING	LEICESTER	33	Wednesday	24/06/2009	0.061	0.121
3	LN-03-F-01	SHELTERED HOUSING	HECKINGTON	40	Tuesday	11/12/2012	0.05	0.05
4	NT-03-F-01	SHELTERED HOUSING	NOTTINGHAM	87	Friday	21/06/2013	0.046	0.034
						Average	0.070	0.077

RANK ORDER for Land Use 03 - RESIDENTIAL/F - SHELTERED ACCOMMODATION

Ranking Type: TOTALS Time Range: 17:00-18:00 85th/15th Percentile Survey Not Highlighted

						Average	0.111	0.132
4	NT-03-F-01	SHELTERED HOUSING	NOTTINGHAM	87	Friday	21/06/2013	0.046	0.057
3	LE-03-F-02	SHELTERED HOUSING	LEICESTER	49	Thursday	27/09/2012	0.122	0.143
2	LN-03-F-01	SHELTERED HOUSING	HECKINGTON	40	Tuesday	11/12/2012	0.125	0.175
1	LE-03-F-01	SHELTERED HOUSING	LEICESTER	33	Wednesday	24/06/2009	0.152	0.152
Rank	Site Ref	Description	Town/City	DWELLS	Day	Date	Arrivals	Departures

### M18013 North and West Chelmsford Parishes

### **Trip Generation for Sites**

### Assume 20% affordable units for each site

	Units	Α	M Peak Ho	ur	Р	M Peak Ho	ur
	Ullits	Arr	Dep	Total	Arr	Dep	Total
Writtle - 800 units							
Market 80%	640	69	220		190	107	
Affordable 20%	160	23	43		43	31	
Total		92	263	355	234	139	372

Broomfield - 450 units

Market 80%	360	39	123		107	60	
Affordable 20%	90	13	24		24	18	
Total		52	148	200	131	78	209

Great Leighs - total 1200 units inc EC3

O. Car Long. To total 1200 and to 1200							
Market 80% of 5a, 5c, EC3	760	82	261		226	127	
Affordable 20% of 5a, 5c, EC3	190	28	52		51	37	
Specialist housing for elderly residents (5b)	250	17	19		28	33	
Total		109	312	422	278	165	442

# **Appendix C**

Small Scale Census Trip Distribution

# Trip Distribution Initial Calculations (removed destinations with <5 residents) Google Maps - AM peak departure at 0800 from West Chelmsford access WU03EW - Location of usual residence and place of work by method of travel to work (MSOA level)

ONS Crown Copyright Reserved [from Nomis on 20 February 2018]

population units All usual residents aged 16 and over in employment the week before the census

Persons 2011

date method of travel to work Driving a car or van

Main routes

### Additional routes for local journeys

			Wall Todics								3 TOT TOGAT JOS			
Origin: Chelmsford 011			A131 N of Chelmsford	A12 SW of Chelmsford	A130 South / A414 East	A12 NE of Chelmsford	A1060 West of Chelmsford	A414 West of Chelmsford		A1016 E / B1008 N	Chignal Road	Lordship Road		
Destination	Description if needed Persor travelling destinate	g to % Split												
London	destinat	213 10.7%		8.6%				2.1%						†
South East		15 0.8%		0.8%										
South West		5 0.3%		0.3%										
West Midlands		6 0.3%		0.3%										
Basildon		123 6.2%		0.070	6.2%									
Braintree		90 4.5%			0.270									
Brentwood		148 7.4%		7.4%										
Broxbourne		6 0.3%		0.2%				0.2%						
Cambridge		7 0.4%		0.270			0.4%							
Castle Point		5 0.3%			0.3%		0.470	'						+
Central Bedfordshire		5 0.3%		0.3%							+			+
Colchester	+	25 1.3%		0.3%	<del> </del>	1.3%			<del>                                     </del>					+
East Hertfordshire	+	13 0.7%		+	<del> </del>	1.3%	0.7%		1		+			+
	+	88 4.4%		0.9%	<del> </del>		0.7%	3.5%	1		+			+
Epping Forest	<del> </del>										+			
Harlow	+	48 2.4% 5 0.3%		1.2%	1	0.3%		1.2%	<del> </del>					<u> </u>
Ipswich		0.070			0.40/									
Maldon		42 2.1%			2.1%									
Rochford		17 0.9%			0.9%									
Southend-on-Sea		24 1.2%			1.2%									
Tendring	=	5 0.3%				0.3%								
Thurrock	Includes Thames ports	19 1.0%		0.8%	0.2%									
Uttlesford	Includes Stansted and Dunmow	48 2.4%					1.2%			1.2%				
Welwyn Hatfield		5 0.3%		0.1%				0.1%						
E02004485 : Chelmsford 001	Walthams, Great Leighs	18 0.9%									0.5%			
E02004486 : Chelmsford 002	Broomfield	86 4.3%								4.3%				
E02004487 : Chelmsford 003	Chignal	24 1.2%									1.2%			
E02004488 : Chelmsford 004	Springfield around A130	15 0.8%								0.8%				
E02004489 : Chelmsford 005	Boreham / Little Baddow	60 3.0%								3.0%				
E02004490 : Chelmsford 006	Melbourne East	15 0.8%								0.4%	0.4%			
E02004491 : Chelmsford 007	Springfield south	14 0.7%								0.7%				
E02004492 : Chelmsford 008	Chelmer Village	40 2.0%	,							2.0%				
E02004493 : Chelmsford 009	Rainsford Road / Waterhouse La	118 5.9%	,							3.0%		3.0%		
E02004494 : Chelmsford 010	City Centre	267 13.4%								13.4%				
E02004495 : Chelmsford 011	Writtle	189 9.5%										9.5%		
E02004496 : Chelmsford 012	Princes Road	49 2.5%								1.2%		1.2%		
E02004497 : Chelmsford 013	Sandon / Howe Green	22 1.1%								0.8%		0.3%		
E02004498 : Chelmsford 014	Great Baddow south/west	12 0.6%								0.6%				
E02004499 : Chelmsford 015	Moulsham Lodge	11 0.6%								0.3%		0.3%		
E02004500 : Chelmsford 016	Danbury / Bicknacre	18 0.9%								0.9%		2.270		1
E02004501 : Chelmsford 017	Galleywood	15 0.8%								0.2%		0.6%		
E02004502 : Chelmsford 018	Margaretting / Hanningfields	32 1.6%			1					0.4%		1.2%		
E02004503 : Chelmsford 019	SWF North	16 0.8%			0.8%					570		/0		
E02004504 : Chelmsford 020	SWF South	0 0.0%			0.0%					İ				
E02004505 : Chelmsford 021	Rettendon	6 0.3%			0.3%						+			+
TOTAL		1,989	1	†	0.576				<u> </u>		+			+
Total for each route:	+	1,000	5.0%	20.7%	11.9%	1.8%	2.2%	7.2%		33.2%	2.0%	16.0%		+
Total for edon route.			A131 N of	A12 SW of	A130 South /	A12 NE of	A1060 West of	A414 West of		A1016 E /	Chignal	Lordship		Immediate local routes
	+		Chelmsford	Chelmsford	A414 East	Chelmsford	Chelmsford	Chelmsford		B1008 N	Road	Road		
		immediate local routes:												
	A1060 Wes						2.2%						2.2%	2.2%
		t into centre	5.0%		11.9%	1.8%				33.2%			51.9%	51.9%
	Chignal Ro	ad									2.0%		2.0%	2.0%
		oad via Writtle		20.7%				7.2%				16.0%	43.9%	43.9%

### M18013 North and West Chelmsford Parishes

date

# Trip Distribution Initial Calculations (removed destinations with <5 residents) Google Maps - AM peak departure at 0800 from Racecourse roundabout WU03EW - Location of usual residence and place of work by method of travel to work (MSOA level) ONS Crown Copyright Reserved [from Nomis on 20 February 2018]

All usual residents aged 16 and over in employment the week before the census Persons 2011
Driving a car or van population units

method of travel to work

\*inc A414 East

A131 North of Gt Leighs 17.4%							inc A414 East									
Septiment   Sept	Origin: Chelmsford 011															
September   153   2-25   150   175	Destination	Description if needed	travelling to	-		0.3%										
South Cards			5													
West Makings										1.7%						
Seather			29													
Service   28   12/76   12/76   3.5%			0/			0.3%	5.0%									
First Section   Graph   Grap					12.6%		5.0%									
Frontierring					12.070	3 3%										
Content   11   0.878   0.976   0.776			6							0.2%						
Cachesparies   31   1.7%   1.2%   0.4%   0.5%   0			11			0.270	0.6%			0.270						
Seat International					1.2%		0.0,0	0.4%								
History									1.2%							
February	Epping Forest		32			0.3%				1.4%						
Roched   18   1.0%	Harlow					0.7%				0.7%	<u> </u>					
South Careful Special Control Contro																
Southerfor On-Sea			18				1.0%									
St. Edimentation   Company   Compa			5											0.3%		
Trundling			25		2.2		1.3%					1				
Thurbook (Inc Thames Portist)   22   12%   0.9%   0.2%			6		0.3%			0.50/								
Uttesford (in: Stansted    122   6.5%   3.3%			9			0.004	0.007	0.5%				-				
E00004498: Chelmstord 001   Wathams, Great Leighe   122   6.5%					2 20/	0.9%	0.2%					1	2 20/			
E02004488: Chelmistord 002   Broomfield   153   5,2%		Walthams Great Laighs			3.3%							2 20/	3.3%	2 20/		
E02004487 Chelmsford 003	F02004486 : Chelmsford 002											3.3%				
E02004489 Chelmisford 004																
E2004499 : Chelmsford 005   Boreham / Little Baddow   71   3.3%         3.8%							0.8%							0.070		
E200449: Chelmsford 006							2.370								3.8%	
E02004491 : Chelmsford 007   Springfield south   15   0.8%   0.8%   0.8%   0.8%   0.00004493 : Chelmsford 008   Chelmsford 009   Rainsford Road / Waterhouse Lt   84   4.5%   4.5%   4.5%   0.0%   0														1.0%		
E02004492   Chelmsford 008																
E02004494 : Chelmstord 010	E02004492 : Chelmsford 008		37													
E02004495 : Chelmsford 011	E02004493 : Chelmsford 009								·	<u> </u>	<u> </u>					
E02004496 : Chelmsford 012							13.1%									
E02004497 : Chelmsford 013   Sandon / Howe Green   24   1.3%														1.1%		
E02004498 : Chelmsford 014   Great Baddow south/west   12   0.6%   0.6%   0.2																
E02004499 : Chelmsford 015   Moulsham Lodge   4   0.2%   0.2%   0.2%   0.5%																
E02004500 : Chelmsford 016   Danbury / Bicknacre   17   0.9%     0.5%	E02004498 : Chelmsford 014															
E02004501 : Chelmsford 017							0.2%								0.00/	
E02004502 : Chelmsford 018   Margaretting / Hanningfields   14   0.7%   0.4%   0.4%   0.4%   0.0%		·					O 50/								0.370	
E02004503 : Chelmsford 019 SWF North 14 0.7% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0% 0.0%												1			0.4%	
E02004504 : Chelmsford 020 SWF South 0 0.0% 0.0% 0.0% 0.0% 0.3% 0.3% 0.3% 0.															0.770	
E02004505 : Chelmsford 021   Rettendon   5   0.3%   0.3%   0.3%   0.9%   1.2%   3.9%   0.0%   3.3%   3.3%   14.4%   5.1%			0													
TOTAL   1,871     1,474   14.2%   36.3%   0.9%   1.2%   3.9%   0.0%   3.3%   3.3%   14.4%   5.1%			5													
Total for each route:    17.4%   14.2%   36.3%   0.9%   1.2%   3.9%   0.0%   3.3%   3.3%   14.4%   5.1%			1,871	,			2.370									
A131 North of Gt Leighs   17.4%					17.4%	14.2%	36.3%	0.9%	1.2%	3.9%	0.0%	3.3%	3.3%	14.4%	5.1%	
A131 North of Gt Leighs   17.4%																
A131 South of Sheepcotes rbt*																
B1008 SW, or minor rds eg. Gt W*   1.2%   3.9%   14.4%   19.5%   6.4%					17.4%		20.63									
Boreham Road /Goodmans   7.1%						7.1%	36.3%	0.9%	4.607	0.637				4 4 40 1		
Terminates in Great Leighs (add as note on diagram)   3.3%   3.						7.407			1.2%	3.9%				14.4%		
Moulsham West   3.3%   3.3%			Borenam Road /	oot Loighs (add =:	note on diagram	7.1%						2.20/				
*Assume 2/3rds via A131, 1/3rd via Great Leighs village sum: 21.1%					s note on diagram)							3.3%	2 20/			
*Assume 2/3rds via A131, 1/3rd via Great Leighs village			IVIOUISHAIII VV EST									<del> </del>	3.3%		3.3%	
Suiti. 21.176			*Assume 2/3rde v	i ≀ia A131_1/3rd via	Great Leighs village							1			sim.	21.1% 42.8%
Gt Leinhs   A			7.000mi 2/0ius V	7. 7. 10 1, 1/010 VIE	Longing village											Gt Leighs A131

### M18013 North and West Chelmsford Parishes

### Trip Distribution Initial Calculations (removed destinations with <5 residents) Google Maps - AM peak departure at 0800 from North of Broomfield access

WU03EW - Location of usual residence and place of work by method of travel to work (MSOA level)
ONS Crown Copyright Reserved [from Nomis on 20 February 2018]

All usual residents aged 16 and over in employment the week before the census population units

Persons

2011 date method of travel to work Driving a car or van

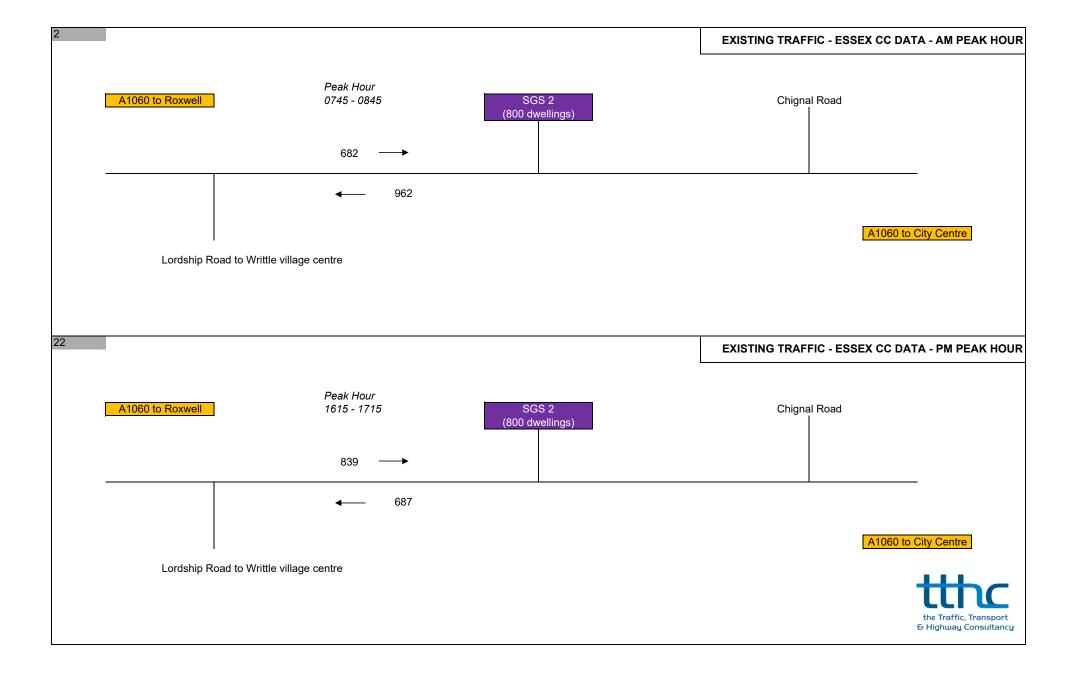
\*inc use of minor roads such as Wheelers Hill

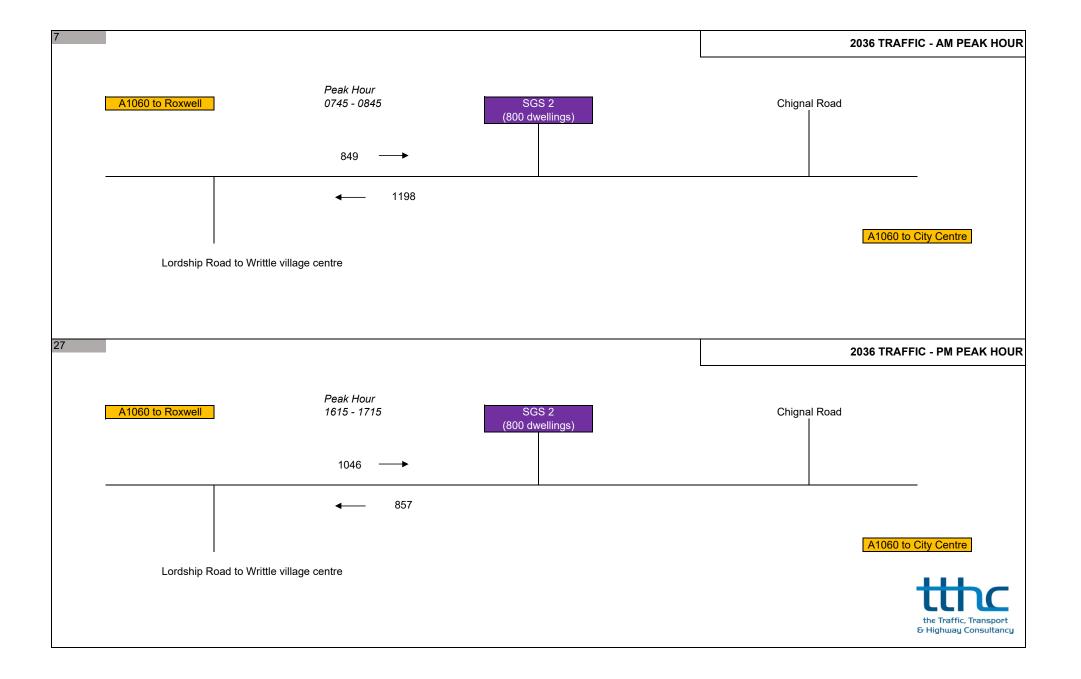
Additional routes for local journeys
Some of these terminate locally e.g. The Walthams

										Some of the	nese terminat	te locally e.g. T	he Walthan	กร	
Origin: Chelmsford 011				A131 N of Chelmsford	A12 SW of Chelmsford	A130 South / A414 East*	A12 NE of Chelmsford	A1060 West of Chelmsford	A414 West of Chelmsford	B1008 NW	Valley Bridge	B1008 local north	1008 local south		nediate local routes
Destination	Description if needed	Persons travelling to destination	% Split												
East Midlands		5	0.3%		0.3%									<u> </u>	
London		155	8.3%		6.6%				1.7%						8.3%
South East		29	1.5%		1.5%										1.5%
West Midlands		6	0.3%		0.3%										0.3%
Basildon		94	5.0%			5.0%									5.0%
Braintree		236	12.6%	12.6%											
Brentwood		62	3.3%		3.3%										
Broxbourne		6	0.3%		0.2%				0.2%						
Castle Point		11	0.6%			0.6%								1	
Colchester		31	1.7%				1.7%								
East Hertfordshire		23	1.2%					1.2%							
Epping Forest		32	1.7%		0.3%				1.4%						
Harlow		26	1.4%		0.7%				0.7%						
Maldon		41	2.2%			2.2%						1			
Rochford		18	1.0%			1.0%									
South Cambridgeshire		5	0.3%			1.576						0.3%			
Southend-on-Sea		25	1.3%			1.3%									
St Edmundsbury		6	0.3%	0.3%		,						1			
Tendring		9	0.5%	0.070			0.5%					1			
Thurrock [inc Thames Ports]		22	1.2%		0.9%	0.2%	0.070								
Uttlesford [inc Stansted]		122	6.5%		0.370	0.270		1.6%		4.9%					
E02004485 : Chelmsford 001	Walthams, Great Leighs	122	6.5%					1.070	1	4.970	1	1	6.5%		
E02004486 : Chelmsford 002	Broomfield	153	8.2%									8.2%	0.576		
E02004487 : Chelmsford 003		12	0.6%									0.270	0.6%		
	Chignal										0.00/		0.6%	<del></del>	
E02004488 : Chelmsford 004	Springfield around A130	15	0.8%			4.00/					0.8%			<del></del>	
E02004489 : Chelmsford 005	Boreham / Little Baddow	71	3.8%			1.9%					1.9%		4.00/	<b></b>	
E02004490 : Chelmsford 006	Melbourne East	19	1.0%								2.20/		1.0%		
E02004491 : Chelmsford 007	Springfield south	15	0.8%								0.8%			<b></b>	
E02004492 : Chelmsford 008	Chelmer Village	37	2.0%								2.0%				
E02004493 : Chelmsford 009	Rainsford Road / Waterhouse L		4.5%										4.5%	<b></b>	
E02004494 : Chelmsford 010	City Centre	245	13.1%								13.1%				
E02004495 : Chelmsford 011	Writtle	20	1.1%										1.1%		
E02004496 : Chelmsford 012	Princes Road	15	0.8%								0.8%				
E02004497 : Chelmsford 013	Sandon / Howe Green	24	1.3%								1.3%				
E02004498 : Chelmsford 014	Great Baddow south/west	12	0.6%								0.6%				
E02004499 : Chelmsford 015	Moulsham Lodge	4	0.2%								0.2%			<u> </u>	
E02004500 : Chelmsford 016	Danbury / Bicknacre	17	0.9%			0.2%					0.7%				
E02004501 : Chelmsford 017	Galleywood	9	0.5%								0.5%				
E02004502 : Chelmsford 018	Margaretting / Hanningfields	14	0.7%								0.6%		0.1%		
E02004503 : Chelmsford 019	SWF North	14	0.7%			0.7%									
E02004504 : Chelmsford 020	SWF South	0	0.0%			0.0%									
E02004505 : Chelmsford 021	Rettendon	5	0.3%			0.3%									
TOTAL		1,871													
Total for each route:				12.9%	14.2%	13.4%	2.1%	2.9%	3.9%	4.9%	23.3%	8.4%	13.9%	i	
				A131 N of	A12 SW of	A130 South /	A12 NE of	A1060 West of	A414 West of	B1008	Valley	B1008 local	1008 local		
		Allocate to immedi	oto logal rautes:	Chelmsford	Chelmsford	A414 East*	Chelmsford	Chelmsford	Chelmsford	NW	Bridge	north	south		
		Allocate to immedia		40.004						4.00/	1	0.40/		00.00/	00.007
		B1008 north of site		12.9%					4.007	4.9%		8.4%		26.3%	26.3%
		B1008 south of Bro	porntiela			10.151			1.9%		23.3%	2		25.3%	25.3%
		Valley Bridge			14.2%	13.4%	2.1%				-	<b> </b>		29.8%	29.8%
		School Lane						2.9%	1.9%		ļ	1	6.9%		11.7%
		Patching Hall (or se	ome via Kings)										6.9%	6.9%	6.9%

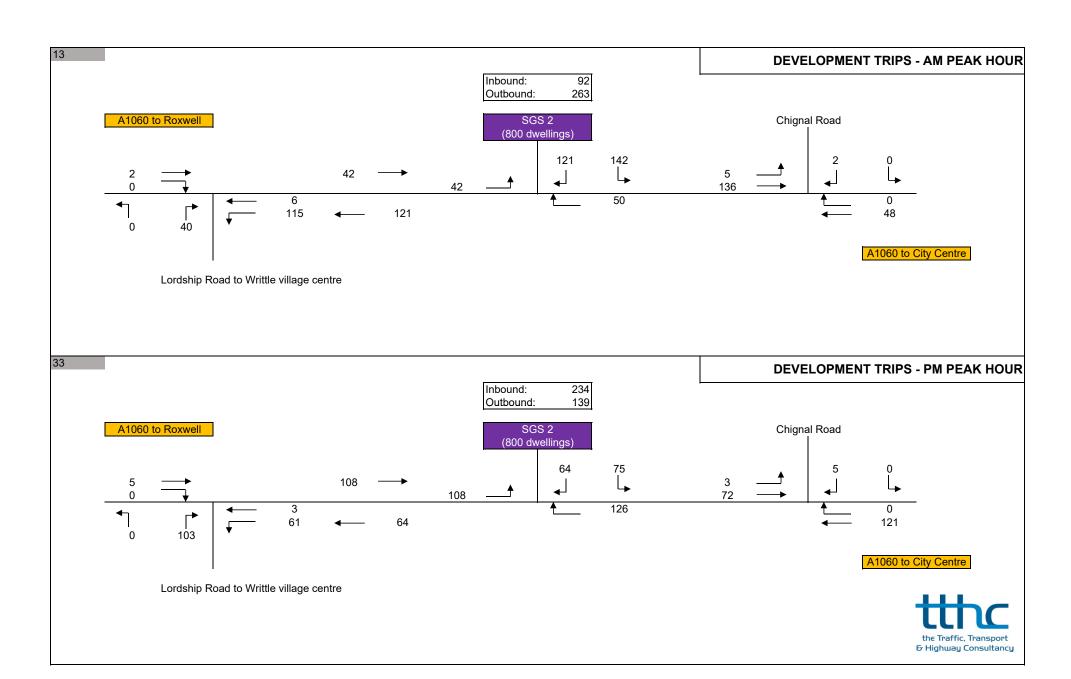
# **Appendix D**

Traffic Flows – Writtle Area



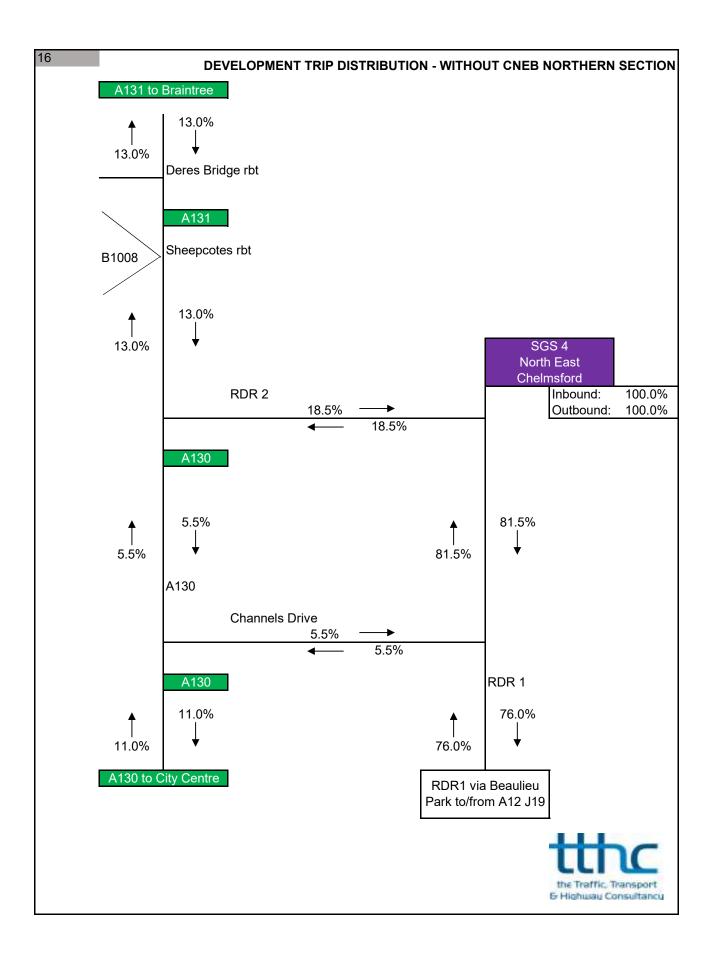


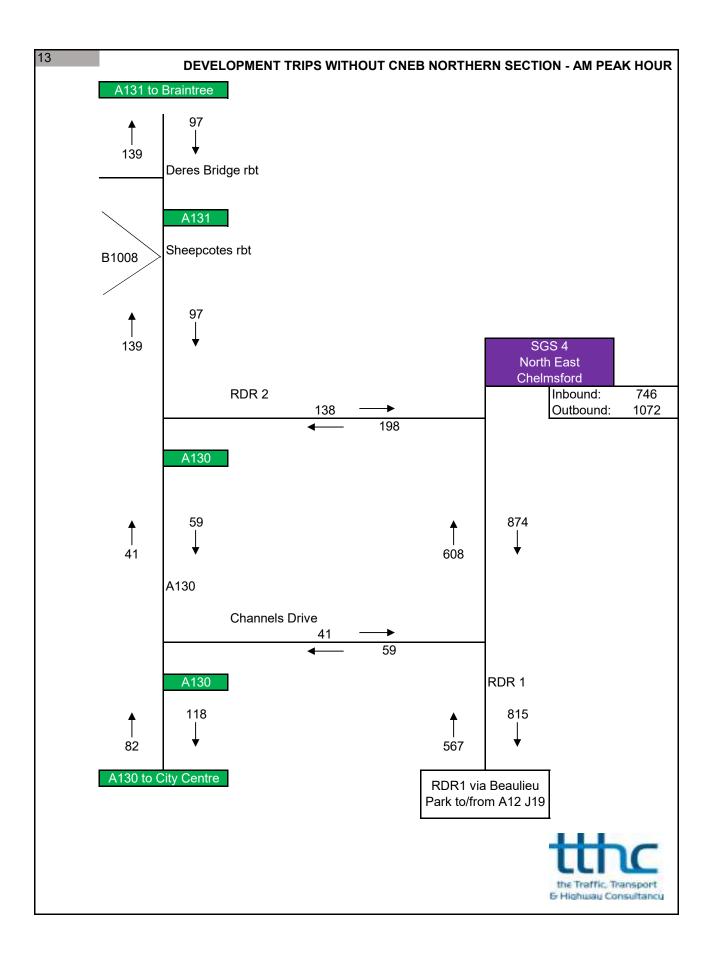


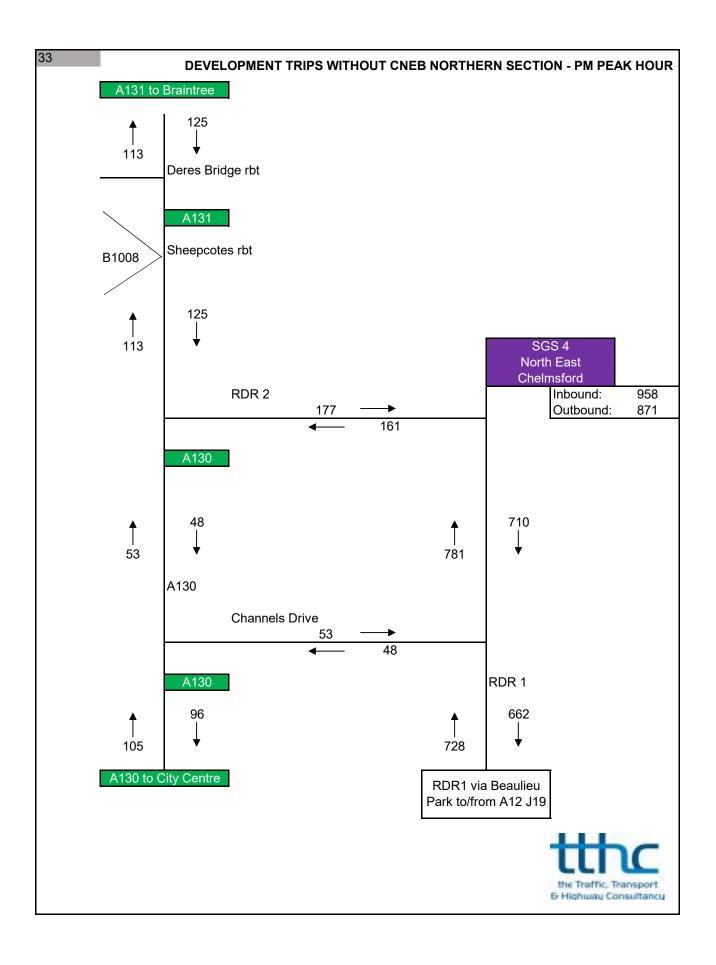


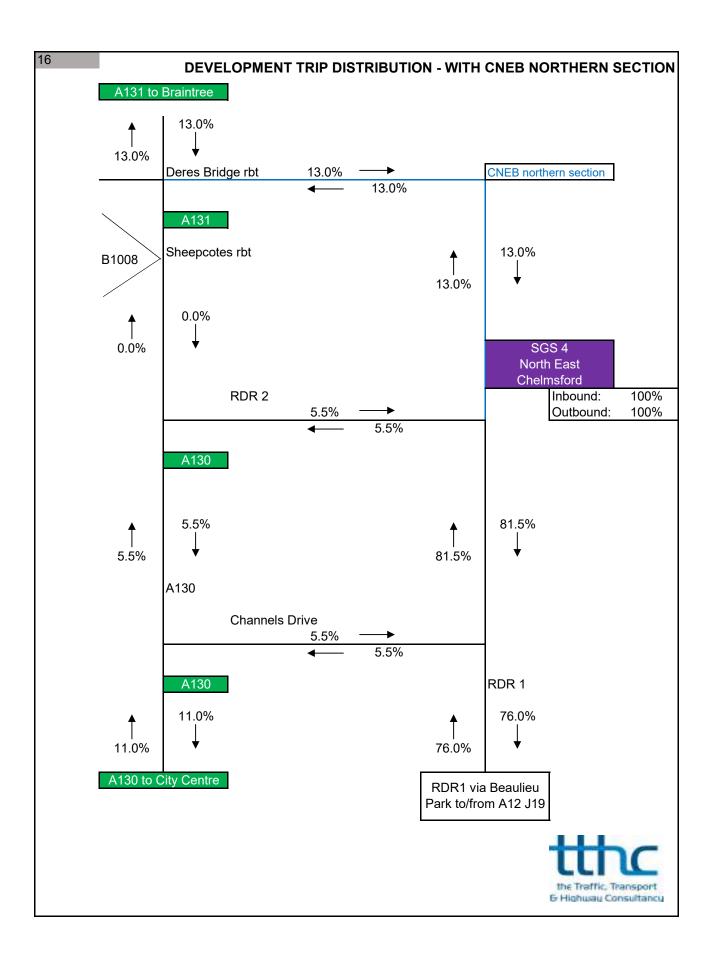
# **Appendix E**

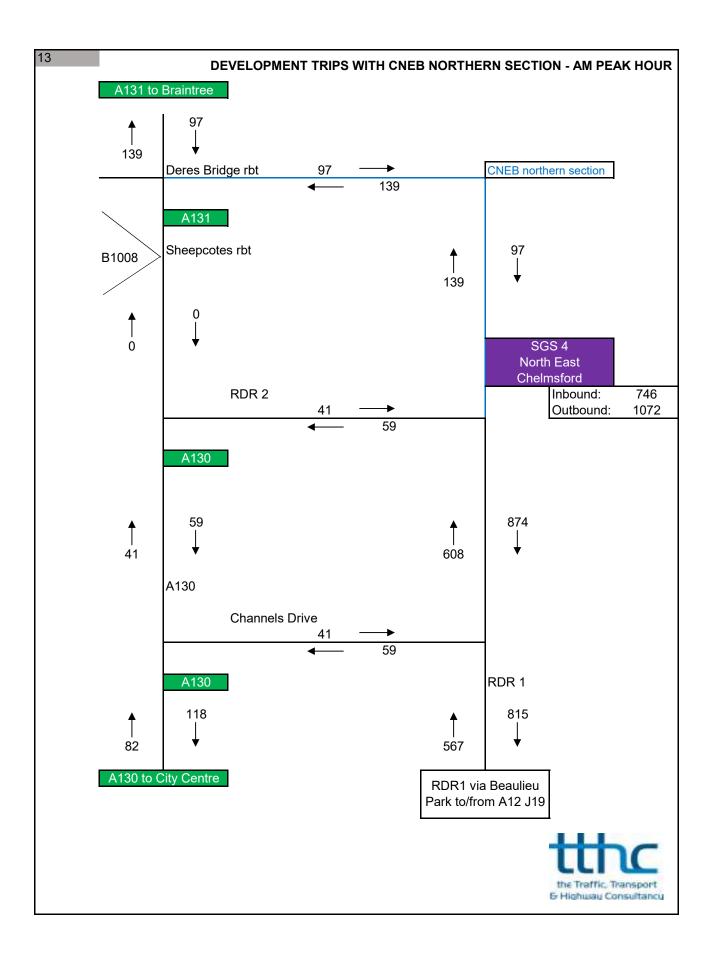
Traffic Flows - North East Chelmsford

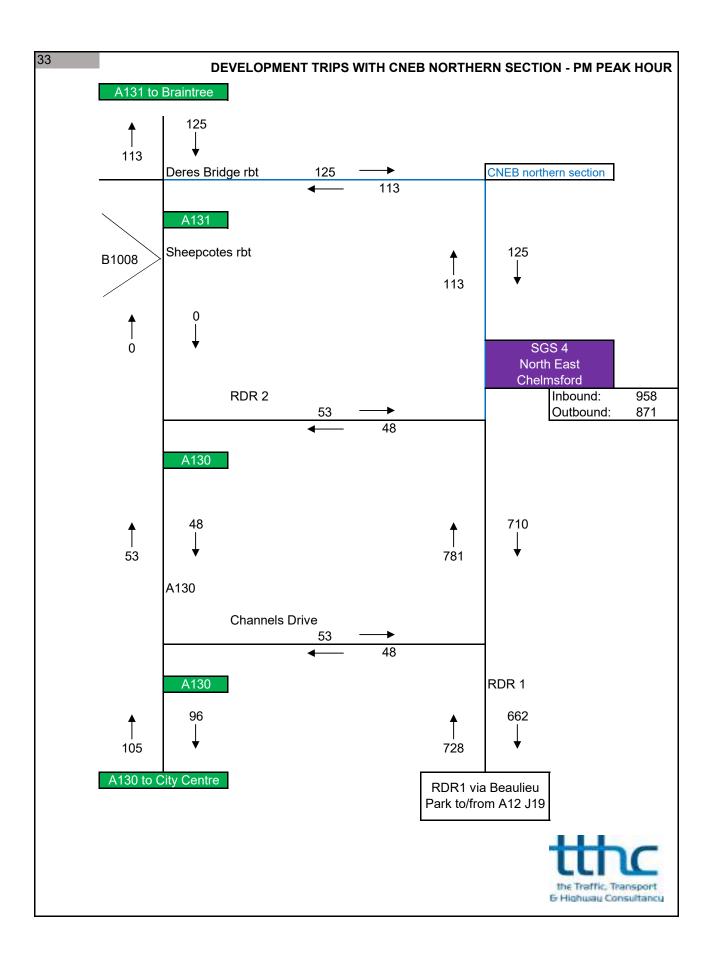






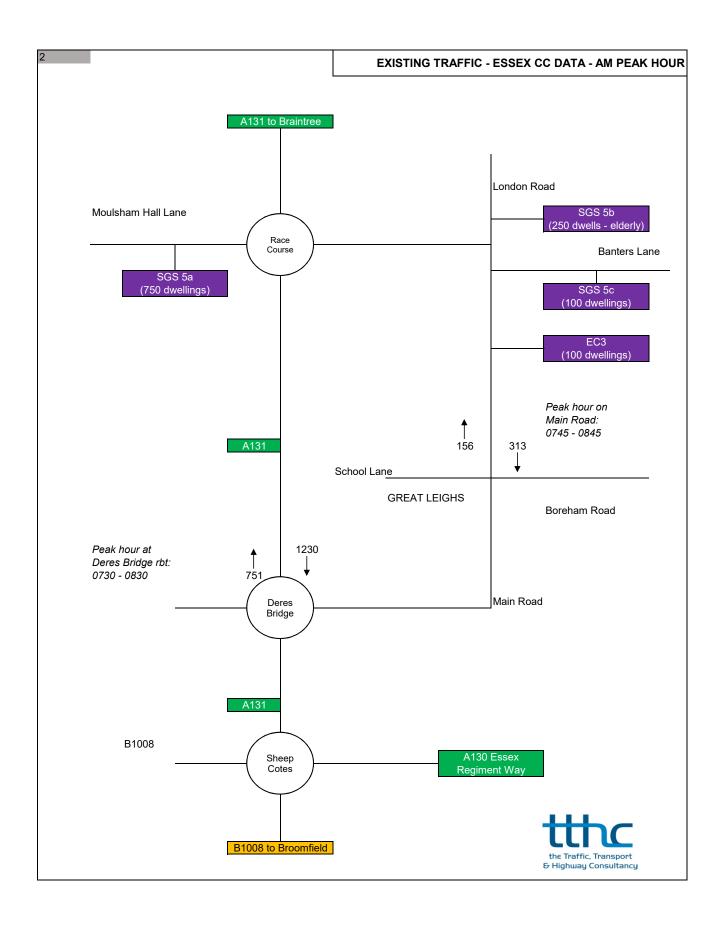


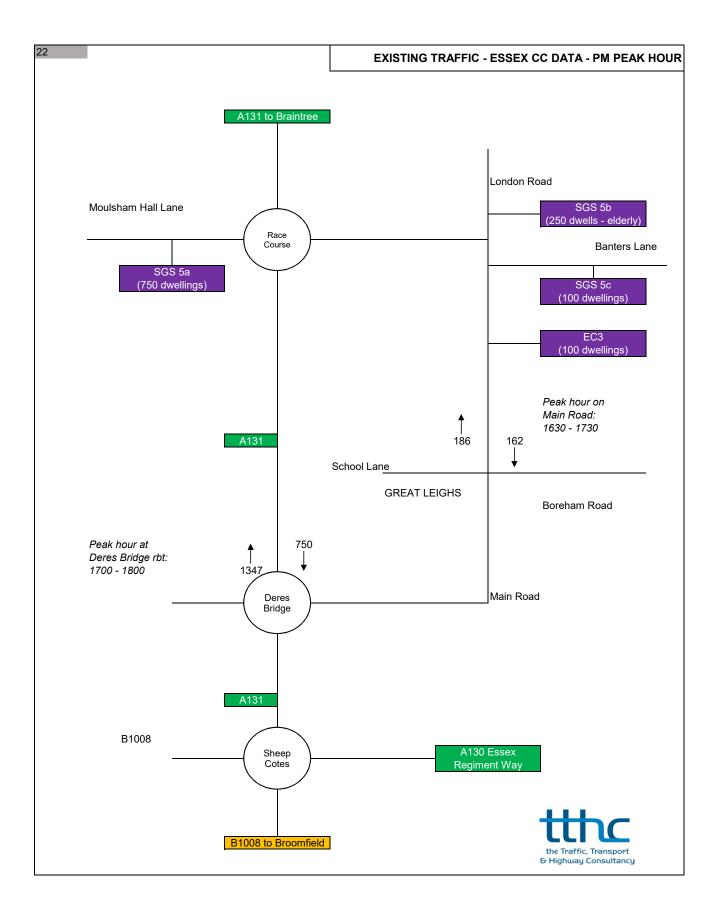


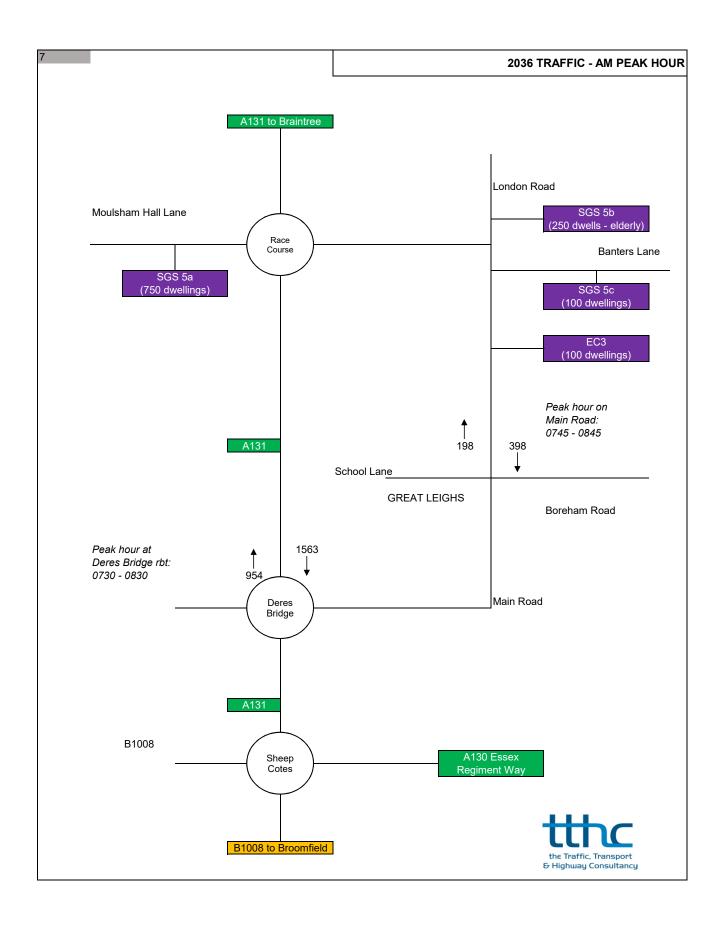


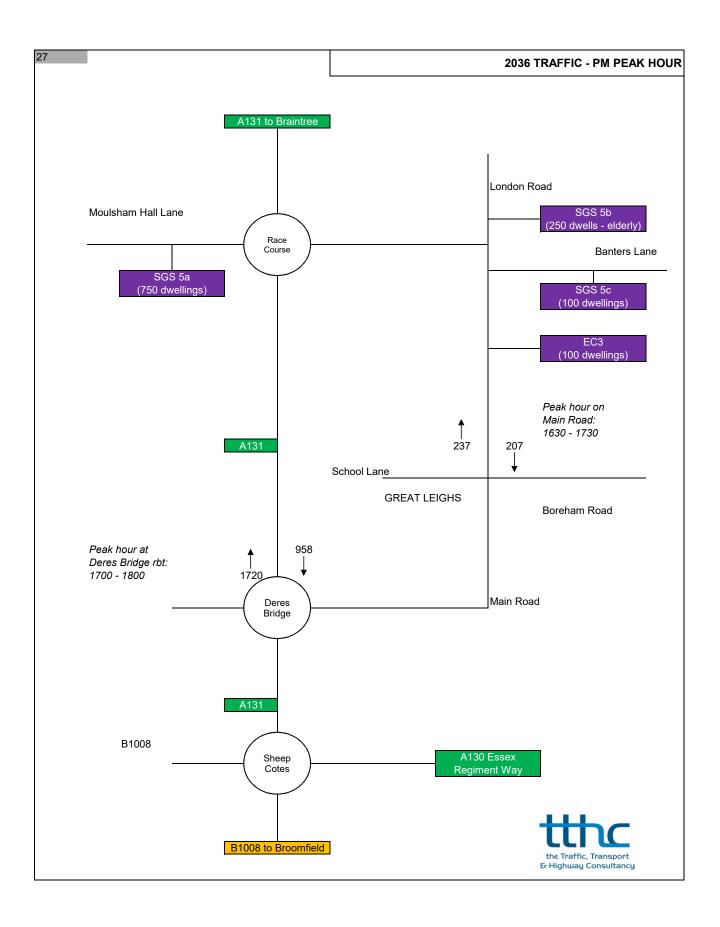
# **Appendix F**

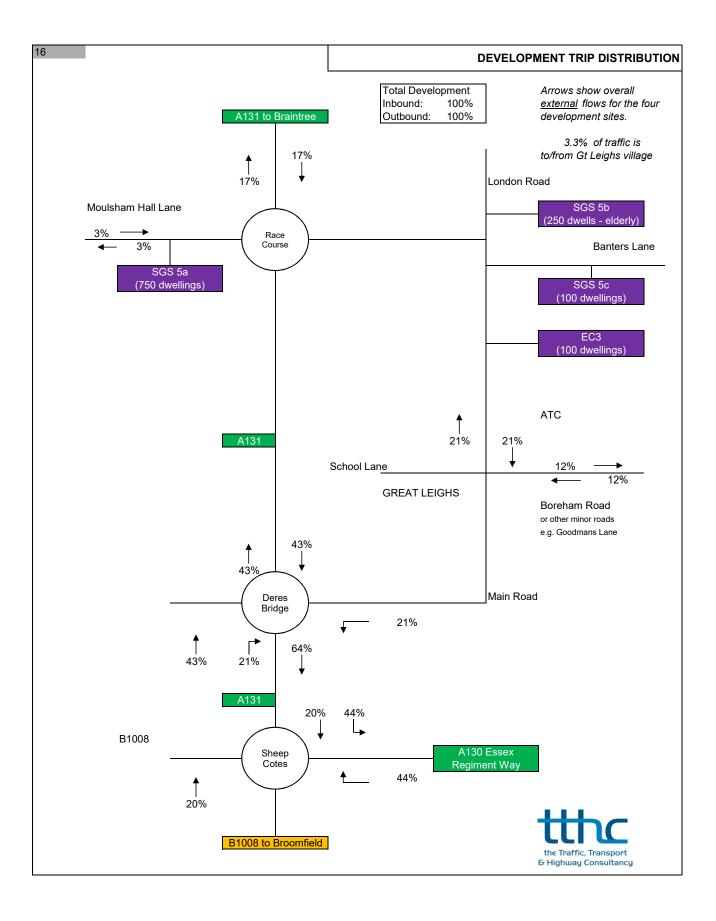
Traffic Flows – Great Leighs Area

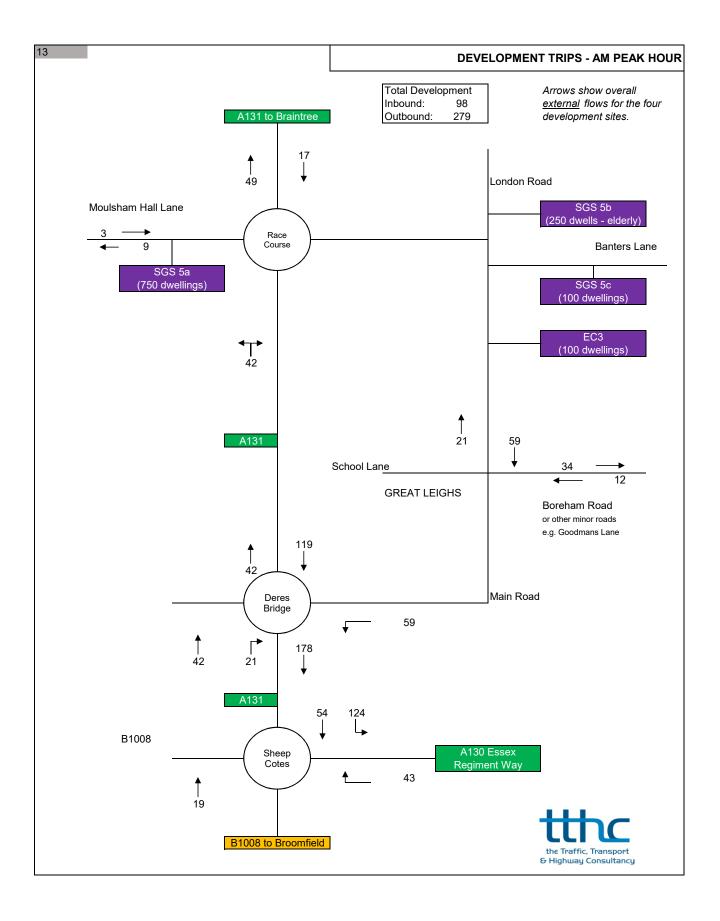


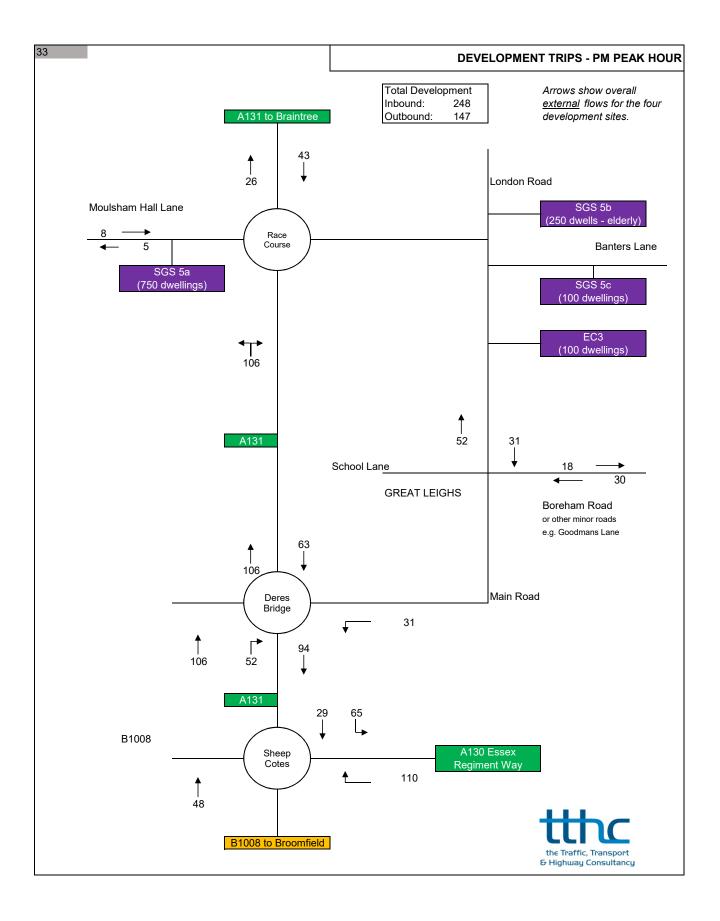






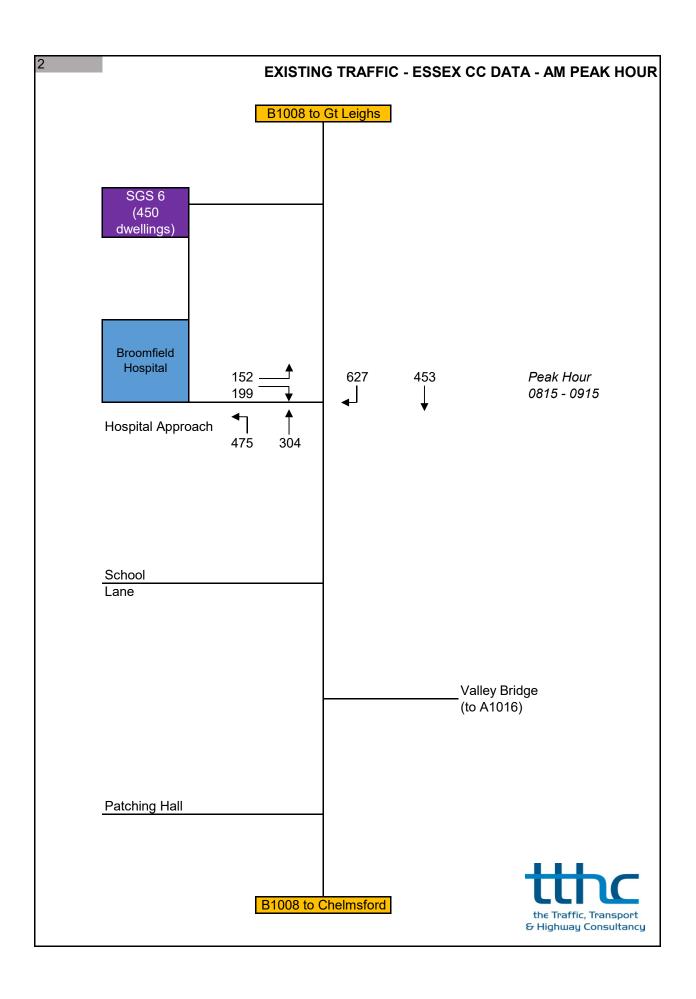


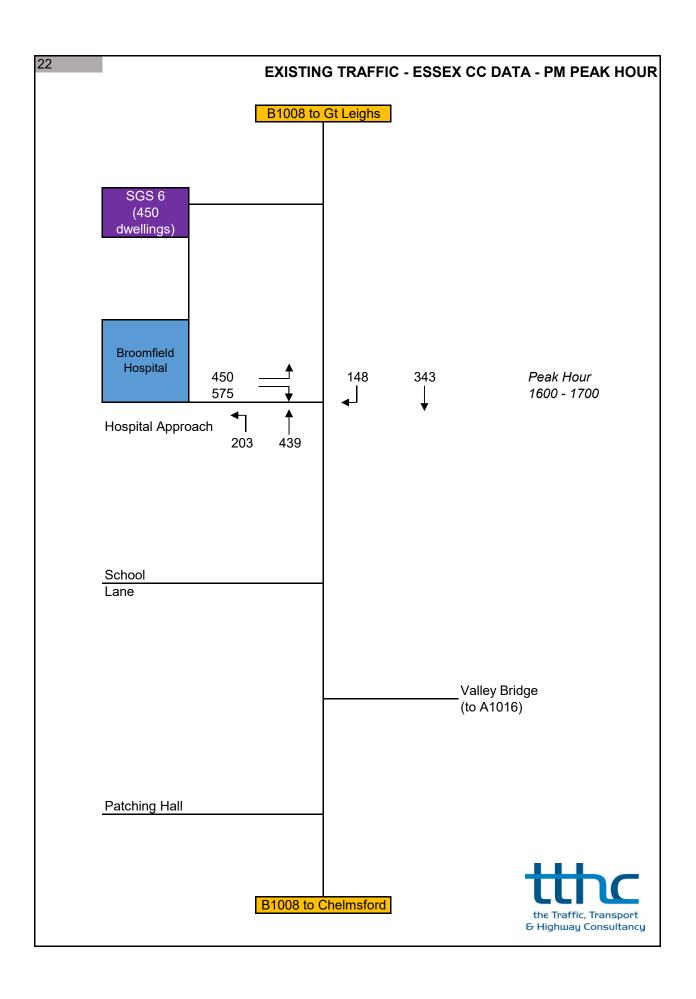


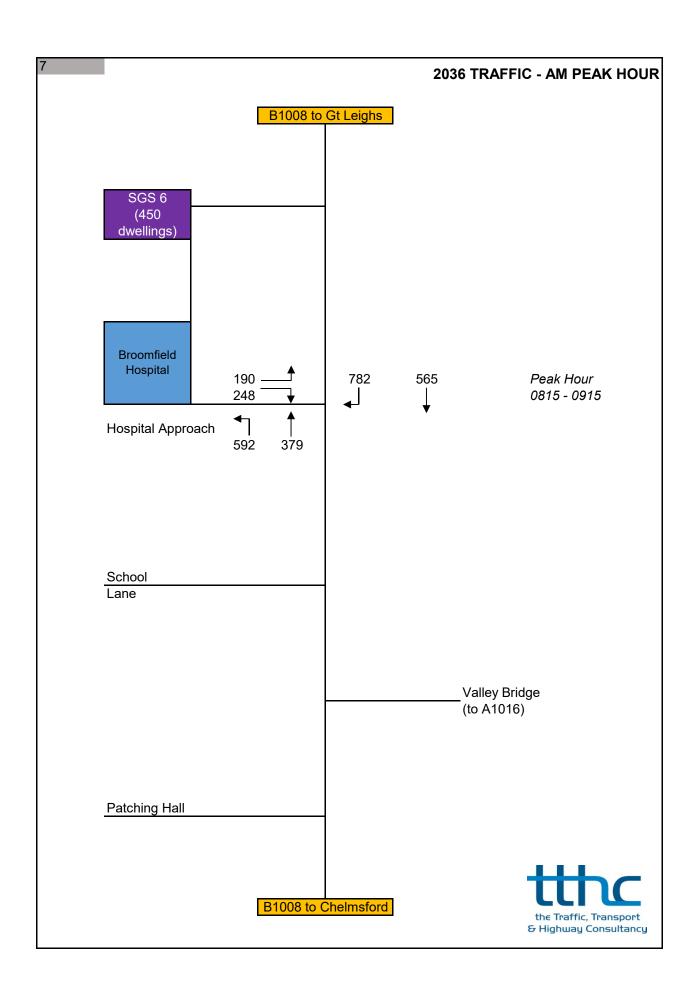


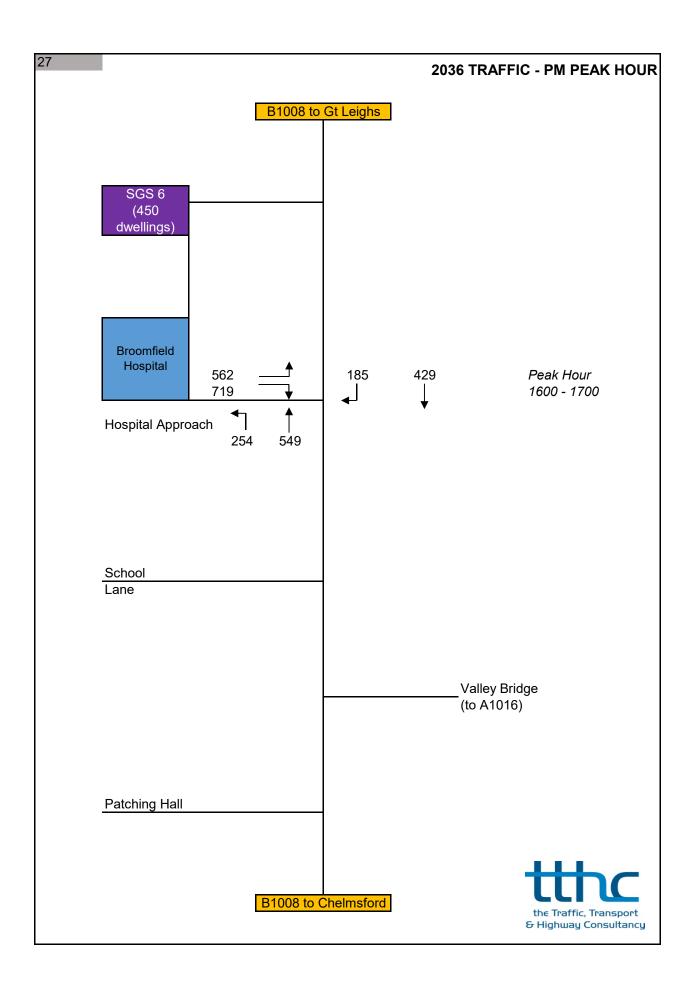
# **Appendix G**

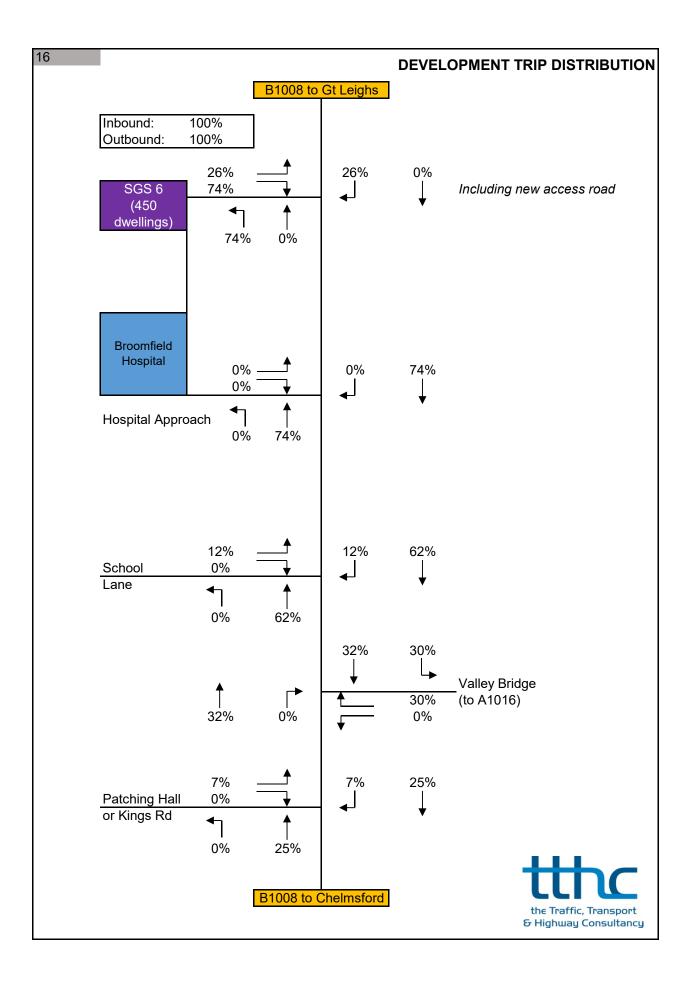
Traffic Flows – Broomfield Area

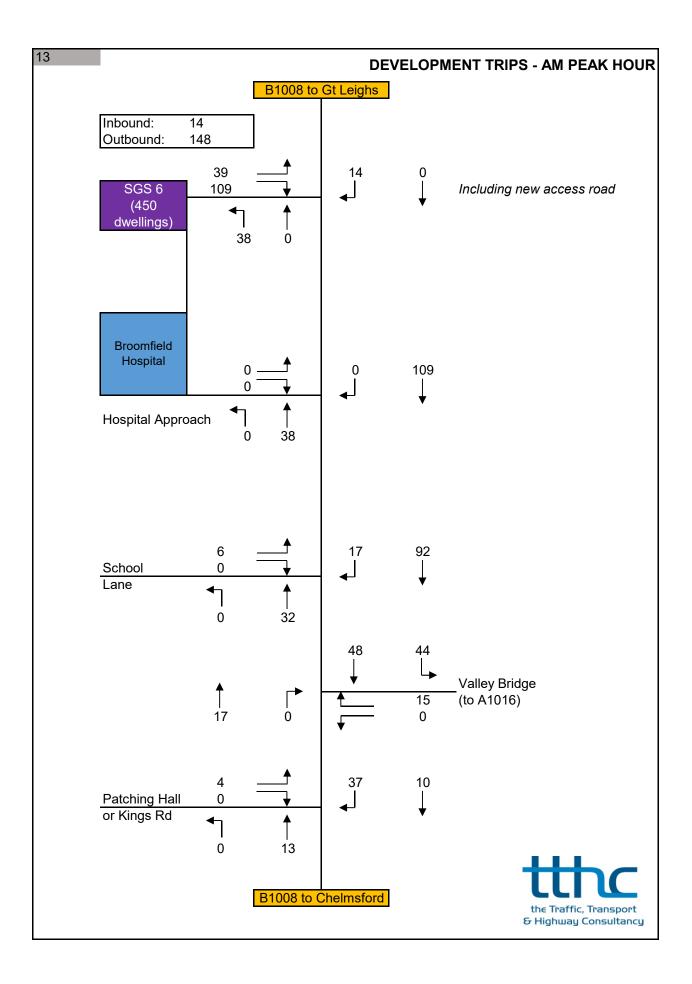


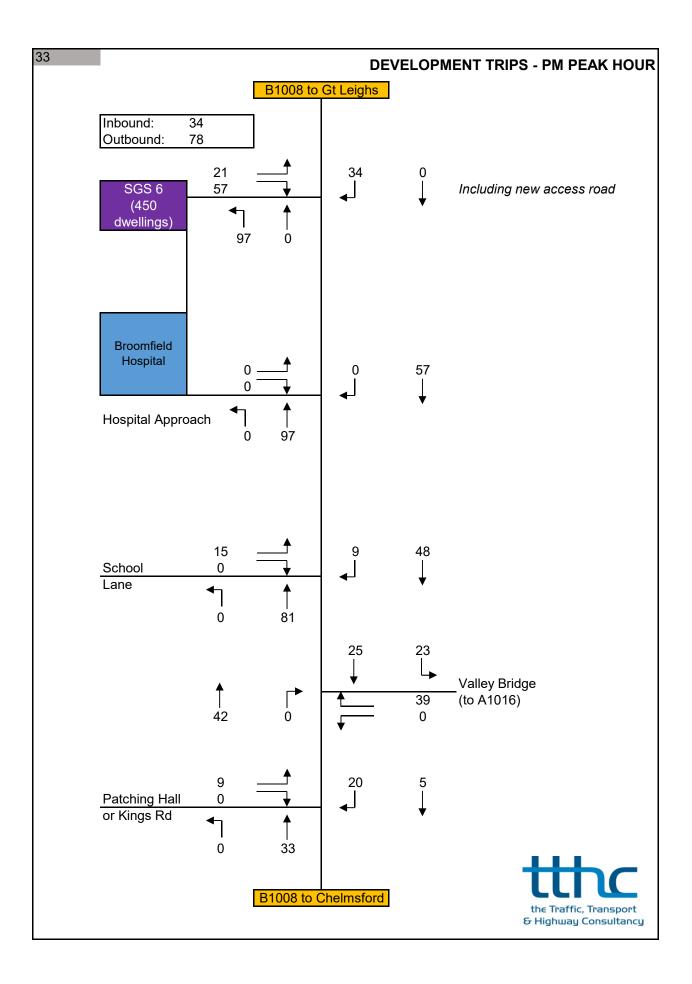


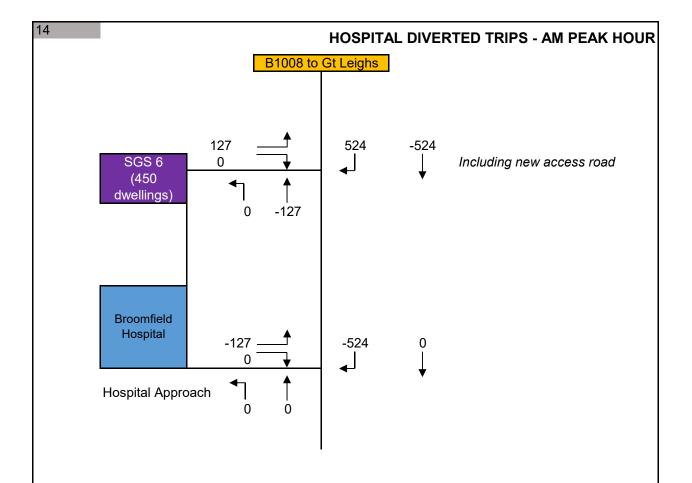




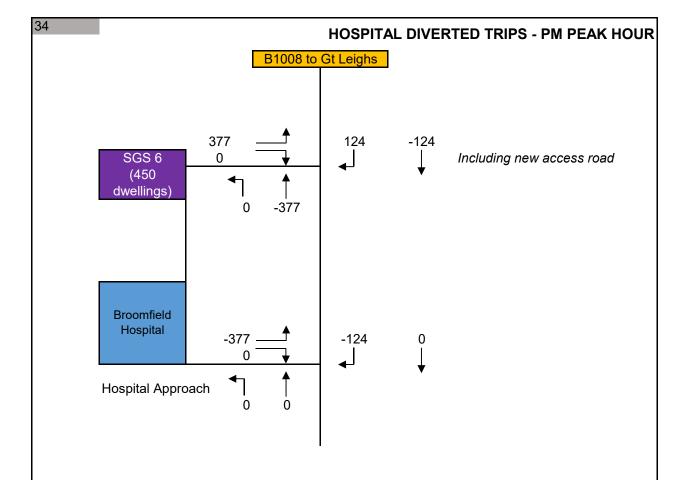














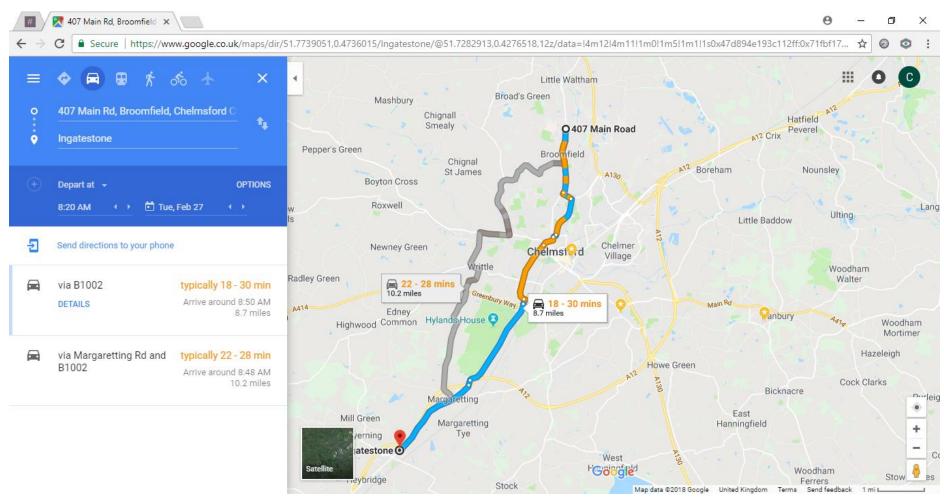
# **Appendix H**

Google Maps – Peak Time Journeys

### M18013 North and West Chelmsford Parishes Group

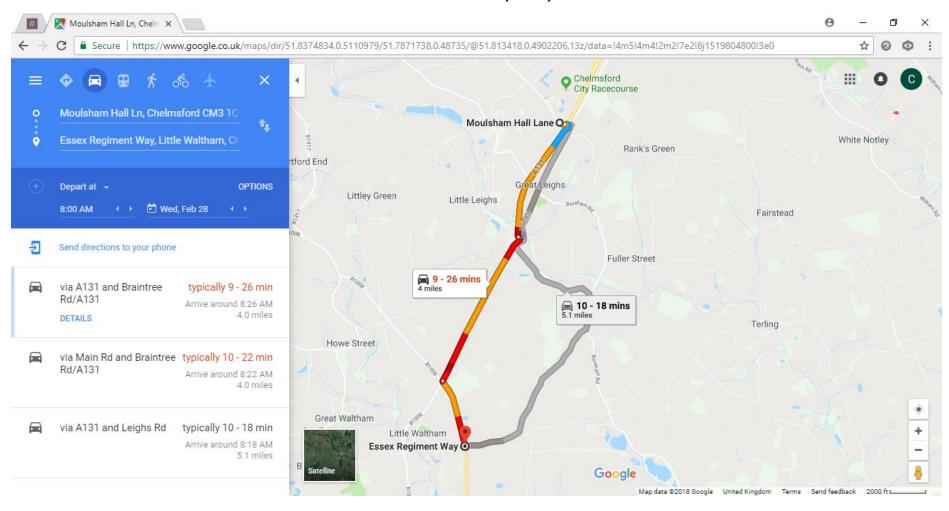
### Google Maps - Weekday AM Peak from Broomfield to A12 south west

Route via unclassified School Lane and Hollow Lane has similar or faster journey time to B1008 route



### Google Maps – Weekday AM Peak from Great Leighs to A131 Essex Regiment Way

Route via unclassified Main Road and Goodmans Lane has similar or faster journey time to A131 route



### M18013 North and West Chelmsford Parishes Group

### Google Maps – Weekday AM Peak from Great Leighs to A12

Route via unclassified Goodmans Lane is faster than via A131

