



Chelmsford Traffic and Access Strategy

Essex County Council

Traffic Forecast Report

V2

26 August 2016 Essex County Council





Chelmsford Traffic and Access Strategy

Project No:	B3553T37
Document Title:	Traffic Forecast Report
Document No.:	Draft
Revision:	Draft
Date:	26 August 2016
Client Name:	Essex County Council
Client No:	Essex County Council
Project Manager:	Csaba Kelen
Author:	Pablo Vilarino
File Name:	Document2

Jacobs U.K. Limited

New City Court 20 St Thomas Street London SE1 9RS United Kingdom T +44 (0)20 7939 6100 F +44 (0)20 7939 6103 www.jacobs.com

© Copyright 2016 Jacobs U.K. Limited. The concepts and information contained in this document are the property of Jacobs. Use or copying of this document in whole or in part without the written permission of Jacobs constitutes an infringement of copyright.

Limitation: This report has been prepared on behalf of, and for the exclusive use of Jacobs' Client, and is subject to, and issued in accordance with, the provisions of the contract between Jacobs and the Client. Jacobs accepts no liability or responsibility whatsoever for, or in respect of, any use of, or reliance upon, this report by any third party.

Document history and status

Revision	Date	Description	Ву	Review	Approved
1	22/06/2016	TFR V1	Pablo Vilarino	Csaba Kelen	Csaba Kelen
2	26/08/2016	TFR V2	Pablo Vilarino	Csaba Kelen	Csaba Kelen



Contents

1.	Introduction	1
2.	Forecasting Approach	3
3.	Forecast Network Development	4
3.1	Highway Network	4
3.2	Public Transport Network	6
4.	Travel Demand Forecast Development	8
4.1	Input data	8
4.2	2021 Forecast Methodology	9
4.3	2036 Forecast Methodology	12
5.	Travel Demand Forecast Results	13
5.1	Highway Demand Forecasts (2021, 2036)	13
5.2	Public Transport Demand Forecasts (2021, 2036)	16
6.	Forecast Assignments	18
6.1	Generalised Cost Functions	18
6.2	Highway Assignments	19
6.3	Highway Differential Assignments	25
6.4	Public Transport Assignments	29
6.5	Public Transport Differential Assignments	32
7.	Highway Journey Times	35
8.	Summary	39
Appen	dix A. Housing Developments (Copy of 5 Year Rolling Supply April 2015 from CCC)	40
Appen	dix B. Non-Housing Developments	41
Appen	dix C. Summary of 2021 Planning Data by Zone	43
Appen	dix D. Tripend growth by year and mode, Highways	50

Appendix E. Tripend growth by year and mode, Public Transport......53



Tables

Table 1 Planned Highway Infrastructure Developments	4
Table 2 Planned Public Transport Infrastructure Developments	6
Table 3 NE Chelmsford Rail Station service frequencies	7
Table 4 Crossrail service frequencies	7
Table 5 Expected new developments by 2021 Chelmsford Urban and Administrative areas	8
Table 6 Car trip period rates by specific land use (veh/unit/period)	9
Table 7 2021 Rail trip rates derived from TRICS and TEMPro proportions (person/unit/period)	10
Table 8 2021 Bus trip rates derived from TRICS and TEMPro proportions (person/unit/period)	10
Table 9 Income and fuel cost adjustment factors	11
Table 10 LGV and HGV growth factors, WebTAG, TSGB0707	12
Table 11 Tripend forecasts by time horizon, time period, trip purpose and vehicle type	13
Table 12 Tripend percentage growth relative to base year by time horizon time period, trip purpose and vehicl	le
type	13
Table 13 Tripend forecast by time horizon, vehicle type and model sector, AM	14
Table 14 Tripend percentage growth relative to base year by time horizon, vehicle type and model sector, AM	114
Table 15 TEMPro and Model growth comparison by time horizon, time period, and trip purpose for year 2021	14
Table 16 TEMPro and Model growth comparison by time horizon, time period, and trip purpose for year 2036	15
Table 17 Public transport tripend forecasts by time horizon, time period and mode	16
Table 18 Public transport tripend growth relative to base year by time period and mode	16
Table 19 Public transport tripend forecast by year and mode, AM	17
Table 20 Public transport tripend percentage growth (from 2014) by year and mode, AM	17
Table 21 Generalised cost function parameters for year 2014, 2021 and 2036 (without non-fuel costs)	18
Table 22 Journey time routes description	36
Table 23 Journey time route comparison for 2014 vs 2021 in AM, IM and PM peak hour, Cars	36
Table 24 Journey time route comparison for 2014 vs 2021 in AM, IM and PM peak hour, GVs	37
Table 25 Journey time route comparison for 2014 vs 2036 in AM, IM and PM peak hour, Cars	37
Table 26 Journey time route comparison for 2014 vs 2036 in AM, IM and PM peak hour, GVs	38

Figures

Figure 1 Planned Highway Infrastructure Developments, 2021	5
Figure 2 Planned Highway Infrastructure Developments from 2021 to 2036	5
Figure 3 LGV and HGV Traffic Forecasts, WebTAG TSGB0707	. 11
Figure 4 Highway assignment in the AM peak hour in Year 2021 (veh/hr/direction)	. 19
Figure 5 Highway assignment in the IP hour in Year 2021 (veh/hr/direction)	. 19
Figure 6 Highway assignment in the PM peak hour in Year 2021 (veh/hr/direction)	. 20
Figure 7 Highway assignment in the AM peak hour in Year 2036 (veh/hr/direction)	. 21
Figure 8 Highway assignment in the IP hour in Year 2036 (veh/hr/direction)	. 21
Figure 9 Highway assignment in the PM peak hour in Year 2036 (veh/hr/direction)	22
Figure 10 Level of congestion in the AM peak hour (Volume over capacity in %) 2021	22
Figure 11 Level of congestion in the IP hour (Volume over capacity in %) 2021	23
Figure 12 Level of congestion in the PM peak hour (Volume over capacity in %) 2021	23
Figure 13 Level of congestion in the AM peak hour (Volume over capacity in %) 2036	. 24
Figure 14 Level of congestion in the IP hour (Volume over capacity in %) 2036	. 24
Figure 15 Level of congestion in the PM peak hour (Volume over capacity in %) 2036	25
Figure 16 Highway AM peak hour 2021 - 2014 differential plot (total volume)	25
Figure 17 Highway IP hour 2021 - 2014 differential plot (total volume)	26
Figure 18 Highway PM peak hour 2021 - 2014 differential plot (volume difference)	26
Figure 19 Highway AM peak hour 2036 - 2014 differential plot (total volume)	. 27
Figure 20 Highway IP hour 2036 - 2014 differential plot (volume difference)	. 27
Figure 21 Highway PM peak hour 2036 - 2014 differential plot (volume difference)	. 28
Figure 22 Public transport assignment in the AM peak hour in Year 2021 (pass/hr/direction)	29
Figure 23 Public transport assignment in the IP hour in Year 2021 (pass/hr/direction)	. 29
Figure 24 Public transport assignment in the PM peak hour in Year 2021 (pass/hr/direction)	30
Figure 25 Public transport assignment in the AM peak hour in Year 2036 (pass/hr/direction)	30
Figure 26 Public transport assignment in the IP average hour in Year 2036 (pass/hr/direction)	31



Figure 27 Figure 18 Public transport assignment in the PM peak hour in Year 2036 (pass/hr/direction)	31
Figure 28 Public transport AM peak hour year 2021 - year 2014 differential plot (pass/hr/direction)	32
Figure 29 Public transport IP average hour year 2021 - year 2014 differential plot (pass/hr/direction)	32
Figure 30 Public transport PM peak hour year 2021 - year 2014 differential plot (pass/hr/direction)	33
Figure 31 Public transport AM peak hour year 2036 - year 2014 differential plot (pass/hr/direction)	33
Figure 32 Public transport IP average hour year 2036 - year 2014 differential plot (pass/hr/direction)	34
Figure 33 Public transport PM peak hour year 2036 - year 2014 differential plot (pass/hr/direction)	34
Figure 34 Inter-Urban Journey Time routes	35
Figure 35 Intra-Urban Journey Time routes	35



1. Introduction

- 1.1.1 Over the next decade, Chelmsford is expected to face significant growth and the challenge of meeting increasing travel demand whilst actively encouraging economic growth. In order to facilitate this, Essex County Council (ECC) needs to be in a position to understand the current and future transport problems in Chelmsford to successfully bid for funding that will be made available via the Local Enterprise Partnership (LEP), and via national funding sources such as Pinch Point and Major Transport Schemes funding.
- 1.1.2 To be in a position to make the case for national funding allocations, in accordance with Government's technical guidance such as the Department for Transport (DfT) Transport Analysis Guidance document (WebTAG) or the Design Manual for Roads and Bridges (DMRB), it is essential to provide highly quantitative evidence on travel demand. These outputs will eventually be fed into business-case appraisal by using Transport-User Benefit Analysis (TUBA) in accordance with DfT guidance.
- 1.1.3 Jacobs was commissioned by ECC to construct a fully WebTAG compliant mobile phone based multi-modal transport strategic model for the city of Chelmsford, and its administrative area. The model provides a means of better understanding travel patterns, travels costs, journey times and mode choice for a 2014 base year and 2021 and 2036 forecast year scenarios.
- 1.1.4 The model can also be used to inform on the delivery of strategic planning, local plans, network management and environmental assessment and monitoring, offering potential benefits across a wide range of Council functions. The model could also be a useful tool in support of the delivery of major projects through statutory planning processes.
- 1.1.5 The model forecast proposed for the Chelmsford Strategic Transport Model is consistent with the procedures for travel demand forecasting set out in national guidance. The base year model was based on mobile phone data and calibrated to match WebTAG criteria, please refer to the Model Specification Report, Traffic Data Collection Report and Local Model Validation Report for further details on this.
- 1.1.6 The forecast model was developed for the years 2021 and 2036 supported by planning data and infrastructure development information from Chelmsford City Council (CCC) and ECC. At the time of the preparation of the model, public transport networks and timetables were partially available and therefore some assumptions have been made following advice from local planners.
- 1.1.7 Before the Chelmsford Multi-Modal Strategic Model could be used for Major Scheme Business Cases, the following tasks were completed:
 - · Incorporation of observed origin-destination data into demand matrices
 - WebTAG compliant model calibration/validation of the existing model
 - Coding of future highway and public transport networks and future timetables
 - Developing future year highway and public transport demand by using fixed growth.
- 1.1.8 The Variable Demand Model, VDM, is expected to be incorporated into the model in later stages of this commission. Travel forecasts shown in this report are based on direct forecast approach. This reflects the effect socioeconomic growth and change in income and fuel price on transport demand. Therefore, the impact of congestion or new infrastructure is not reflected in future demand.
- 1.1.9 The model was developed using PTV VISUM software as the preferred platform to ensure compatibility with ECC's existing local models. In addition, it is envisaged that the model will be used to inform the development of the Essex Countywide Strategic Model.



- 1.1.10 This report is intended to detail, discuss and justify any assumptions used during the forecasting process and present an overview of the calculated traffic forecasts using the Chelmsford Strategic Model.
- 1.1.11 The following sections of this report will cover topics such as:
 - Chapter 2: Forecasting Approach
 - Chapter 3: Forecast Network Development
 - Chapter 4: Travel Demand Forecast Development
 - Chapter 5: Travel Demand Forecast Results
 - Chapter 6: Forecast Assignment
 - Chapter 7: Highway Journey Times
 - Chapter 8: Summary



2. Forecasting Approach

- 2.1.1 Based on consultations with the client, travel demand forecasts were developed for years 2021 and 2036. These years were chosen to accommodate Chelmsford City Council Local Plans and planning data, which span these 15 years.
- 2.1.2 The travel demand forecast approach was to apply trip-end forecasts for highway and public transport matrices for AM, IP and PM peak hour. The trip-end forecasts were developed by using the local planning data within Chelmsford Administrative Area, the national standard for trip generation analysis (TRICS) and National Trip End Model (TEMPro), for car and public transport trips. For LGV and HGV trips, DfT's National Road Traffic Forecast (NRTF) growth rates were employed.
- 2.1.3 Trip-end forecasting was done by implementing a doubly constrained Furnessing Projection Process, using an appropriate number of iterations and a quality factor to achieve convergence on both the origins and destinations. Former brownfield sites where big developments are expected, as part of the provided planning data from CCC and ECC, were synthetically infilled, prior to the Furnessing process, to ensure appropriate trip distributions were obtained.
- 2.1.4 The reference forecasts were undertaken using a WebTAG-based approach to forecast future demand. As the VDM is not yet available, a fixed demand forecasting approach has been used.
- 2.1.5 Standard variable demand modelling, VDM, will be developed at a later stage to support WebTAG compliant Major Scheme Business Case applications of the model.



3. Forecast Network Development

3.1 Highway Network

- 3.1.1 The Base Year 2014 modelled network was originally created using Ordinance Survey Integrated Transport Network (ITN), open source digital mapping tools and field observations. Within Chelmsford City centre and the surrounding areas within its Administrative area, the ITN network was used, as a basis for the modelled network, at its maximum level of detail and resolution. Beyond these boundaries the resolution of the model gradually decreases. A detailed description of the networks may be found in the Model Specification Report, MSR, and the Local Model Validation Report, LMVR.
- 3.1.2 Data was requested from both CCC and ECC to add planned highway network infrastructure schemes to the existing road network for both time horizons 2021 and 2036. Please see Table 1 for the list of highway schemes, coded into the network, along with their expected delivery date, and Figure 1 and Figure 2 for a map showing their locations.
- 3.1.3 The planned infrastructure developments were added to the maximum level of detail, however, due to the fact that some of these improvements to the network are still undergoing development, a series of assumptions, see list below, were sometimes needed.
 - Link types were assigned based on the Base Year link types attempting to match the infrastructure development description
 - Junctions were coded in detail when information was available. For signalized junctions, reasonable signal times were applied using professional judgement.

Infrastructure Scheme	Description	Location	Delivery Date
Radial Distributor Road	Single carriageway distributor road including improvements to Boreham Interchange	Between Boreham Interchange J19 A12 to Belsteads Farm Junction on A130	2021
Chelmer Viaduct	Replacement of Viaduct by Highways England. Single carriageway with footway/cycleway on western side	A138 Chelmer Road	Winter 2016
Colchester Road, Springfield	Widening to provide two lane approach to Sainsbury roundabout	A130 between J19 A12 northbound off slip at Drovers Way and Sainsbury roundabout	March 2017
Rectory Lane junction with Chelmer Valley Road	Widening of A1016 Chelmer Valley Road to extend two lane approach to Rectory Lane signals from Alan Cherry (ARU access)	Alan Cherry Drive to Rectory Lane	November 2017
NE Chelmsford by- pass	New strategic link dual carriageway	Between A12 J19 Boreham Interchange and Deres Bridge Junction on A131	2021- 2036
Army and Navy Improvements	Two way flyover or other scheme yet to be determined	or other scheme Army and Navy roundabout	

Table 1 Planned Highway Infrastructure Developments





Figure 1 Planned Highway Infrastructure Developments, 2021



Figure 2 Planned Highway Infrastructure Developments from 2021 to 2036



3.2 Public Transport Network

- 3.2.1 The bus network uses the same nodes and links as the highway network. Bus stops, service routes and timetable information were sourced from ATCO Cif files from Essex County Council. ArcGIS Shape files of the national rail network and London underground were used to define serviced routes. Rail and London Underground station data were sourced from NaPTAN data. Public Transport route and timetable information for coding and checking purposes were sourced from published on-line materials, see MSR and LMVR for further details on the Public Transport Base Year Network.
- 3.2.2 Data on future public transport networks was requested from ECC and CCC. At the time of the preparation of this report, one new railway station, Beaulieu Park, was coded, as part of a big development plan for the North East of Chelmsford. In addition, Crossrail was identified as a relevant improvement on the Rail network and with potential to effect on mode and route choice. See the table below for a full list of the Public Transport schemes considered.

Infrastructure Scheme	Description	Location	Delivery Date
NE Chelmsford Rail Station (Beaulieu Park)	New rail station and passing loops and 1,450 car parking spaces	NE Chelmsford	2021
CHART: Greater Beaulieu Park bus service	Liveried bus service from Greater Beaulieu Park to town centre, 20 min service daytime 30 mins eve. 30 mins sat, hourly Sun.	Stage 1 between site and town centre via Chelmer Valley road from White Hart Lane (WHL); Stage 2 as above but via new roundabout on Essex Reg Way (ERW); Stage 3 Additional bus via Chelmer Valley Road; Stage 4 via new Station	2021
Channels Bus service	30 min service 6am to 11pm Mon to Fri and 7am to 11pm Sat	Channels to town centre	2016
Widford or West Park and Ride	Park and Ride 700 space	A414 between Widford Roundabout and Margaretting Road or Roxwell Road (A1060) between junctions of Lordship Road and Chignal Road. Could be served by potential Western Relief Road	2021- 2036
North East Park and Ride	Park and Ride 700 space	J19 A12 Boreham Interchange	2021- 2036
Crossrail system	Crossrail service between Shenfield and Reading	Shenfield-Reading	2018

Table 2 Planned Public Transport Infrastructure Developments



JACOBS

NE Chelmsford Station services (services/hour/direction) Time Period Service AM IP PM Braintree to Liverpool Street Liverpool Street to Braintree Clacton-on-Sea to Liverpool Street Liverpool Street to Clacton-on-Sea Liverpool Street to Colchester Town Colchester Town to Liverpool Street Colchester to Liverpool Street Liverpool Street to Walton-on-the-Naz Liverpool Street to Witham Harwich Town to Liverpool Street Liverpool Street to Harwich Town Manningtree to Liverpool Street Total

Table 3 NE Chelmsford Rail Station service frequencies

Crossrail services from Shenfield (services/hour/direction)							
	Time Period						
Service	AM	IP	PM				
Shenfield to Paddington	8.7	4.0	8.7				
Shenfield to Heathrow	3.3	4.0	3.3				
Total	12	8	12				

Table 4 Crossrail service frequencies

3.2.4 For the public transport assignment, and following guidance from WebTAG Unit M3.2, see below, public transport fares were not included as part of the assignment as they are not thought as to affect route choice. Fare matrices will be added later in order to generalised public transport costs, which in turn will inform the Variable Demand Model.



4. Travel Demand Forecast Development

4.1 Input data

- 4.1.1 For Chelmsford Administrative Area, planning data, detailing the number of total additional residential units, was made available by CCC in the document "5 Year Rolling Supply April 2015" (Appendix A). This information was used as the basis of total planned dwelling units for the period between 2015 and 2021.
- 4.1.2 The document includes, amongst other, the following information:
 - Site Address
 - Permission status
 - Work stating date
 - Work competition date
 - Number of affordable dwelling units
 - Number of regular market dwelling units
- 4.1.3 The first step within the methodology was to assign each individual development, with a planned growth higher than 30 new dwelling units, to one or more corresponding model zones. For this purpose the full site address was used and accurate model zones assigned.
- 4.1.4 For those cases where the development fell within a series of model zones, specific shape files containing planning data development sites were overlaid on top of the model zone system and a spatial analysis of overlapping surfaces executed in order to estimate proportions.
- 4.1.5 Developments of less than 30 new dwelling units were added together and evenly distributed across the remainder of the Chelmsford Administrative Area in an attempt to reduce calculation times without impacting the overall model performance. See Table 5 below for a summary of the total number of new dwelling units expected by 2021 for the modelled area or refer to Appendix C for further details on expected new dwelling units at zone level.
- 4.1.6 In addition, commercial and industrial developments were also included within the matrices by implementing the same zone assignment process as previously explained for housing. Commercial and industrial developments are listed in Appendix B.

Expected new developments 2021	Residential (New dwellings)	Office and Business Parks (100 m2)	Retail (100 m2)	Leisure (100m2)
Chelmsford Urban Area	5033	34819	46872	1754
Chelsmford Administrative Area 6521		147319	46872	1754
Expected new developments 2021	Industrial and Warehouse (100 m2)	GP Surgery (100 m2)	Day Nursery (100 m2)	Community Centre (100 m2)
Chelmsford Urban Area	13286	1000	500	600
Chelsmford Administrative Area	13286	1000	500	600

Table 5 Expected new developments by 2021 Chelmsford Urban and Administrative areas



4.2 2021 Forecast Methodology

- 4.2.1 Fixed growth travel forecasts were prepared following WebTAG guidance (Unit M4, Forecasting and Uncertainty). Local planning growth data was used within the Chelmsford Administrative area based on committed housing developments "5 Year Rolling Supply April 2015 from CCC " (Appendix A), and "Other Non-Housing Related Developments" (Appendix A). National growth data was used outside of the Chelmsford Administrative area in the rest of the county of Essex and outside the county of Essex.
- 4.2.2 In the Chelmsford Administrative area, specific forecast car trip ends were calculated, for 2021 AM, IP and PM scenarios, by employing land use specific trip rates obtained from the national standard for trip generation analysis, TRICS, see Table 6 below.

Land Llea	Unit	ARRIVALS			DEPARTURES		
Lanu Ose	Unit	AM	IP	PM	AM	IP	PM
Residential	dwelling	0.33	1.02	0.85	0.76	0.99	0.55
Office	100sqm	1.31	0.82	0.20	0.25	0.87	1.16
Business Park	100sqm	1.34	0.90	0.27	0.29	1.00	1.17
Food Retail	100sqm	7.55	27.47	13.94	5.52	27.11	14.55
General Retail	100sqm	2.14	14.18	3.77	1.29	13.69	4.36
Leisure	100sqm	1.89	7.22	6.24	1.23	6.40	4.56
Industrial	100sqm	0.53	0.45	0.10	0.16	0.46	0.48
Warehouse	100sqm	0.14	0.26	0.07	0.09	0.27	0.13
GP Surgery	100sqm	9.33	21.52	5.50	5.98	21.94	8.27
Education Nursery	100sqm	8.36	5.19	5.66	6.82	5.51	6.94
Community Centre	100sqm	1.46	2.94	1.21	0.51	3.08	1.40
Hotel	100sqm	0.71	1.28	0.94	0.86	1.40	0.70

Table 6 Car trip period rates by specific land use (veh/unit/period)

4.2.3 TRICS trip rate information was used for private car trips only. In order to establish forecast trip rates for bus and railway trips, TEMPro-based proportions of car, bus and rail trips were derived using year and time period specific data. Please see Table 7 for details on the proportions used to develop bus and rail trip rates. The resulting rail and bus passenger trip rates are shown in Table 7 and Table 8.



Land Use	Linit	ARRIVALS			DEPARTURES		
	Unit	AM	IP	PM	AM	IP	PM
Residential	dwelling	0.04	0.05	0.04	0.03	0.05	0.04
Office	100sqm	0.15	0.04	0.01	0.01	0.04	0.09
Business Park	100sqm	0.16	0.04	0.01	0.01	0.05	0.09
Food Retail	100sqm	0.88	1.35	0.62	0.24	1.28	1.16
General Retail	100sqm	0.25	0.70	0.17	0.06	0.65	0.35
Leisure	100sqm	0.22	0.36	0.28	0.05	0.30	0.36
Industrial	100sqm	0.06	0.02	0.00	0.01	0.02	0.04
Warehouse	100sqm	0.02	0.01	0.00	0.00	0.01	0.01
GP Surgery	100sqm	1.09	1.06	0.25	0.26	1.04	0.66
Education Nursery	100sqm	0.98	0.26	0.25	0.29	0.26	0.55
Community Centre	100sqm	0.17	0.14	0.05	0.02	0.15	0.11
Hotel	100sqm	0.08	0.06	0.04	0.04	0.07	0.06

Table 7 2021 Rail trip rates derived from TRICS and TEMPro proportions (person/unit/period)

Table 8 2021 Bus trip rates derived from TRICS and TEMPro proportions (person/unit/period)

Land Lico	Unit	ļ	ARRIVALS	5	DEPARTURES			
	Unit	AM	IP	PM	AM	IP	PM	
Residential	dwelling	0.05	0.15	0.07	0.11	0.14	0.05	
Office	100sqm	0.21	0.12	0.02	0.04	0.12	0.10	
Business Park	100sqm	0.21	0.13	0.02	0.04	0.14	0.10	
Food Retail	100sqm	1.20	3.90	1.14	0.82	3.89	1.29	
General Retail	100sqm	0.34	2.01	0.31	0.19	1.97	0.39	
Leisure	100sqm	0.30	1.03	0.51	0.18	0.92	0.40	
Industrial	100sqm	0.08	0.06	0.01	0.02	0.07	0.04	
Warehouse	100sqm	0.02	0.04	0.01	0.01	0.04	0.01	
GP Surgery	100sqm	1.48	3.06	0.45	0.89	3.15	0.73	
Education Nursery	100sqm	1.33	0.74	0.46	1.02	0.79	0.62	
Community Centre	100sqm	0.23	0.42	0.10	0.08	0.44	0.12	
Hotel	100sqm	0.11	0.18	0.08	0.13	0.20	0.06	



- 4.2.4 Trip end growth in the Chelmsford Administrative area was calculated by using the planning data only, which was available for the entire area of this local authority. TEMPro forecast was not used in Chelmsford as the planning data-based trip generation exceeded TEMPro, and planning data provides superior information to that of TEMPro. Small landfall developments, without specific location, were spread across zones without specific planning growth, in proportion to zone size.
- 4.2.5 TEMPro forecasts for the county of Essex were used to constrain combined future trips totals of Chelmsford and the rest of Essex. Therefore, trip ends in the rest of Essex (outside of the Chelmsford Administrative area), were calculated by subtracting the additional trips that were generated in Chelmsford relative to the TEMPro forecast, from the TEMPro forecast data for the rest of Essex. The growth for the rest of Essex (outside of Chelmsford Administrative area) was distributed in proportion of the TEMPro growth.
- 4.2.6 Outside of the county of Essex, transport forecasts were based solely on TEMPro data.
- 4.2.7 TEMPro based year 2014 trips and TEMPro/planning based year 2021 trips were used to create time-period, mode and trip purpose-specific growth factors. These factors were used in a doubly-constrained Furnessing to develop year 2021 AM, IP and PM car and public transport trips matrices for the AM, IP and PM peak hours.
- 4.2.8 In addition, and before matrix factoring, a process to synthetically infill zones with significant new planning development by 2021. For these zones, we assumed that the trip distribution pattern will be identical to that of the nearest residential zone.
- 4.2.9 WebTAG guidance (M4 Unit M4, 7.1.14) requires the application of income and fuel cost adjustments to the TEMPro-based due to the fixed growth forecast approach. Fuel and incomebased calculations were made in accordance with the WebTAG data book of autumn 2015. The resulting fuel and income adjustment factors are shown in Table 9.

	Income	Fuel cost	Total
2021	1.6%	5.4%	7.1%
2036	6.0%	6.7%	13.1%

Table 9 Income and fuel cost adjustment factors

- 4.2.1 Income and fuel cost adjustments were applied to car travel forecasts via uniform factoring.
- 4.2.2 LGV and HGV forecasts were developed by using vehicle type specific uniform growth factors obtained from the DfT's National Road Traffic Forecasts (NRTF). The growth factors were used to develop year 2021 LGV and HGV trip matrices for the AM, IP and PM peak hours, see Figure 3 and for further detail on the GVs forecast factors.



Figure 3 LGV and HGV Traffic Forecasts, WebTAG TSGB0707



4.2.3 Goods vehicle forecasts reflect general economic growth. Although on a local level there may be some changes in jobs and locations of employment, they are uncertain and are expected to have a small effect on total goods vehicle trips, so this approximation can be considered appropriate. The LGV and HGV growth rates between the time horizons are summarised in Table 10.

	2014-2021	2014-2036
LGV	17%	55%
HGV	5%	17%

Table 10 LGV and HGV growth factors, WebTAG, TSGB0707

4.2.4 Trip matrix forecasts were created for Year 2021 for AM, IP, PM peak periods for highway and public transport modes. Year 2014 and 2021 trip matrix totals and growth are summarized in Chapter 5.1 below.

4.3 2036 Forecast Methodology

- 4.3.1 At the time of the development of the Chelmsford model forecast, CCC has been in the process of developing its long term local plan for the period of 2021-2036. Due to the absence of a final decision on the preferred option for the 2031 scenario, no detailed planning data could be used to estimate growth for the Chelmsford Administrative area for the period between 2021 and 2036.
- 4.3.2 TEMPro forecast growth was used for the Chelmsford Administrative area, and the rest of the county of Essex, and outside of the county of Essex for between 2021 and 2036. Specific TEMPro data was disaggregated into the model zones, based on Address Base Premium Data and a GIS spatial analysis processing, and detailed growth factors for the period between 2021 and 2036 calculated for cars, rails and buses.
- 4.3.3 TEMPro based year 2014 trips and forecasted 2036 trips were used to create time-period and mode specific growth factors. These factors were used in a doubly-constrained Furnessing, to develop year 2036 AM, IP and PM car and public transport trips matrices for the AM, IP and PM peak hours.
- 4.3.4 LGV and HGV forecasts were developed by using uniform growth factors obtained from the DfT's National Road Traffic Forecasts (NRTF), as discussed in the section above.
- 4.3.5 Trip matrix forecasts were created for year 2036 for AM, IP, PM peak periods for highway and public transport modes, and are summarized in Chapter 5.1 below.



5. Travel Demand Forecast Results

5.1 Highway Demand Forecasts (2021, 2036)

5.1.1 Table 11 and Table 12 below summarise the forecasted trip ends and growth factors for cars, LGV and HGVs, for the forecast years of 2021 and 2036 along with those from the base year, 2014, after Matrix Estimation (ME).

Trip	Ends	HB Work	НВО	HBEB	NHBO	NHBEB	LGV	HGV	Total
2014	AM	15475	13429	1342	3005	302	4964	3828	42345
2014	IP	6680	15619	575	5137	199	3502	1238	32950
AITELINE	PM	18527	12831	1024	3115	244	5457	3312	44510
	AM	18102	15984	1630	3568	391	5827	4030	46902
2021	IP	8120	19943	726	6650	268	4109	1302	38752
	PM	22517	15787	1307	3812	333	6405	3488	53649
	AM	20828	17230	1754	3764	412	7675	4465	53715
2036	IP	8294	22070	798	6943	283	5414	1443	45244
	PM	22976	16926	1397	4004	350	8436	3864	57952

		inpenu iore	casis by in	ne nonzon	, unie perio	u, uip puip	USE allu ve	incle type	
Incre	ase (%)	HB Work	HBO	HBEB	NHBO	NHBEB	LGV	HGV	Total
	AM	17%	19%	21%	19%	29%	17%	5%	11%
2021	IP	22%	28%	26%	29%	35%	17%	5%	18%
	PM	22%	23%	28%	22%	37%	17%	5%	21%
	AM	35%	28%	31%	25%	36%	55%	17%	27%
2036	IP	24%	41%	39%	35%	42%	55%	17%	37%
	PM	24%	32%	37%	29%	43%	55%	17%	30%

Table 11 Tripend forecasts by time horizon, time period, trip purpose and vehicle type

Table 12 Tripend percentage growth relative to base year by time horizon time period, trip purpose and vehicle type

- 5.1.2 Car trips show an overall growth between 10% and 20%, depending on the time period considered, from 2014 to 2021 and 20% to 35% for the 2036 case. In the same period, LGV trips show 17% and 55% growth respectively and HGV trips show 5% and 17% growth respectively.
- 5.1.3 It is important to mention that these percentages go slightly beyond these values for the business related trips, EB. This is due to starting low values of the 2014 matrices which highly influence any percentage comparison.
- 5.1.4 Total forecast growth is also summarized by model sectors, composed of Chelmsford Administrative area, the rest of Essex, and the rest of the UK. Table 13 and Table 14, we can see that Chelmsford Administrative are shows a slightly bigger car traffic growth than the rest of Essex or the UK. This is due to the inclusion of detailed planning data for the modelled area. Please refer to Appendix D for more details on the rest of the periods.



	AM										
	Tuin Endo	Ca	ar	LG	iV	HGV		Total			
Trip Ends		0	D	0	D	0	D	0	D		
	Chelmsford Admin	19697	19785	2698	2692	2254	2334	24649	24812		
2014	Rest of Essex	10980	11125	1758	1792	297	229	13034	13147		
After ME	UK	2876	2643	509	479	1277	1264	4662	4386		
	Total	33553	33553	4964	4964	3828	3828	42345	42345		
	Chelmsford Admin	24051	23553	3166	3160	2373	2457	27995	27608		
2021	Rest of Essex	12333	13025	2063	2104	312	241	13890	14506		
2021	UK	3291	3097	597	562	1344	1331	5015	4786		
	Total	39675	39675	5826	5826	4029	4029	48595	48595		
	Chelmsford Admin	28815	27831	4170	4162	2629	2722	32276	31491		
2026	Rest of Essex	14278	15501	2717	2771	346	267	15687	16743		
2030	UK	3928	3690	787	741	1489	1475	5749	5478		
	Total	47022	47022	7674	7674	4464	4464	55537	55537		

Table 13 Tripend forecast by time horizon, vehicle type and model sector, AM

	AM										
Trip Ends		Ca	r	LGV		но	δV	То	tal		
		0	D	0	D	0	D	0	D		
	Chelmsford Admin	22%	19%	17%	17%	5%	5%	14%	11%		
2021	Rest of Essex	12%	17%	17%	17%	5%	5%	7%	10%		
	UK	14%	17%	17%	17%	5%	5%	8%	9%		
	Total	18%	18%	17%	17%	5%	5%	15%	15%		
	Chelmsford Admin	46%	41%	55%	55%	17%	17%	31%	27%		
2020	Rest of Essex	30%	39%	55%	55%	17%	17%	20%	27%		
2036	UK	37%	40%	55%	55%	17%	17%	23%	25%		
	Total	40%	40%	55%	55%	17%	17%	31%	31%		

Table 14 Tripend percentage growth relative to base year by time horizon, vehicle type and model sector, AM

5.1.1 Car growth rates that resulted from the combination of planning data and TEMPro data, were also compared with TEMPro growth data by model sector. The results for 2021 and for 2036 are shown in Table 15 and Table 16.

Difference Cars 2021 - 2014 (%)	Time Period	нвw		Other		EB		Total	
		Tempro	Model	Tempro	Model	Tempro	Model	Tempro	Model
Chalmafaud	AM	7%	12%	9%	13%	9%	19%	8%	13%
Administrativo	IP	7%	27%	10%	23%	9%	24%	10%	23%
Administrative	PM	7%	17%	9%	19%	9%	29%	8%	18%
	AM	5%	5%	9%	9%	9%	9%	7%	7%
Rest of Essex	IP	6%	4%	10%	8%	10%	8%	9%	6%
	PM	5%	4%	9%	8%	9%	8%	7%	6%
UK	AM	5%	6%	8%	9%	8%	9%	7%	8%
	IP	5%	6%	8%	10%	8%	10%	8%	8%
	PM	5%	6%	7%	9%	7%	9%	6%	7%

Table 15 TEMPro and Model growth comparison by time horizon, time period, and trip purpose for year 2021



Difference Cars 2036 - 2014 (%)	Time Period	HBW		Other		EB		Total	
		Tempro	Model	Tempro	Model	Tempro	Model	Tempro	Model
Chalmafaud	AM	18%	23%	26%	30%	27%	37%	21%	27%
Administrativo	IP	20%	39%	31%	43%	26%	43%	27%	42%
Administrative	PM	18%	29%	26%	36%	26%	47%	22%	32%
	AM	14%	13%	27%	25%	27%	25%	20%	19%
Rest of Essex	IP	16%	13%	31%	28%	31%	27%	27%	21%
	PM	14%	13%	26%	23%	26%	23%	20%	19%
	AM	14%	15%	21%	26%	21%	25%	17%	22%
UK	IP	16%	16%	24%	30%	24%	30%	21%	24%
	PM	14%	15%	20%	25%	20%	25%	17%	19%

Table 16 TEMPro and Model growth comparison by time horizon, time period, and trip purpose for year 2036

5.1.1 Growth rates in the Chelmsford Administrative area are higher than TEMPro data due to the high level of growth resulting from local planning. In the rest of Essex, model growth is slightly below TEMPro in order to compensate for the extra growth in Chelmsford. The total absolute growth is equal between TEMPro and Model in the whole of Essex. In the UK, model growth is slightly higher than TEMPro. This is due to the fact that while the Tempo growth figures reflect the entire UK average, the model growth figures reflect average growth in East of England, where most of the Chelmsford-based external tripends are found.



5.2 Public Transport Demand Forecasts (2021, 2036)

5.2.1 Table 17 and Table 18 below summarise the forecast trip ends and growth factors for public transport, rails and buses, for the forecast years of 2021 and 2036 along with those from the base year, 2014, after Matrix Estimation (ME).

Trip	Ends	Rail	Bus	Total	
2014 After ME	AM	4362	4474	8836	
	IP	1242	1749	2991	
	PM	2440	2156	4596	
	AM	4728	4926	9655	
2021	IP	1684	2381	4065	
	PM	2707	2523	5230	
	AM	5019	5413	10432	
2036	IP	1827	2623	4449	
	PM	2885	2746	5631	

Table 17 Public transport tripend forecasts by time horizon, time period and mode

Increase (%)		Rail	Bus	Total	
	AM	8%	10%	9%	
2021	IP	36%	36%	36%	
	PM	11%	17%	14%	
2036	AM	15%	21%	18%	
	IP	47%	50%	49%	
	PM	18%	27%	23%	

Table 18 Public transport tripend growth relative to base year by time period and mode

- 5.2.2 Rail trips, for AM and PM, show an overall growth between 8% and 11%, depending on the time period considered, from 2014 to 2021 and 15% to 18% for the 2036 case. In the same period, bus trip growth fluctuates between 10% and 17%, 2021, and 21% and 27% for 2036.
- 5.2.3 For the IP period, the percentage growth goes slightly beyond these values. This is due to starting low values of the 2014 matrices which highly influence any percentage comparison.
- 5.2.4 Table 19 and Table 20 show a broken down analysis of the forecast trip ends by model zones. Please refer to Appendix E for more details on the rest of the periods.



			AM				
	Trip Fode	Ra	ail	Bu	JS	То	tal
	Trip Ends	0	D	0	D	0	D
	Chelmsford Admin	2887	1318	3659	3757	6546	5075
2014	Rest of Essex	383	277	817	719	1200	996
After ME	UK	1092	2768	0	0	1092	2768
	Total	4362	4362	4476	4476	8838	8838
	Chelmsford Admin	3131	1446	4088	4174	7218	5620
2021	Rest of Essex	400	292	839	753	1239	1044
2021	UK	1198	2990	0	0	1198	2990
	Total	4728	4728	4926	4926	9655	9655
	Chelmsford Admin	3336	1529	4520	4577	7856	6107
2020	Rest of Essex	419	317	893	835	1312	1152
2036	UK	1264	3172	0	0	1264	3172
	Total	5019	5019	5413	5413	10432	10432

Table 19 Public transport tripend forecast by year and mode, AM

AM											
Trip Ends		Rail		Bus		Total					
		0	D	0	D	0	D				
2021	Chelmsford Admin	8%	10%	12%	11%	10%	11%				
	Rest of Essex	4%	5%	3%	5%	3%	5%				
	UK	10%	8%	0%	0%	10%	8%				
	Total	8%	8%	10%	10%	9%	9%				
2036	Chelmsford Admin	16%	16%	24%	22%	20%	20%				
	Rest of Essex	9%	15%	9%	16%	9%	16%				
	UK	16%	15%	0%	0%	16%	15%				
	Total	15%	15%	21%	21%	18%	18%				

Table 20 Public transport tripend percentage growth (from 2014) by year and mode, AM



6. Forecast Assignments

6.1 Generalised Cost Functions

6.1.1 Generalized cost functions of the model were established by using WebTAG guidelines for value of time (VOT) and vehicle operating cost (VOC). The parameters for 2014, 2021 and 2036 are shown in the following table.

Year	Vehilce type	Trip purpose	Time period	2014		2021		2036	
				VOT £/hour	VOC £/km	VOT £/hour	VOC £/km	VOT £/hour	VOC £/km
2014	Car	Business	AM	33.2	5.7	37.2	4.5	49.4	4.2
2014	Car	Commute	AM	8.2	6.8	9.2	5.4	12.2	5.1
2014	Car	Other	AM	10.5	6.8	11.6	5.4	15.0	5.1
2014	14 LGV		AM	14.7	6.6	16.6	5.4	22.2	5.6
2014	HGV		AM	15.1	25.8	17.0	25.1	22.9	29.4
2014	Car	Business	IP	32.4	5.7	36.4	4.5	48.5	4.2
2014	Car	Commute	IP	8.2	6.8	9.1	5.4	12.1	5.1
2014	Car	Other	IP	10.9	6.8	12.1	5.4	15.6	5.1
2014	014 LGV		IP	14.7	6.6	16.6	5.4	22.2	5.6
2014	HGV		IP	15.1	25.8	17.0	25.1	22.9	29.4
2014	Car	Business	PM	31.9	5.7	35.7	4.5	47.5	4.2
2014	Car	Commute	PM	8.0	6.8	9.0	5.4	12.0	5.1
2014	Car	Other	PM	11.2	6.8	12.4	5.4	16.1	5.1
2014	4 LGV		PM	14.7	6.6	16.6	5.4	22.2	5.6
2014	HGV		PM	15.1	25.8	17.0	25.1	22.9	29.4

Table 21 Generalised cost function parameters for year 2014, 2021 and 2036 (without non-fuel costs)

6.1.2 WebTAG guidelines (Unit A1.3) recommend that the generalized cost functions includes non-fuel related costs for business trips, LGVs and HGVs, while it excludes these costs from commute and other trips. The model assignment was initially tested by including non-fuel related VOCs for business trips, HGVs and LGVs. However, this formulation generated implausible routing in the context of Chelmsford. More specifically, vehicles with external-external trips along the A12 corridor would travel through the city centre due to the shorter distance, instead of using the A12 bypass. Therefore, the distance related coefficient was tested without non-fuel related costs and the model assignment showed fully plausible routing. For this reason non-fuel related costs were excluded from the generalized cost calculation.



6.2 Highway Assignments

6.2.1 Traffic assignments were created for the base network for Year 2021 and 2036 for AM, IP, PM peak hours for highway. The following figures show future year traffic assignments for all vehicle types combined for both, 2021 and 2036 scenarios.



Figure 4 Highway assignment in the AM peak hour in Year 2021 (veh/hr/direction)

6.2.2 Due to their function and capacity, traffic volumes are forecast to be highest along the A12 in all time periods. For the 2021 AM scenario, traffic volumes are also forecast to be high on the main approaches to Chelmsford such as: A130, A414 (East and West approaches) and B1008. In addition, and as expected, London Road and Parkway are forecast to have high levels of traffic along their entire length.



Figure 5 Highway assignment in the IP hour in Year 2021 (veh/hr/direction)



6.2.3 During the IP period, main through-route corridors such as A12 and A130 are still forecast to have high volumes of traffic above 1000 vehicles, although lower than during the AM peak hour. A and B roads approaches to Chelmsford Urban Area are forecast to see much lower levels of traffic (when compared against the AM peak hour) which seems to be focused on the city centre with links such as Parkway and Chelmer Road appearing to be struggling to meet the demand.



Figure 6 Highway assignment in the PM peak hour in Year 2021 (veh/hr/direction)

- 6.2.4 During the PM peak hour, the main approaches/exits to/from Chelmsford are forecast to attract big traffic volumes, although not as big as during the AM period, while the city centre infrastructure still remains much in demand, as expected.
- 6.2.5 For the 2036 forecast scenario the level of traffic intensifies due to the increase in demand. In general we have observed a very similar forecast pattern across the network with A and B road approaches/exits to/from Chelmsford showing high levels of traffic during the morning and evening peak hours that slightly discharge their traffic to the city centre during the IP.
- 6.2.6 It is also important to note how both, B1008 and Essex Regiment Way, are forecast to increase their flows less than the rest of the network due to the inclusion of the NE Bypass in the model, which, on the other hand, is forecast to increase levels of congestion at the A12 Boreham interchange.
- 6.2.7 In addition, we can also see how the South West of Chelmsford, London Road and Widford Roundabout experience big increases in traffic.





Figure 7 Highway assignment in the AM peak hour in Year 2036 (veh/hr/direction)



Figure 8 Highway assignment in the IP hour in Year 2036 (veh/hr/direction)





Figure 9 Highway assignment in the PM peak hour in Year 2036 (veh/hr/direction)

- 6.2.8 The following figures demonstrate the level of congestion in AM peak hour, IP hour and PM peak hour assignments. The measure 'Volume over Capacity' (VOC) reflects the percentage of capacity utilised by the traffic flow on any give road section. The higher the VOC value, the more congested the roadway section is. In general, VOC below 50 is considered free flow, above 100 is congested, while VOC in between would be slightly congested.
- 6.2.9 The forecasts show a similar pattern to the base year assignment, with high levels of congestion on the approaches to Chelmsford during the morning and evening peaks. There is also congestion on the A12 bypass around Chelmsford. Congestion tends to be lower during the interpeak period.



Figure 10 Level of congestion in the AM peak hour (Volume over capacity in %) 2021





Figure 11 Level of congestion in the IP hour (Volume over capacity in %) 2021



Figure 12 Level of congestion in the PM peak hour (Volume over capacity in %) 2021

- 6.2.10 For 2036, the situation is forecasted to worsen due to the increases in demand.
- 6.2.11 In addition, it is important to note that White Hart Lane and the A130 approach to Chelmsford, mainly due to the inclusion of the Western Relief Road and the N-E Bypass, are forecast to better accommodate the increases in demand, than other areas of Chelmsford do.





Figure 13 Level of congestion in the AM peak hour (Volume over capacity in %) 2036



Figure 14 Level of congestion in the IP hour (Volume over capacity in %) 2036





Figure 15 Level of congestion in the PM peak hour (Volume over capacity in %) 2036

6.3 Highway Differential Assignments

6.3.1 Highway traffic growth between the forecast years 2021 and 2036 and the base year scenario, 2014, are represented below by using "differential plots". These plots show the additional traffic on the highway system due to the increasing demand between the different scenarios tested.



Figure 16 Highway AM peak hour 2021 - 2014 differential plot (total volume)

6.3.2 In the AM peak hour, highway traffic volumes are forecast to grow by at least 250 vehicles per hour in most of the main corridors.





Figure 17 Highway IP hour 2021 - 2014 differential plot (total volume)

6.3.1 In the IP and PM peak hours, traffic growth pattern are similar to that of the AM peak hour.



Figure 18 Highway PM peak hour 2021 - 2014 differential plot (volume difference)

6.3.2 In 2036 scenario, forecast patterns remain similar to that of 2021, with additional increase in demand across the modelled time periods. The A12 Boreham interchange is forecast to see high growth in traffic flows due the new NE Bypass.





Figure 19 Highway AM peak hour 2036 - 2014 differential plot (total volume)



Figure 20 Highway IP hour 2036 - 2014 differential plot (volume difference)





Figure 21 Highway PM peak hour 2036 - 2014 differential plot (volume difference)



6.4 Public Transport Assignments

- 6.4.1 Public transport assignments were created for the future base year network for 2021 and 2036 for AM, IP, PM peak hours for bus and rail. The following figures show future year traffic assignments for all vehicle types, rail and bus for scenarios, 2021 and 2036.
- 6.4.2 In general terms we can appreciate how London focused rail transportation is forecast, not only during the morning and evening peaks but also, although in a smaller scale, during the IP period.
- 6.4.3 With regards to buses, we can observe a forecast constant attraction pattern towards the city centre for all the time periods, increasing during the average modelled IP hour.



Figure 22 Public transport assignment in the AM peak hour in Year 2021 (pass/hr/direction)



Figure 23 Public transport assignment in the IP hour in Year 2021 (pass/hr/direction)





Figure 24 Public transport assignment in the PM peak hour in Year 2021 (pass/hr/direction)

6.4.1 The 2036 forecast follow the same trend, accentuating due to the increase in demand; please see plots below for further detail on the 2036 public transport assignments.



Figure 25 Public transport assignment in the AM peak hour in Year 2036 (pass/hr/direction)





Figure 26 Public transport assignment in the IP average hour in Year 2036 (pass/hr/direction)



Figure 27 Figure 18 Public transport assignment in the PM peak hour in Year 2036 (pass/hr/direction)


6.5 Public Transport Differential Assignments

- 6.5.1 Public transport growth between the forecast years 2021 and 2036 and the base year scenario, 2014, are represented below by using "differential plots". These plots show the additional passengers on the public transport system, buses and rail, due to the increasing demand between the different scenarios tested.
- 6.5.2 In general we can observe how those connections which are currently most used are forecast to increase their demand. Rail trips, especially towards London during the morning and evening peaks, increase in more than 200 units. During the IP period, we are forecasting increases in demand in all services particularly in the case of buses within Chelmsford city centre.



Figure 28 Public transport AM peak hour year 2021 - year 2014 differential plot (pass/hr/direction)



Figure 29 Public transport IP average hour year 2021 - year 2014 differential plot (pass/hr/direction)





Figure 30 Public transport PM peak hour year 2021 - year 2014 differential plot (pass/hr/direction)



Figure 31 Public transport AM peak hour year 2036 - year 2014 differential plot (pass/hr/direction)





Figure 32 Public transport IP average hour year 2036 - year 2014 differential plot (pass/hr/direction)



Figure 33 Public transport PM peak hour year 2036 - year 2014 differential plot (pass/hr/direction)



7. Highway Journey Times

7.1.1 Highway journey time routes were compared for base year 2014 and forecast years 2021 and 2036. For this purpose the same Journey Time routes used for Calibration and Validation purposes were employed, see LMVR and the maps below for further details.



Figure 34 Inter-Urban Journey Time routes



Figure 35 Intra-Urban Journey Time routes



Section	Name	Description
Major	Route 1	A1060/A130 from Chalk End to Battlesbridge
Major	Route 2	A1060/A130 from Battlesbridge to Chalk End
Major	Route 3	A414/A1016/A1114 from Nortin Heath to Woodham Mortimer
Major	Route 4	A414/A1016/A1114 from Woodham Mortimer to Nortin Heath
Major	Route 5	A12 from Hatfield Peverel to Ingatestone
Major	Route 6	A12 from Ingatestone to Hatfield Peverel
Major	Route 7	A131/A130/A1016/A414 from Great Notley to Ingatestone
Major	Route 8	A131/A130/A1016/A414 from Ingatestone to Great Notley
Major	Route 9	B1137/A130/B137/A138/B1009/B1007 from Hatfield Peverel to West Hanningfield
Major	Route 10	B1137/A130/B137/A138/B1009/B1007 from West Hanningfield to Hatfield Peverel
Major	Route 21	B1012/A132/Runwell Road from A130 to South Woorham Ferrers
Major	Route 22	B1012/A132/Runwell Road from South Woorham Ferrers to A130
Minor	Route 11	From A14 to New London Road B1007, via Writtle (Ongar Road, Chelmsford Road, Writtle Road)
Minor	Route 12	From New London Road B1007 to A14, via Writtle (Ongar Road, Chelmsford Road, Writtle Road)
Minor	Route 13	B1007 from Galleywood to Parkway A1060
Minor	Route 14	B1007 from Parkway A1060 to Galleywood
Minor	Route 15	B1008 from A1016 to Essex Regiment Way
Minor	Route 16	B1008 from Essex Regiment Way to A1016
Minor	Route 17	A130 from A1016 to A130 Sainsburys'
Minor	Route 18	A130 from A130 Sainsburys' to A1016
Minor	Route 19	Springfield Road from A1060 to A138
Minor	Route 20	Springfield Road from A138 to A1060

Table 22 Journey time routes description

- 7.1.2 An exhaustive list of route modelled journey times for AM, IP and PM peak hours for Year 2014 vs 2021 and Year 2014 vs 2036 are shown below, along with percentage increases, for both Cars and Goods Vehicles.
- 7.1.3 From Table 23 and Table 24 we can observe how most of the routes' journey times are forecast to increase considerably, especially for the PM scenario, apart from Route 15 whose delays are forecast to alleviate due to the rerouting of traffic into the Western Relief Road and the N-E bypass.

Ca	rs		A	м			I	Р			P	м	
News	Length	2014	2021	Diffe	rence	2014	2021	Diffe	rence	2014	2021	Diffe	rence
Name	(Km)	(mm:ss)	(mm:ss)	mm:ss	%	(mm:ss)	(mm:ss)	mm:ss	%	(mm:ss)	(mm:ss)	mm:ss	%
Route 1	24.28	22:52	24:13	01:22	6.0%	22:14	24:58	02:44	12.3%	24:09	26:11	02:02	8.4%
Route 2	24.46	24:15	25:59	01:44	7.2%	21:41	22:54	01:13	5.6%	24:05	26:34	02:29	10.3%
Route 3	20.45	20:04	20:47	00:44	3.6%	19:27	22:29	03:03	15.7%	21:24	24:21	02:57	13.8%
Route 4	20.59	22:25	23:56	01:31	6.8%	20:08	21:32	01:24	7.0%	21:44	22:08	00:24	1.8%
Route 5	22.79	13:58	14:39	00:40	4.8%	12:18	12:34	00:16	2.2%	13:06	13:32	00:26	3.3%
Route 6	20.79	11:41	12:10	00:29	4.1%	11:06	11:24	00:17	2.6%	12:59	14:08	01:09	8.8%
Route 7	22.70	27:29	31:18	03:48	13.8%	24:24	26:11	01:47	7.3%	25:55	28:25	02:29	9.6%
Route 8	22.59	24:06	26:35	02:29	10.3%	23:28	25:49	02:21	10.0%	27:12	31:27	04:14	15.6%
Route 9	18.34	26:38	28:21	01:42	6.4%	21:37	22:42	01:05	5.0%	23:20	25:41	02:21	10.1%
Route 10	18.78	25:28	26:14	00:46	3.0%	21:42	24:34	02:52	13.2%	24:02	28:32	04:30	18.7%
Route 21	5.06	04:23	04:26	00:02	0.9%	04:21	04:22	00:02	0.6%	04:26	04:29	00:02	0.8%
Route 22	5.00	04:00	04:04	00:03	1.3%	03:57	03:58	00:01	0.5%	04:04	04:07	00:03	1.2%
Route 11	4.31	06:47	06:55	00:08	1.9%	06:06	06:29	00:23	6.3%	06:30	06:45	00:15	3.9%
Route 12	4.29	06:48	07:17	00:29	7.0%	06:50	07:57	01:07	16.4%	07:47	09:28	01:41	21.7%
Route 13	6.66	08:57	11:13	02:16	25.4%	08:19	08:59	00:40	8.1%	08:47	10:37	01:50	20.9%
Route 14	6.67	08:12	09:09	00:57	11.6%	07:52	08:35	00:43	9.0%	08:33	12:13	03:40	42.8%
Route 15	1.85	02:15	02:23	00:08	6.1%	02:21	02:21	00:00	-0.1%	02:28	02:24	00:04	-2.7%
Route 16	1.89	02:21	02:36	00:15	10.3%	02:31	02:37	00:06	4.1%	02:41	02:57	00:16	10.1%
Route 17	2.42	04:07	04:45	00:37	15.1%	04:23	06:07	01:44	39.4%	04:46	06:51	02:05	43.9%
Route 18	2.38	04:15	05:03	00:48	18.7%	04:08	05:12	01:04	26.0%	04:39	06:02	01:23	29.7%
Route 19	3.98	05:31	05:47	00:16	4.9%	05:29	05:53	00:24	7.4%	06:32	07:31	00:59	15.0%
Route 20	3.98	05:45	05:53	00:08	2.2%	05:48	06:19	00:31	8.8%	05:32	06:09	00:37	11.0%

Table 23 Journey time route comparison for 2014 vs 2021 in AM, IM and PM peak hour, Cars



G	Vs		A	м			I	Р			PI	М	
News	Length	2014	2021	Diffe	rence	2014	2021	Diffe	rence	2014	2021	Diffe	rence
Name	(Km)	(mm:ss)	(mm:ss)	mm:ss	%	(mm:ss)	(mm:ss)	mm:ss	%	(mm:ss)	(mm:ss)	mm:ss	%
Route 1	24.28	22:59	24:16	01:17	5.6%	22:32	25:13	02:41	11.9%	24:09	26:11	02:02	8.4%
Route 2	24.46	24:15	25:59	01:44	7.1%	22:00	23:10	45:10	5.3%	24:16	26:40	02:24	9.9%
Route 3	20.45	20:04	20:48	00:44	3.6%	19:27	22:30	03:53	15.7%	21:25	24:22	02:57	13.8%
Route 4	20.59	22:25	23:56	01:31	6.8%	20:08	21:32	42:30	7.0%	21:45	22:09	00:24	1.8%
Route 5	22.79	13:58	14:39	00:40	4.8%	12:37	12:45	13:39	1.1%	13:08	13:33	00:25	3.1%
Route 6	20.79	11:44	12:10	00:26	3.7%	11:18	11:29	34:42	1.7%	12:59	14:08	01:09	8.8%
Route 7	22.70	27:46	31:34	03:48	13.7%	24:43	26:30	33:32	7.2%	26:12	28:40	02:28	9.4%
Route 8	22.59	24:17	26:46	02:30	10.3%	23:40	26:01	09:20	9.9%	27:23	31:37	04:14	15.5%
Route 9	18.34	26:38	28:22	01:44	6.5%	21:37	22:42	02:41	5.0%	23:20	25:41	02:21	10.1%
Route 10	18.78	25:28	26:15	00:47	3.1%	21:42	24:34	40:52	13.2%	24:03	28:33	04:30	18.7%
Route 21	5.06	04:23	04:26	00:02	0.9%	04:21	04:22	37:51	0.6%	04:26	04:29	00:02	0.8%
Route 22	5.00	04:00	04:04	00:03	1.3%	03:57	03:58	27:49	0.5%	04:04	04:07	00:03	1.2%
Route 11	4.31	06:47	06:55	00:08	1.9%	06:06	06:29	14:53	6.3%	06:30	06:45	00:15	3.9%
Route 12	4.29	06:48	07:17	00:29	7.0%	06:50	07:57	49:19	16.4%	07:47	09:28	01:41	21.7%
Route 13	6.66	08:57	11:13	02:16	25.4%	08:19	08:59	07:03	8.1%	08:47	10:37	01:50	20.9%
Route 14	6.67	08:12	09:09	00:57	11.6%	07:52	08:35	04:54	9.0%	08:33	12:13	03:40	42.8%
Route 15	1.85	02:15	02:23	00:08	6.1%	02:21	02:21	01:56	-0.1%	02:28	02:24	00:04	-2.7%
Route 16	1.89	02:21	02:36	00:15	10.3%	02:31	02:37	28:08	4.1%	02:41	02:57	00:16	10.1%
Route 17	2.42	04:07	04:45	00:37	15.1%	04:23	06:07	29:00	39.4%	04:46	06:51	02:05	43.9%
Route 18	2.38	04:15	05:03	00:48	18.7%	04:08	05:12	45:41	26.0%	04:39	06:02	01:23	29.7%
Route 19	3.98	05:31	05:47	00:16	4.9%	05:29	05:53	46:18	7.4%	06:32	07:31	00:59	15.0%
Route 20	3.98	05:45	05:53	00:08	2.2%	05:48	06:19	14:57	8.8%	05:32	06:09	00:37	11.0%

Table 24 Journey time route comparison for 2014 vs 2021 in AM, IM and PM peak hour, GVs

7.1.4 The situation for year 2036 slightly worsens, for most of the routes, mainly due to the increase in demand. When looking into the 2036 journey time forecasts below it is important to understand that these results are prior to the implementation of the Variable Demand component of the model, routes 16, 17 and 18, for example, are expected to experience mode switch, due to the inclusion of BP Rail Station and new bus services, once the VDM component is incorporated.

(Cars		AM				I	C			PI	M	
Nome	Length (Km)	2014 (mmice)	2036	Diffe	rence	2014	2036	Diffe	rence	2014	2036	Diffe	rence
Name	Length (Km)	2014 (mm:55)	((mm:ss))	Total	%	(mm:ss)	((mm:ss))	Total	%	(mm:ss)	((mm:ss))	Total	%
Route 1	24.28	22:51	24:57	02:06	9.2%	22:10	25:21	03:11	14.3%	23:59	28:42	04:43	19.7%
Route 2	24.46	24:13	28:40	04:27	18.4%	21:40	25:56	04:16	19.7%	23:57	31:15	07:18	30.5%
Route 3	20.45	19:57	21:53	01:56	9.7%	19:28	22:58	03:30	18.0%	21:36	26:07	04:31	20.9%
Route 4	20.59	22:31	25:26	02:55	12.9%	20:09	23:04	02:55	14.5%	21:38	23:58	02:19	10.7%
Route 5	22.79	13:57	16:13	02:16	16.3%	12:18	13:35	01:17	10.5%	13:06	14:28	01:21	10.4%
Route 6	20.79	11:42	13:22	01:40	14.3%	11:07	12:51	01:45	15.7%	13:03	15:54	02:51	21.8%
Route 7	22.70	27:31	31:42	04:10	15.2%	24:29	30:13	05:44	23.4%	25:55	35:36	09:41	37.4%
Route 8	22.59	24:06	28:01	03:55	16.3%	23:31	28:53	05:23	22.9%	27:08	35:02	07:54	29.1%
Route 9	18.34	26:46	24:01	02:45	-10.3%	21:56	25:42	03:46	17.2%	24:24	27:11	02:48	11.5%
Route 10	18.78	25:41	29:18	03:37	14.1%	22:10	29:30	07:20	33.1%	24:16	34:37	10:21	42.7%
Route 21	5.06	04:23	04:41	00:18	6.9%	04:21	04:37	00:16	6.3%	04:26	04:53	00:26	10.0%
Route 22	5.00	04:00	04:39	00:39	16.3%	03:57	04:22	00:25	10.4%	04:04	04:53	00:49	20.2%
Route 11	4.31	06:46	07:10	00:24	6.0%	06:05	07:13	01:08	18.5%	06:30	07:11	00:41	10.4%
Route 12	4.29	06:51	07:46	00:55	13.5%	06:45	09:28	02:43	40.2%	07:44	10:30	02:46	35.8%
Route 13	6.66	09:02	11:33	02:32	28.0%	08:19	11:18	03:00	36.0%	08:47	11:37	02:50	32.3%
Route 14	6.67	08:12	09:34	01:22	16.6%	07:55	09:20	01:25	18.0%	08:36	11:23	02:47	32.4%
Route 15	1.85	02:15	02:10	00:05	-4.0%	02:21	02:25	00:04	2.8%	02:27	02:07	00:21	-14.0%
Route 16	1.89	02:22	02:38	00:16	11.5%	02:31	02:55	00:24	16.1%	02:41	07:58	05:17	197.1%
Route 17	2.42	04:06	04:58	00:53	21.4%	04:22	06:36	02:14	51.0%	04:44	08:51	04:07	87.2%
Route 18	2.38	04:16	05:41	01:25	33.2%	04:08	06:15	02:07	51.1%	04:34	14:21	09:47	214.0%
Route 19	3.98	05:30	05:51	00:21	6.5%	05:32	06:13	00:42	12.6%	06:48	06:48	00:00	0.1%
Route 20	3.98	05:51	06:17	00:26	7.5%	06:04	07:54	01:50	30.2%	05:37	06:21	00:43	12.9%

Table 25 Journey time route comparison for 2014 vs 2036 in AM, IM and PM peak hour, Cars



(GVs		AM				IF	þ			PI	М	
Name		2044 (2036	Diffe	rence	2014	2036	Diffe	rence	2014	2036	Diffe	rence
Name	Length (Km)	2014 (mm:55)	((mm:ss))	Total	%	(mm:ss)	((mm:ss))	Total	%	(mm:ss)	((mm:ss))	Total	%
Route 1	24.3	22:59	24:57	01:58	8.6%	22:28	25:27	02:59	13.3%	23:59	28:42	04:43	19.7%
Route 2	24.5	24:13	28:40	04:26	18.3%	21:59	26:03	04:04	18.5%	24:08	31:17	07:09	29.6%
Route 3	20.4	19:57	21:53	01:56	9.7%	19:28	22:58	03:30	18.0%	21:36	26:07	04:31	20.9%
Route 4	20.6	22:32	25:26	02:55	12.9%	20:10	23:05	02:55	14.5%	21:39	23:58	02:19	10.7%
Route 5	22.8	13:57	16:13	02:16	16.3%	12:37	13:36	00:59	7.8%	13:08	14:28	01:19	10.1%
Route 6	20.8	11:45	13:22	01:37	13.8%	11:18	12:52	01:34	13.9%	13:03	15:54	02:51	21.8%
Route 7	22.7	27:48	31:55	04:07	14.8%	24:48	30:28	05:40	22.9%	26:12	35:50	09:38	36.7%
Route 8	22.6	24:17	28:11	03:53	16.0%	23:43	29:04	05:21	22.5%	27:19	35:11	07:52	28.8%
Route 9	18.3	26:46	24:01	02:45	-10.3%	21:56	25:42	03:46	17.2%	24:24	27:11	02:48	11.5%
Route 10	18.8	25:41	29:18	03:37	14.1%	22:10	29:30	07:20	33.0%	24:16	34:37	10:21	42.7%
Route 21	5.1	04:23	04:41	00:18	6.9%	04:21	04:37	00:16	6.3%	04:26	04:53	00:26	10.0%
Route 22	5.0	04:00	04:39	00:39	16.3%	03:57	04:22	00:25	10.4%	04:04	04:53	00:49	20.2%
Route 11	4.3	06:46	07:10	00:24	6.0%	06:05	07:13	01:08	18.5%	06:30	07:11	00:41	10.4%
Route 12	4.3	06:51	07:46	00:55	13.5%	06:45	09:28	02:43	40.2%	07:44	10:30	02:46	35.8%
Route 13	6.7	09:02	11:33	02:32	28.0%	08:19	11:18	03:00	36.0%	08:47	11:37	02:50	32.3%
Route 14	6.7	08:12	09:34	01:22	16.6%	07:55	09:20	01:25	18.0%	08:36	11:23	02:47	32.4%
Route 15	1.9	02:15	02:10	00:05	-4.0%	02:21	02:25	00:04	2.8%	02:27	02:07	00:21	-14.0%
Route 16	1.9	02:22	02:38	00:16	11.5%	02:31	02:55	00:24	16.1%	02:41	07:58	05:17	197.1%
Route 17	2.4	04:06	04:58	00:53	21.4%	04:22	06:36	02:14	51.0%	04:44	08:51	04:07	87.2%
Route 18	2.4	04:16	05:41	01:25	33.2%	04:08	06:15	02:07	51.1%	04:34	14:21	09:47	214.0%
Route 19	4.0	05:30	05:51	00:21	6.5%	05:32	06:13	00:42	12.6%	06:48	06:48	00:00	0.1%
Route 20	4.0	05:51	06:17	00:26	7.5%	06:04	07:54	01:50	30.2%	05:37	06:21	00:43	12.9%

Table 26 Journey time route comparison for 2014 vs 2036 in AM, IM and PM peak hour, GVs



8. Summary

- 8.1.1 Year 2021 and 2036 model forecasts were prepared using a TEMPro-based trip end forecast methodology and taking into account local planning data within Chelmsford Administrative Area.
- 8.1.2 Travel forecasts shown in this report are based on a direct forecast approach. A VDM model will be produced in the final stage of the model development.
- 8.1.3 Forecast year highway and public transport matrices were assigned to specific future year networks for the AM peak hour, IP hour and PM peak hour in year 2021 and 2036. Main trends in future transport levels are summarized below:
 - Depending on the time of day, vehicle traffic in 2021 is forecast to grow by 14% to 18% relative to year 2014, whereas total journey times across 22 routes are forecast to increase by an average of 8% to 13%.,
 - Depending on the time of day, vehicle traffic in 2036 is forecast to grow by 30% to 37% relative to year 2014, whereas total journey times across 22 routes is forecast to increase by average of 15% to 22%.
 - Depending on the time of day, public transport volumes in 2021 are forecast to grow by 9% to 35% relative to year 2014.
 - Depending on the time of day, public transport volumes in 2036 are forecast to grow by 18% to 48% relative to year 2014.



Appendix A. Housing Developments (Copy of 5 Year Rolling Supply April 2015 from CCC)

Housing Site Schedule April 2015

									Year 1 15/16	Y (ear 2 6/17	Ye 17	ar 3 7/18	Yea 18/	ar 4 /19	Year 19/2(5 0	
Site Address	Permission	Application Reference	Decision Date	Work Started	PDL	Greenfield	Conversior	Demolition	Affordable Market	Market	Affordable	Market	Affordable	Market	Affordable	Market	Affordable	Post 2021
		Town Centre Are	a Action Plan Alloc	ations					• •					-				
Former Marconi Works, New Street, Chelmsford	Permission granted	12/01789/FUL	22/05/2013	Y	Y		Y		148 2	74	69	36	32					
University Campus, Phase I north, part of Central Park and land at Park Road, Chelmsford	Permission granted	I I/0I 360/FUL & I I/0I 360/OUT & ammended by I 4/0I 470/FUL	02/11/2012	Y	219				3									
University Campus, Phase 2, part of Central Park and land at Park Road, Chelmsford	Permission granted, SI06 signed	14/01470/FUL	12/01/2015	Y	386					157		95		134				
Land north west of Essex County Cricket Ground, New Writtle Street, Chelmsford	Permission granted	I 3/00690/ETL	17/09/2013	Y	357				62	42	22	99	23	109				
Smiths Yard, Wharf Road, Chelmsford	Permission granted	14/01181/MAT	17/12/2014	Ν	14					14								
24 Duke Street	Awaiting \$106	14/01692/FUL		Ν	84							74	10					
Waterfront Place, Wharf Road, Chelmsford	Permission granted	I 3/00347/FUL	29/05/2014	Y, Jan 15	46		6			46	6							
Royal Mail Sorting Office, 30 Victoria Road, Chelmsford	Permission granted	12/00833/FUL	08/04/2013	N	37									24	13			
Essex County Council Transport Department, Coval Lane, Chelmsford	Permission granted, SI06 signed	13/00185/FUL	02/06/2014	Y, Dec 14	35				30 5									
Car Park Eastern End, Wharf Road, Chelmsford	No application			N	Y					_	4	4		80	70	80	70 IC	.0
Car Park to Eastwood House, Glebe Road, Chelmsford	No application			N	Y						4	4						133
Globe House and Ashby House Car Parks, Chelmsford	No application			N	Y													111
Lockside Industrial Area, Navigation Road, Chelmsford	No application			N	Y						4	4	<u> </u>	30		70		
Part of Car Park and yarge fronting Riverside Victoria Road Chelmsford	No application			N	Y					_	+		\square				0	, 62
Car Park Fairfield Road Chelmsford	No application			N	Y						+	+	<u> </u>			+		0 25
The leland Car Park, High Bridge Road, Chelmsford	No application			N	Y					-	╞	+				+		50
I Navigation Road Chelmsford	No application			N	Y					-	+	\vdash	\vdash			+	4	2
Land adjacent to 73 Springfield Road, Chelmsford	No application			N	Y					_	+	1	<u> </u>			+		
Tana aujacent to 75 Springheid Road, Chelmstond				N	r v					-	+	4	'			+		
				N N	I V						4	4—	<u> </u>		—	-+		,
Part of Car Park and vorse fronting Riverside Retail Park, Victoria Road	INO application			IN	Ť					_	4—	4—	–′			+	_	- 25
Chelmsford	No application			N	Y												2	3
Ambulance Station, Coval Lane, Chelmsford	Preliminary Enquiry	15/08103/PE		N	Y											19	10	
Car Wash Centre, New Street, Chelmsford	No application			N	Y												4	·
The Atlantic Hotel, New Street, Chelmsford	No application			N	Y												2'	2
Car Park, Rainsford Road, Chelmsford	No application			N	Y												- P) IO
Car Park, Regina Road, Chelmsford	No application			N	Y													9



										~		~		~		~			<u>ا</u> د
Site Address	Permission	Application Reference	Decision Date	Work Started	PDL	Greenfield	Conversion	Demolition	Market	Affordable	Market	Affordable	Market	Affordable	Market	Affordable	Market	1020 / 2021 Affordable	Post 2021
Car Park rear of 47-53 Duke Street, Chelmsford	No application			N	Y														6
Car Park rear of 20 Broomfield Road, Chelmsford	No application			N	Y														6
Car Park rear of 8 Railway Street, Chelmsford	No application			N	Y														5
SUB TOTAL									240	10	333	97	304	65	377	83	169 8	30 37	/1 442
		North Chelms	ord Area Action P	lan															
Land north, south and east of Belsteads Farm Lane, Broomfield (Channels) - Phase I	Permission granted	10/01976/OUT, 13/00191/REM, 13/00598/REM, 14/00797/REM	31/10/2012 10/05/2013 11/03/2014 18/06/2014	Y, October 2014		181			59	0	27	53	25	10	7				
Land north, south and east of Belsteads Farm Lane, Broomfield (Channels) - Phase 2	Permission granted	10/01976/OUT, 14/00026/REM	31/10/2012 04/03/2014	Y, October 2014		95			27		35	33							
Land north, south and east of Belsteads Farm Lane, Broomfield (Channels) - Phase 3A & B	Permission granted	10/01976/OUT	31/10/2012	Ν		74					24		24			26			
Land north, south and east of Belsteads Farm Lane, Broomfield (Channels) - Phase 3C & D	Permission granted	10/01976/OUT	31/10/2012	Ν		76							49	27					
Land north, south and east of Belsteads Farm Lane, Broomfield (Channels) - Phase 4	Permission granted	10/01976/OUT	31/10/2012	Ν		29					29								
Land north, south and east of Belsteads Farm Lane, Broomfield (Channels) - Phase 5	Permission granted	10/01976/OUT	31/10/2012	Ν		200							32	18	32	18	50	5(0
Land north, south and east of Belsteads Farm Lane, Broomfield (Channels) - Phase 6	Permission granted	10/01976/OUT	31/10/2012	Ν		95							32	18	29	16			
Land south west of Broomfield Place, Main Road, Broomfield	Current application pending decision	11/01409/FUL		Ν		223											60 4	1 0 12	23
Land east of North Court Road and north of Hospital Approach, Broomfield	S106 signed and planning permission granted (includes 90 bed care home)	11/01601/EIASO, 13/00409/FUL	28/05/2014	Ν		268					50		21	29	135	33			
Land north of Copperfield Road (East portion), Chelmsford	Planning Application agreed in principle Jan 2015, subject to S106	14/01672/FUL		Ν		198					30	20	50	20	49	29			
Land north of Copperfield Road (west portion), Chelmsford	Planning Application agreed in principle Dec 2014, subject to S106	14/00976/FUL		Ν		60					14	13	25	8					
Land south of Park Farm Cottages, Belsteads Farm Lane, Broomfield	No application			Ν		Y													750
Land east of Patching Hall Lane, Broomfield	Permission granted	10/00869/FUL	28/03/2013	Y		135			10										
East Barn Old Lodge Farm, White Hart Lane, Springfield	Permission granted	11/01751/FUL	08/03/2012	Y		8			8										
Greater Beaulieu Park, White Hart Lane, Springfield - Phase I - Zone D	Permission granted	09/01314/EIA 13/01872/REM	07/03/2014 25/07/2014	Y, November 2014		49			32		17								
Greater Beaulieu Park, White Hart Lane, Springfield - Phase I - Neighbourhood Centre	Permission granted	09/01314/EIA 14/01473/REM	07/03/2014 12/03/2015	Y, November 2014		34					25	9							



Site Address	Permission	Application	Decision Date	Work Started	PDL	Greenfield	Conversion Demolition	Mar	Afford	Mar	Affor	Mar	Afford	Afford	Mar	Afford	2020 /	Post
		Reference						ket	lable	ket	lable	ket	lable	ket	ket	lable	2021	2021
Greater Beaulieu Park, White Hart Lane, Springfield - Phase I - Zone B	Permission granted	09/01314/EIA	07/03/2014	Y, November 2014		77				33	15	20	9					
Greater Beaulieu Park, White Hart Lane, Springfield - Phase I - Zone A	Permission granted	09/01314/EIA 13/01795/REM	07/03/2014 19/02/2015	Y, November 2014		184				48	7	48	9	38 34				
Greater Beaulieu Park, White Hart Lane, Springfield - Phase I - Zone E	Permission granted	09/01314/EIA	07/03/2014	Y, November 2014		178						48	9	48 18	34	21		
Greater Beaulieu Park, White Hart Lane, Springfield - Phase I - Zone C	Permission granted	09/01314/EIA 13/01795/REM 13/01872/REM	07/03/2014 19/02/2015 25/07/2014	Y, November 2014		222				13	6	48	19	48 17	48	23		
Greater Beaulieu Park, White Hart Lane, Springfield - Phase I - Zone F	Permission granted	09/01314/EIA 13/01795/REM 13/01872/REM	07/03/2014 19/02/2015 25/07/2014	Y, November 2014		77						17	8	36 16				
Greater Beaulieu Park, White Hart Lane, Springfield - Bean Field	No application			Ν		50								32 18				
Greater Beaulieu Park, White Hart Lane, Springfield - Phases 2-4	Permission granted	09/01314/EIA	07/03/2014	Ν		2779									125	5 41	200	2413
SUB TOTAL								136	0	345	156	439	184	454 22	5 317	125	373	3163
	Site All	ocations Developr	nent Plan Docume	nt Allocations		1				r					_		T	
St Giles, Moor Hall Lane, Bicknacre	No application			Ν	32												32	
Land adjacent to The Cock Inn, Main Road, Boreham	Application submitted November 2014	14/01890/FUL		Ν	28									18 10				
St Johns Hospital, Wood Street (North), Chelmsford - Linden Homes	Permission granted	12/00258/FUL, 13/00925/MAT	21/08/2012	Y	58		40	24										
St Johns Hospital, Wood Street (South), Chelmsford - Inland Homes	Permission granted	12/01545/FUL	21/05/2013	Y	97		4	22	20	35								
Land at The Nest, Highwood Road, Edney Common, Chelmsford	Permission granted	11/01431/FUL	22/08/2012	Y	19		I	10	4	4								
Eurest Crown Buildings, Beeches Road, Chelmsford	Permission granted	14/00549/REM	11/09/2014	Y, Nov 14	46			38	8									
Runwell Hospital, Runwell Chase, Runwell	Permission granted	12/01480/OUT	21/11/2013	Y, Feb 15	575			15		75	41	75	40	75 40	75	40	59	40
Morelands Industrial Estate, Tileworks Lane, East Hanningfield	Application Submitted October 2014	14/01657/OUT		Ν	24									24				
Garages, Brookmans Road, Stock	Permission granted	14/01356/FUL	12/11/2014	Y, Feb 15	7			7										
Waterhouse Lane Depot and Nursery, Waterhouse Lane, Chelmsford	No application			N	Y												34	
Land rear Of 17-37 Beach's Drive, Chelmsford	No application			N	Y												29	
Writtle Telephone Exchange, Ongar Road, Writtle	No application			N	Y													25
Car Park adjacent 98 Coval Lane, Chelmsford	No application			N	Y													24



Site Address	Permission	Application Reference	Decision Date	Work Started	PDL	Greenfield	Conversion	Demolition	Market	Affordable	Market	Market	Affordable	Market	Affordable	Market	Affordable	Post 2021
County Library Headquarters, Goldlay Gardens, Chelmsford	Preliminary Enquiry	15/08115/PE		N	Y											21	11	
Land north of Galleywood Reservoir, Beehive Lane, Galleywood	No application			N	Y												1	8
Land rear of Pemberton Lodge, 61 Brook End Road, Springfield	No application			N	Y													18
Garages rear of 73 Byron Road, Chelmsford	15/00121/FUL Submitted Jan 2015	15/00121/FUL		N	12							12						
Land at Back Lane, East Hanningfield	15/00307/OUT, submitted April 2015	15/00307/OUT		N	N									2	8	\vdash		
SUB TOTAL									116	32	114 4	1 87	40	119	58	96	51 17	2 107
	1	Large Site	es (Unallocated)	Γ								_						
I Rectory Lane, Chelmsford	Permission granted	13/01777/FUL	28/05/2014	Ν	22						14 8	;						
Flavours of India, 170 Rainsford Road, Chelmsford	Permission granted	14/00476/FUL	23/05/2014	y, sept 14	14				14									
Land at Wicks Place, Chelmsford	Permission granted	14/01065/FUL	17/10/2014	N	14						14							
64-66 Broomfield Road	Prior approval granted	14/01147/COUPA	20/08/2014	N			37				37							
64-66 Broomfield Road	Permission granted	14/01751/FUL	21/01/2015	N	П							П						
Site rear of 30-34 Broomfield Road	Permission granted	14/01360/FUL	17/11/2014	N	20							20						
Royal & Sunalliance, Parkview House, Victoria Road South	Permission granted	15/00370/COUPA	27/04/2015	Ν			55				55							
South Lodge Hotel, 196 New London Road, Chelmsford	Permission granted, new application (15/00402/FUL) being considered with revisions	14/01794/FUL	09/02/2015	Ν	65							65						
London House, 111 New London Road, Chelmsford	Permission granted	14/01769/FUL	19/02/2015	Y, March 15	55							55						
Gemini House, 88-90 New London Road, Chelmsford	Permission granted	14/01076/COUPA	19/08/2014	Y, Nov 14			34		34									
First, Second, Third and Fourth Floor, Friars House, 6 Parkway, Chelmsford	Prior approval granted	13/01718/COUPA	21/01/2014	Y			20		20									
Rivers House, 127-129 Springfield Road	Prior approval granted	14/00336/COUPA	07/05/2014	Y, March 15			47				47							
Kensal House, 77 Springfield Road, Chelmsford	Prior approval granted	14/00285/COUPA	27/02/2014	Ν	Y		19				19							
Threadneedle House, 9-10 Market Road	Prior approval granted	14/00526/COUPA	08/05/2014	Ν			42				42							
Danbury Palace, Main Road, Danbury	13/00816/FUL Approved and S106 signed	13/00816/FUL	08/05/2014	Y		26	19		45									
24 Butts Lane, Danbury	Permission granted	14/08379/PE		Ν	8												ŧ	3
Alexandra Court, 36 Church Street, Great Baddow	Prior approval granted	14/00939/COUPA	08/08/2014	Ν			12				12							



Site Address	Permission	Application Reference	Decision Date	Work Started	PDL	Greenfield	Conversion	Demolition	Market	Affordable	Market	Affordable	Market	Affordable	Affordable	Market	Affordable	Post 2021 2020 / 2021
Rosehart Properties Ltd, Block B, Chelmsford Office and Technology Park (BAE)	Prior approval granted	14/02000/COUPA	30/01/2015	Ν	65						65							
Marrable House, The Vineyards, Great Baddow	Permission granted	11/01093/FUL	14/05/2012	Ν	58											37	21	
Former Rochelles Farm, Lawn Lane, Springfield	No application			Ν	Y													11
Oxney Garage, 212 Ongar Road, Writtle	Permission granted	13/00062/ETL	08/04/2013	Y	13									1	3			
Garage Block adjacent to 32 St. Margaret's Road, Chelmsford	No application			Ν	Y													14
Dovercourt Ford, 109 Rainsford Road, Chelmsford	No application			N	Y													18
SUBTOTAL		•	4			<u> </u>	•	1	113	0	305	8	151	0 1	30	37	21	40 11
		Small Site	es (Unallocated)						<u> </u>			<u> </u>						
																—		
Workshop, Main Road, Woodham Ferrers, Chelmsford	Permission granted	14/00963/REM	29/08/2014	Ν	2								2					
Site at Peartree Farm, Bicknacre Road, Danbury	Permission granted	15/00172/FUL	23/04/2015	Ν			I								1			
Blatch Cote, White Elm Road, Woodham Ferrers and Bicknacre	Permission granted	12/01798/FUL	31/01/2013	Ν	2			I					2					
Alderton Associates, Bulls Lodge Offices, Bulls Lodge Farm, Generals Lane	Permission granted	15/00111/FUL	30/03/2015	Ν			I								I			
Land at Bulls Lodge Farm, Generals Lane, Boreham	Permission granted	15/00294/FUL	25/04/2015	Ν			8							1	8			
Land at 4 Lionfield Cottages, Main Road, Boreham	Permission granted	15/00051/OUT	12/03/2015	Ν	I								I					
Site at I and 2 Church Road, Boreham	Permission granted	11/01209/ETL	06/11/2011	Y	10				10									
The Cock Inn, Main Road, Boreham	Permission granted	14/01170/FUL	17/10/2014	Ν	2		3							!	5			
Land rear of 8 to 11 Armonde Close, Boreham	Permission granted	14/00965/FUL	01/10/2014	Ν		1							I.					
Land at 17 Lodge Crescent, Boreham	Permission granted	14/00307/FUL	28/04/2014	Y March 15	I						I							
Site at North Bungalow, Elm Way, Boreham	Permission granted	13/01216/OUT	13/11/2013	Y	4				4									
Land At Part Rear Gardens 8 To 10 Oak Cottages, Main Road, Boreham	Permission granted	13/01485/FUL	08/02/2012	Y	2					2								



Site Address	Permission	Application Reference	Decision Date	Work Started	PDL	Greenfield	Conversion	Demolition	Market	Affordable	Market	Affordable	Anordable	Market	Affordable	Market	Affordable	Post 2021 2020 / 2021
Site at Hobblesfield, Hornells Corner, Little Leighs	Permission granted	15/00212/FUL	09/04/2015	Ν	I									1				
New Hall School, The Avenue, Boreham	Permission granted	14/00432/FUL	20/05/2014	Y March 15			I		I									
Campions Flat, New Hall School, Boreham	Permission granted	14/00279/FUL	09/04/2014	Y March 15			I		I									
Land west of Le Corbiere, Main Road, Boreham	Permission granted	12/01028/FUL	22/08/2012	Y	I				I									
Garage Block, Broomhall Close, Broomfield	Permission granted	14/01237/FUL	29/10/2014	N	3								3					
Thrift Farm, Moulsham Thrift, Chelmsford	Permission granted	13/01078/FUL	08/10/2013	N			I				1							
Langcliffe, Rainsford Road, Chelmsford	Permission granted	12/01410/FUL	07/11/2012	N			2											
22 Broomfield Road, Chelmsford	Permission granted	13/01842/FUL	12/02/2014	N			I				1							
47 Broomfield Road, Chelmsford	Permission granted	13/00572/FUL	09/08/2013	Y			6				6							
Courtman House, Maltese Road	Permission granted	14/01608/FUL	15/12/2014	N	3						3							
Land at 26 Townfield Street, Chelmsford	Permission granted	13/00857/FUL	02/09/2013	Y	2				T									
Pizza Hive, 43 Duke Street, Chelmsford	Permission granted	14/01085/FUL	20/08/2014	N	2						2							
56 Duke Street, Chelmsford	Permission granted	10/00445/FUL	20/08/2010	Y			8		8									
86 North Avenue, Chelmsford	Permission granted	14/00556/FUL	29/05/2014	N	2				2									
7-13 Rainsford Road, Chelmsford	Permission granted	14/01867/COUPA	09/01/2015	Y, Feb 15			8		8									
7-13 Rainsford Road, Chelmsford	Permission granted	15/00056/FUL	20/04/2015	Y, Feb 15			2		2									
Huntroyde, Rainsford Road, Chelmsford	Permission granted	12/01837/FUL	18/02/2013	N			I				I							
Reliance Employment, 28-31 Moulsham Street, Chelmsford	Permission granted	14/00033/FUL	22/05/2014	Ν			4				4							
Site at 34D Moulsham Street, Chelmsford	Permission granted	13/00094/FUL	13/03/2013	Y, March 15			I		I									
Land adjacent Open House, York Road, Chelmsford	Permission granted	14/00764/FUL	21/07/2014	N	2			I			I							
Apsley House, Waterloo Lane, Chelmsford	Permission granted	14/00663/FUL	30/06/2014	Y, Feb 15			3				3							
Land rear of 8 to 9c Meadowside, Chelmsford	Permission granted	13/00353/FUL	16/09/2014	Ν	I						I							



Site Address	Permission	Application Reference	Decision Date	Work Started	PDL	Greenfield	Conversion	Demolition	Market	Affordable	Market	Affordable	Market	Affordable	Market	Affordable	Affordable Market	Post 2021 2020 / 2021
Site rear of 50A - 50B Moulsham Street, Chelmsford	Permission granted	14/01386/FUL	13/10/2014	Ν			I				I							
Site at 57-63 Moulsham Street, Chelmsford	Permission granted	13/00203/FUL	19/04/2013	N			9		9									
The Snip, 9 Victoria Road, Chelmsford	Permission granted	13/00172/ETL	26/04/2013	N	10								10					
3 Tindal Square, Chelmsford	Permission granted	14/00553/FUL	27/05/2014	N			5				5							
Friars House, 6 Parkway, Chelmsford	Permission granted	14/00475/FUL	20/05/2014	Y	3				3									
Chelmsford Club, 108 New London Road	Permission granted	14/00921/FUL	31/07/2014	N	I						I							
The Old Silk Mill Building, Hall Street	Permission granted	14/01379/FUL	17/12/2014	N			6				6							
Chelmer House, 11-23 Springfield Road, Chelmsford	Prior approval granted	14/01750/COUPA	28/11/2014	N			8				8							
Chelmer House, 19-21 Springfield Road, Chelmsford	Permission granted	14/00101/FUL	03/04/2014	Ν	3						3							
2 High Street, Chelmsford	Permission granted	14/01665/FUL	23/12/2014	Ν			5				5							
131-135 Springfield Road, Chelmsford	Permission granted	13/01645/FUL	10/01/2014	Y, March 15			I		I									
I6A Duke Street, Chelmsford	Permission granted	14/01177/FUL	08/09/2014	Y feb 15			I		I									
187 Gloucester Avenue, Chelmsford	Permission granted	13/01451/FUL	18/12/2013	Ν	I						I							
191-192 Moulsham Street, Chelmsford	Permission granted	13/00704/FUL	31/07/2013	Ν	2						2							
191-192 Moulsham Street, Chelmsford	Permission granted	14/01206/FUL	05/09/2014	Ν	I						I							
204A New London Road, Chelmsford	Permission granted	14/00653/COUPA	16/06/2014	N			I		I									
201 New London Road, Chelmsford	Application withdrawn but ongoing Pre-app						10							10				
200 New London Road, Chelmsford	Permission granted	12/00473/FUL	14/09/2012	Y	2								2					



Site Address	Permission	Application Reference	Decision Date	Work Started	PDL	Greenfield	Conversion	Demolition	Market	Affordable	Market	Affordable	Market	Affordable	Market	Affordable	Affordable Market	Post 2021 2020 / 2021
I St Anthonys Drive, Chelmsford	Permission granted	14/00204/FUL	01/12/2014	Ν	I				I									
The New Barn, Kings Road, Chelmsford	Permission granted	13/00694/FUL	18/09/2013	Y	10					10								
Land south of 36 Gloucester Crescent, Chelmsford	Permission granted	13/00982/ETL	03/10/2013	N	I						T							
Broomfield Lodge, Sixth Avenue, Chelmsford	Permission granted	I I/00944/ETL	14/10/2011	Y	I				I									
Site at Broomfield Lodge, Sixth Avenue, Chelmsford	Permission granted	11/00943/ETL	14/10/2011	Y	4				4									
Land adjacent to 24 Woodhall Road, Chelmsford	Permission granted	13/00221/ETL	19/04/2013	Y, Jan 15	I						I							
210 and 210A Broomfield Road, Chelmsford	Permission granted	12/01588/ETL	07/12/2012	N			2						2					
Land rear of 269A and 269B Broomfield Road, Chelmsford	Permission granted	13/01013/FUL	02/10/2013	N	2				2									
48 Chignal Road, Chelmsford	Permission granted	14/00650/FUL	16/06/2014	Y, July 2014	5						5							
Land East of 53 St Nazaire Road, Chelmsford	Permission granted	13/00787/FUL	21/08/2013	N	3									3				
Garages rear of 68 Cherwell Drive, Chelmsford	Preliminary Enquiry	14/08530/PE			8											8		
The Three Stars, 10 Trent Road	Permission granted	14/01720/FUL	17/12/2014	N	9							9						
Land at I Cassino Road, Chelmsford	Permission granted	14/01620/FUL	02/12/2014	N	2						2							
21 Seven Ash Green, Chelmsford	Permission granted	12/01499/FUL	30/11/2012	N	3			I					2					
Tom Green Construction, 206 Springfield Road, Chelmsford	Permission granted	14/01258/FUL	23/09/2014	N			2		2									
Land rear of 5 to 9 Tyrells Close, Chelmsford	Permission granted	14/00174/OUT	02/02/2014	N	2						2							
Land rear of 270 to 272 Springfield Road, Chelmsford	Permission granted	13/00996/FUL	11/09/2013	Y	2				2									
9 and 10 Alma Drive, Chelmsford	Permission granted	14/00793/FUL	07/07/2014	Y, March 15	2						2							
Stevens Farm, Mashbury Road, Chignal St James	Permission granted	14/01096/FUL	26/08/2014	Ν			I				I							
Land between Marshalls and 4 Ash Rise, Chignal Road, Chignal Smealy	Permission granted	14/00305/OUT	24/04/2014	Ν		I					I							
Land south of Lower Lodge, Main Road, Danbury	Permission granted	14/00473/FUL	23/05/2014	Y, Feb 15	I						I							
Rainbows, Postmans Lane, Little Baddow	Permission granted	14/01000/FUL	18/08/2014	Ν	I			2										
Land at Rosemary, Maldon Road, Danbury	Allowed at Appeal	14/01468/OUT	30/04/2015	Ν	I								I					



Site Address	Permission	Application Reference	Decision Date	Work Started	PDL	Greenfield	Conversion Demolition	Market	Market	Affordable	Affordable Market	Affordable Market	Market	Affordable	Post 2021 2020 / 2021
Land at Willow Cottage, Gay Bowers Road, Danbury	Permission granted	14/01523/FUL	05/11/2014	Z			I		I						
Land north west of Silver Ash, Southend Road, Rettendon Common	Permission granted	14/00035/OUT	07/03/2014	Ν	I				I						
Land at 152 Pyms Road, Galleywood	Permission granted	14/01695/FUL	05/12/2014	Y, Feb 15		I			1						
Land North East of Mill House, Mill Road, Good Easter	Permission granted	14/01782/FUL	23/12/2014	Y, Feb 15		I			I						
Mill Bakery, Mill Road, Good Easter	Permission granted	12/01021/OUT	21/08/2012	Ν	I				I						
Barn at Round Roblets, Bedfords Farm Lane, Good Easter	Permission granted	12/01625/FUL	21/01/2014	Ν			I		I						
45 Dorset Avenue, Great Baddow	Permission granted	14/00967/FUL	15/08/2014	Ν			2		2						
264 Baddow Road, Great Baddow	Permission granted	12/00747/FUL	10/07/2012	Ν	5						5				
Garage site between 67-69 and 79-81 Noakes Avenue, Great Baddow	Permission granted	13/00264/FUL	01/05/2013	Ν	5							5			
Land rear of 291-293 Baddow Road, Great Baddow	Permission granted	14/01513/REM	12/11/2014	Y Nov 14	2				2						
Land between 10 and 11 Mercia Close, Great Baddow	Permission granted	14/00646/FUL	13/06/2014	Ν	I					1					
Land between 5 and 7 Whitehouse Crescent, Great Baddow	Permission granted	13/00769/FUL	21/08/2013	Ν	2					2					
Land west of The Reading Rooms, Bell Street, Great Baddow	Permission granted	12/01630/FUL	24/12/2012	Y, Oct 14	2			2							
Land rear of 107 to 109 Beehive Lane, Great Baddow	Permission granted	13/01222/FUL	24/10/2013	Y	I			I							
Bringey Cottage, The Bringey, Great Baddow	Permission granted	14/00695/FUL	20/08/2014	Y, March 15	3		I		2						
Land west of Plantation Lodge, The Bringey, Great Baddow	Permission granted	13/00262/FUL	29/04/2013	Ν	I			I							
Dumney Farm, Dumney Lane, Little Leighs	Permissions granted	14/01118/FUL	08/09/2014	Ν	I			I							



Site Address	Permission	Application Reference	Decision Date	Work Started	PDL	Greenfield	Conversion	Demolition	Market	Affordable	Market	Affordable	Market	Affordable	Market	Affordable	Allor uaure Market	2020 / 2021	Post 2021
Garages rear of 24 Cherry Garden Road, Great Waltham	Application expected	I 2/08409/PE		Ν	10							10							
Orchard House, Main Road, Howe Street	Permission granted	13/01768/FUL	02/04/2014	Y March 15	I						I								
2, 4 & 8 Barrack Lane, Great Waltham	Permission granted	12/00733/FUL	11/01/2013	Y, March 15	8			3		3		2							
Barn at Little Fellows, Mashbury Road, Great Waltham	Permission granted	15/00066/FUL	17/04/2015	Ν			I						I						
Land North of 45 Pleshey Road, Ford End	Permission granted	14/00829/FUL	11/07/2014	Y	I						I								
Land at Cranford, Lucks Lane, Howe Street	Permission granted	14/02072/REM	13/02/2015	Ν	I						-								
Barns Northend Place, Brook Hill, North End	Permission granted	12/00707/FUL	13/09/2012	Y, March 15			3		3										
Greenend Farm, Dunmow Road, North End	Permission granted	13/01322/FUL	13/11/2013	Z	2				2										
Land north east of Glengarry, Highwood Road, Edney Common	Permission granted	15/00029/FUL	06/03/2015	Y, March 15		I							I						
Awes Farm, Ingatestone Road, Highwood	Permission granted	12/01679/FUL	23/01/2013	Ν	I						Ι								
Phillips Farm, Highwood Road, Edney Common	Permission granted	14/00756/FUL	02/07/2014	Ν			2		2										
Rysley Stables, Rysley, Little Baddow	Permission granted	14/02067/FUL	01/04/2015	Ν			I						I						
Barn at Little Baddow Hall Farm, Church Road, Little Baddow	Prior Approval Required - approved	14/01393/COUPA	13/10/2014	Ν			I				I								
Hammonds Farm, Hammonds Road, Little Baddow	Permission granted	14/01435/FUL	14/11/2014	Ν			2				2								
Site at Bright House, North Hill, Little Baddow	Permission granted	14/01184/FUL	01/10/2014	Y March 15			I		I										
Central Diamond Drilling Itd Store Rear of 26 The Street, Little Waltham	Permission granted	14/01458/FUL	11/11/2014	Ν	1						Ι								
Barn adjacent The Old Off Licence, Blasford Hill, Little Waltham	Permission granted	14/01444/FUL	27/11/2014	N			I				I								



Site Address	Permission	Application Reference	Decision Date	Work Started	PDL	Greenfield	Conversion	Demolition	Market	Affordable	Market	Affordable	Market	Affordable	Market	Affordable	Affordable Market	2020 / 2021	Post 2021
Chatham Green Yard, Braintree Road, Little Waltham	Permission granted	14/00386/OUT	18/09/2014	Ν	I						I							Γ	
Garage Blosk, Brook Hill, Little Waltham	Permission granted	14/01748/FUL	22/12/2014	N	2						2								
Aston Lodge, Chatham Green, Little Waltham	Permission granted	12/00944/FUL	19/09/2012	Ν	4								4						
Martins Farm, The Tye, Margaretting	Prior approval not required	14/01543/COUPA	04/11/2014	Ν			I				I								
Land north west of The Spread Eagle, Main Road, Margaretting	Permission granted	11/01713/FUL	19/12/2011	Y	3				3										
Land adjacent to Broadoaks, Maldon Road, Margaretting	Permission granted	10/01837/FUL	14/01/2011	Y	I				I										
White Horse, The Street, Pleshey	Permission granted	12/01226/FUL	02/10/2012	Y			I		I										
Rettendon Car Sales Ltd, Main Road, Rettendon Common	Permission granted	14/01242/FUL	16/09/2014	Ν	I				I										
Planthome Ltd, Woodham Road, Battlesbridge, Wickford	Permission granted	13/01169/FUL	30/10/2013	Ν	4				4										
Hereford House, 5 Rettendon Place Cottages, Main Road, Rettendon	Permission granted	14/00095/FUL	25/07/2014	Ν	2			I			I								
Overstrand, Woodham Road, Battlesbridge	Permission granted	15/00161/OUT	02/04/2015	Ν	I								I						
Rettendon Place Barns, Church Chase, Rettendon	Permission granted	12/01812/FUL	12/02/2013	Ν			I		I										
47 East Hanningfield Road, Rettendon	Permission granted	13/01184/FUL	24/10/2013	Ν	3				3										
29 Brock Hill, Runwell	Permission granted	14/01216/FUL	10/09/2014	Ν	I				I										
Land South of 115 Brock Hill, Runwell	Permission granted	14/00851/FUL	29/08/2014	Y, March 15		I					I								
Land at Thatchers, South Hanningfield Road, Rettendon	Permission granted	13/00414/FUL	24/05/2013	N			I		I										



Site Address	Permission	Application Reference	Decision Date	Work Started	PDL	Greenfield	Conversion	Demolition	Market	Affordable	Market	Affordable	Market	Affordable	Market	Affordable	Attoruatie Market	2020 / 2021	Post 2021
Pooty Pools Farm, Radley Green Road, Roxwell	Permission granted	14/01069/FUL	10/11/2014	Y			3				3							Γ	
Warwicks, The Street, Roxwell	Permission granted	13/00592/FUL	19/06/2013	N	I				I										
Land between 108 and 110 Runwell Road, Runwell, Wickford	Permission granted	14/01204/OUT	20/11/2014	N	I						I								
30 South Hanningfield Road, Runwell	Permission granted	14/01100/FUL	22/08/2014	Ν	I						I								
Westwood Livery, Sporhams Lane, Sandon	Permission granted	14/01542/FUL	10/12/2014	Ν	I						I								
20 Church Road, Ramsden Heath	Permission granted	12/01256/OUT	04/10/2012	Ν	2			I					I						
Land adjacent 96 Downham Road	Permission granted	13/00646/FUL	11/07/2013	Ν	I						I								
Land East of 95 Downham Road, Downham	Permission granted	14/00760/FUL	27/06/2014	Ν	I				I										
Fitness Studio, Oak Farm, Castledon Road, Downham	Permission granted	13/01755/FUL	30/01/2014	Ν			I		I										
Land at 98 Downham Road, Billericay	Permission granted	14/00075/FUL	26/03/2014	Ν	1				I										
Land west 119 Downham Road, Ramsden Heath	Permission granted	14/00510/FUL	20/05/2014	Ν	I						I								



Site Address	Permission	Application Reference	Decision Date	Work Started	PDL	Greenfield	Conversion Demolition	Market	Affordable	Market	Affordable	Affordable Market	Affordable Market	Market	Affordable	Post 2021 2020 / 2021
Laylands Farm, Sudbury Road, Downham	Permission granted	14/00767/COUPA	09/07/2014	Ν			I			1						
Land at Avete, South Hanningfield Road, South Hanningfield	Permission granted	14/00411/OUT	07/05/2014	Ν	I			I								
26 Saltcoats, South Woodham Ferrers	Permission granted	13/01318/ETL	04/11/2013	Ν	I			I								
Site at 19 Manor Road, South Woodham Ferrers	Permission granted	14/01779/FUL	14/01/2015	Ν	I					1						
Land East of 85 Sandford Mill Road, Springfield Road	Permission granted	13/01727/OUT	23/01/2014	Ν	2			2								
II Clematis Tye, Springfield. Chelmsford	Permission granted	14/00010/FUL	25/02/2014	Y sept 14			I	I								
Land East of 36 Back Lane, Stock	Permission granted	13/00713/FUL	25/09/2013	Y	2			2								
Torc Cottage, 3 Garden End, Stock	Permission granted	15/00068/FUL	17/03/2015	Ν	2		I					1				
Meepshole, Great Prestons Lane, Stock	Permission granted	14/01949/FUL	21/01/2015	Ν			1			1						
Land South East of 10 The Square, Stock	Permission granted	15/00247/FUL	14/04/2015	Ν	I							1				
144 Mill Road, Stock	Permission granted	14/00447/OUT	20/05/2014	Y, Jan 15	2		I	I								
The Cock Inn, High Street, Stock	Permission granted	14/02113/FUL	01/04/2015	Ν	4							4				



Site Address	Permission	Application Reference	Decision Date	Work Started	PDL	Greenfield	Conversion Demolition	Market	Affordable	Affordable	Market	Affordable	Affordable Market	Market	Affordable	2020 / 2021	Post 2021
Hippodrome Farm, Goatsmoor Lane, Stock	Permission granted	14/01931/COUPA	19/01/2015	Ν			I			I							
The Grange, Stock Road, Stock	Permission granted	14/00533/FUL	17/07/2014	Ν	3					3							
Lammas Cottage, High Street, Stock	Permission granted	12/00940/FUL	06/08/2012	Y	I			I									
Land at 10 to 10A Albert Road, South Woodham Ferrers	Permission granted	14/01576/FUL	18/11/2014	Ν	I					I							
7 Reeves Way, South Woodham Ferrers	Permission granted	13/01750/COUPA	27/01/2014	Ν			1			I							
I and I3 Trinity Square, South Woodham Ferrers	Permission granted	13/01754/COUPA	27/01/2014	Ν			3			3							
15 Reeves Way, Woodham Ferrers and Bicknacre	Permission granted	12/00344/FUL	25/04/2012	Y			2			2							
Halgate House, 52 Hullbridge Road, South Woodham Ferrers (not the same floor area as site below)	Prior Approval Required - approved	13/00855/COUPA	3/08/20 3	Ν			4	4									
First floor Unit 4A Haltgate House, 52-54 Hullbridge Road, South Woodham Ferrers	Prior Approval Required - approved	13/01298/COUPA	31/10/2013	Ν			1	1									
Land rear of 34 Elm Road, Woodham Ferrers and Bicknacre	Permission granted	12/01282/FUL	12/10/2012	Ν	I						I						



Site Address	Permission	Application Reference	Decision Date	Work Started	PDL	Greenfield	Conversion	Demolition	Market	Affordable	Market	Affordable	Market	Affordable	Market	Affordable	Market	Affordable	7030 / 2021	Post 202
The Cottage, West Hanningfield Road, West Hanningfield	Permission granted	14/01431/FUL	12/12/2014	Ν	I						I									
I and 2 Crowsfield Cottages, Church Road, West Hanningfield	Permission granted	14/01848/FUL	08/01/2015	Ν	3			2				I								
Meadow View, Ship Road, West Hanningfield	Permission granted	14/00777/FUL	07/07/2014	Y, October 2014	I				I											
Barns South East of Hobcerks Farm, Crows Lane, Woodham Ferrers	Permission granted	14/01893/FUL	10/02/2015	N			I				I									
Land at 24 Hunts Drive, Writtle	Permission granted	14/00413/FUL	08/05/2014	N	I				I				\neg							
131 Long Brandocks, Writtle	Permission granted	14/01965/FUL	27/01/2015	Y			I		Т											
82 Back Road, Writtle	Permission granted	14/01777/OUT	23/12/2014	N	2								2							
Land East of 26 The Coverts, Writtle	Permission granted	14/00099/FUL	14/03/2014	N	I						1									
SUBTOTAL									116	15	125	25	50	13	16	13	0	0	0 (0
												1								
Windfall Allowance															99		82	I.	40	
TOTAL									721	57	1222	327	1031	302	1078	379 7	701 2	277 10	96 37	23
									77	/8	15	549	133	3	145	,	978			
						Т	OTAL UNI	TS					609	5						
						Of	which AH u	nits					134	2						



Site Address	Permission	Application Reference	Decision Date	Work Started	PDL	Greenfield	Conversior	Demolition	Market	Affordable	Market	Affordable	Market	Affordable	Attoruauje Market	Market	Attordable	2020 / 2021 Affordable	F Ust 2021	Prict 2021
--------------	------------	--------------------------	---------------	--------------	-----	------------	------------	------------	--------	------------	--------	------------	--------	------------	----------------------	--------	------------	---------------------------	------------	------------



Site Address	Permission	Application Reference	Decision Date	Work Started	PDL	Greenfield	Conversior	Demolition	Market	Affordable	Market	Affordable	Market	Affordable	Апогоалыс Market	Market	Mankot	Affordable	2021 / 2021	Post 2021
--------------	------------	--------------------------	---------------	--------------	-----	------------	------------	------------	--------	------------	--------	------------	--------	------------	---------------------	--------	--------	------------	-------------	-----------



Site Address	Permission	Application Reference	Decision Date	Work Started	PDL	Greenfield	Conversior	Demolition	Market	Affordable	Market	Affordable	Market	Affordable	Апогоалыс Market	Market	Mankot	Affordable	2021 / 2021	Post 2021
--------------	------------	--------------------------	---------------	--------------	-----	------------	------------	------------	--------	------------	--------	------------	--------	------------	---------------------	--------	--------	------------	-------------	-----------





Appendix B. Non-Housing Developments

Development Proposals	Description	Location	Projected Delivery Date
BAE System (Rosehart)	Office General Industrial Storage and Distribution Mix of above 7,127sqm	West Hanningfield Road Gt Baddow	2016-2021
Springfield Business Park	Office Storage and Distribution Mix of above 17,070sqm	Boreham Interchange, CM2 5LB	2016-2021
City Park West (Former ARU Central)	Office Retail Mix of above 9,820sqm	Victoria Road South, Chelmsford	2016-2021
Marconi Evolution (Former Marconi Works)	Office Retail Mix of above 9,820sqm	New Street, Chelmsford	2016-2021
The Exchange (CM2) – Anderson Site	Office 5,524sqm Retail 690sqm	Colchester Road, Springfield, CM2 5PW	2016-2021
NE Chelmsford Employment and Non-	Retail 2,000sqm Doctors Surgery 1,000sqm Community Centre 600sqm Day Nursery 500sqm Allocated with pp	NE Chelmsford within new Neighbourhood Centre accessed from White Hart Lane between junction with Shardlowe Avenue and A1016 Nabbotts Roundabout. Also linked within development to Essex Regiment Way	2015-2021
Beaulieu scheme with Rail Station provided	Day Nursery 3,000sqm Leisure 2,000sqm Business B1 9,000sqm Hotel 3,700 (150 beds) Allocated with pp	NE Chelmsford within new Mixed Use Area accessed from RDR and potentially new NE Chelmsford By-pass/A12	2021+
Greater Beaulieu Business Park	Business Park B1 40,000sqm Allocated with pp	NE Chelmsford within new Mixed Use Area accessed from RDR and potentially new NE Chelmsford By-pass/A12	2021+



Development Proposals	Description	Location	Projected Delivery Date
Temple Farm (IBSA Village)	112,500sqm of business development including 50,000sqm of major print works with live/work residential units Allocated site with pp	South of J16 of A12 accessed via new access road to B1007	2015-2021
Channels Business Park (Relocated Police HQ)	Latest proposals Relocation of Police HQ with 16,000 sqm office and 1,000 car parking places	Former Mid Essex Gravel Plant site, Essex Regiment Way	2018+
Riverside Redevelopment	Remodelled Leisure Centre with potentially 500 new car parking spaces	Access from Victoria Road.	2016-17
Aquila, Bond Street Development	Retail expansion Retail – 26,644sqm	Land East of High Street (John Lewis development)	2016
Waitrose (Former Royal Mail)	Retail – 2,224sqm Flexible space 630sqm	Former Royal Mail Sorting Office, Victoria Road Chelmsford	2016-2021
Aldi	Retail 1,492sqm	Land adjacent to Army and Navy roundabout Chelmsford	2016-2021
Essex County Cricket Club,	Cricket club use 1,754sqm	New Writtle Street Chelmsford	2016-2021
Former Britvic Site	Proposals for Retail 8,222sqm Office/Industry/distribution 7,950sqm	Westway Chelmsford	2016-2021



Appendix C. Summary of 2021 Planning Data by Zone

Zone ID	Residential (New dwellings)	Office (100 m2)	Business Parks (100 m2)	Food Retail (100 m2)	General Retail (100 m2)	Leisure (100 m2)	Industrial (100 m2)	Warehouse (100 m2)	GP Surgery (100 m2)	Day Nursery (100 m2)	Community Centre (100 m2)
1	76										
2	565			2224							
3	60				26644						
4	133	5524			690						
5	688										
6											
7	47										
8	23										
9	5										
10	5										
11	5										
12	5										
13	5										
14	5										
15	5										
16	5										
17	11										
18	5										
19	5										
20	5										
21	5										
22	5										



Zone ID	Residential (New dwellings)	Office (100 m2)	Business Parks (100 m2)	Food Retail (100 m2)	General Retail (100 m2)	Leisure (100 m2)	Industrial (100 m2)	Warehouse (100 m2)	GP Surgery (100 m2)	Day Nursery (100 m2)	Community Centre (100 m2)
23	5										
24	5										
25	5										
26	11	14059			690			8535			
27	5										
28	5										
29	5										
30	5										
31	5										
32	5										
33	5										
34	5										
35	5										
36	5										
37	5										
38	18										
39	5										
40	5										
41	5										
42	5										
43	5										
44	5										
45	5										
46	5										



Zone ID	Residential (New dwellings)	Office (100 m2)	Business Parks (100 m2)	Food Retail (100 m2)	General Retail (100 m2)	Leisure (100 m2)	Industrial (100 m2)	Warehouse (100 m2)	GP Surgery (100 m2)	Day Nursery (100 m2)	Community Centre (100 m2)
47	5										
48	46										
49	143										
50	5										
51	5										
52	5										
53	5										
54	5										
55	34	7950			8222						
56	65										
57	5										
58	5										
59	5										
60	5										
61	17										
62	116										
63	17										
64	17										
65	5										
66	65	2376					2376	2376			
67	5										
68	5										
69	5										
70	5										



Zone ID	Residential (New dwellings)	Office (100 m2)	Business Parks (100 m2)	Food Retail (100 m2)	General Retail (100 m2)	Leisure (100 m2)	Industrial (100 m2)	Warehouse (100 m2)	GP Surgery (100 m2)	Day Nursery (100 m2)	Community Centre (100 m2)
71	5										
72	5										
73	5										
74	5										
75	5										
76	5	4910			4910						
77	24										
78											
79											
80	14										
81	14										
82	3										
83	4										
84	3										
85											
86											
87	5										
88	223										
89	1237				1100				550	275	330
90	75				900				450	225	270
91	675										
92	24										
93											
94											



Zone ID	Residential (New dwellings)	Office (100 m2)	Business Parks (100 m2)	Food Retail (100 m2)	General Retail (100 m2)	Leisure (100 m2)	Industrial (100 m2)	Warehouse (100 m2)	GP Surgery (100 m2)	Day Nursery (100 m2)	Community Centre (100 m2)
95											
96											
97											
98	64										
99											
100	5										
101											
102	56										
103											
104											
105	32										
107											
108											
109	6										
110	6										
111	6										
112	535										
113	17										
114	17										
115											
116	6										
117	3										
118			112500								
119											



Zone ID	Residential (New dwellings)	Office (100 m2)	Business Parks (100 m2)	Food Retail (100 m2)	General Retail (100 m2)	Leisure (100 m2)	Industrial (100 m2)	Warehouse (100 m2)	GP Surgery (100 m2)	Day Nursery (100 m2)	Community Centre (100 m2)
120											
121	21										
122											
123	5										
124	5										
125	5										
126											
127	5										
128											
129	5										
130	412					1754					
131	32										
132	101										
133	5			1492							
134	5										
135	115										
136											
137	5										
138	5										
139											
140	5										
141	5										
142											
144	268										



Zone ID	Residential (New dwellings)	Office (100 m2)	Business Parks (100 m2)	Food Retail (100 m2)	General Retail (100 m2)	Leisure (100 m2)	Industrial (100 m2)	Warehouse (100 m2)	GP Surgery (100 m2)	Day Nursery (100 m2)	Community Centre (100 m2)
145											
146											
Totals	6521	34818	112500	3716	43156	1754	2375	10910	1000	500	600


Appendix D. Tripend growth by year and mode, Highways

				AM					
	Tuin Endo	Car		LG	V	но	iV	То	tal
	inp ends	0	D	0	D	0	D	0	D
	Chelmsford Admin	19697	19785	2698	2692	2254	2334	24649	24812
2014	Rest of Essex	10980	11125	1758	1792	297	229	13034	13147
After ME	UK	2876	2643	509	479	1277	1264	4662	4386
	Total	33553	33553	4964	4964	3828	3828	42345	42345
	Chelmsford Admin	24051	23553	3166	3160	2373	2457	27995	27608
2021	Rest of Essex	12333	13025	2063	2104	312	241	13890	14506
2021	UK	3291	3097	597	562	1344	1331	5015	4786
	Total	39675	39675	5826	5826	4029	4029	48595	48595
	Chelmsford Admin	28815	27831	4170	4162	2629	2722	32276	31491
2036	Rest of Essex	14278	15501	2717	2771	346	267	15687	16743
	UK	3928	3690	787	741	1489	1475	5749	5478
	Total	47022	47022	7674	7674	4464	4464	55537	55537

	AM											
	Trip Ende	Car		LGV		HGV		Total				
		0	D	0	D	0	D	0	D			
2024	Chelmsford Admin	4354	3768	468	467	119	123	3346	2797			
	Rest of Essex	1353	1900	305	311	16	12	856	1359			
2021	UK	415	455	88	83	68	67	353	400			
	Total	6122	6122	862	862	202	202	6250	6250			
	Chelmsford Admin	9118	8045	1473	1470	375	388	7628	6680			
2036	Rest of Essex	3298	4376	959	979	49	38	2653	3597			
	UK	1052	1047	278	262	213	211	1088	1092			
	Total	13468	13468	2710	2710	636	636	13192	13192			

	AM											
	Trip Endo	Car		LGV		HGV		Total				
		0	D	0	D	0	D	0	D			
2021	Chelmsford Admin	22%	19%	17%	17%	5%	5%	14%	11%			
	Rest of Essex	12%	17%	17%	17%	5%	5%	7%	10%			
	UK	14%	17%	17%	17%	5%	5%	8%	9%			
	Total	18%	18%	17%	17%	5%	5%	15%	15%			
	Chelmsford Admin	46%	41%	55%	55%	17%	17%	31%	27%			
2036	Rest of Essex	30%	39%	55%	55%	17%	17%	20%	27%			
	UK	37%	40%	55%	55%	17%	17%	23%	25%			
	Total	40%	40%	55%	55%	17%	17%	31%	31%			



	IP											
	Tata Fasta	Car		LG	δV	нс	SV	То	tal			
	Trip Ends	0	D	0	D	0	D	0	D			
	Chelmsford Admin	19610	19719	2236	2258	725	743	22571	22719			
2014	Rest of Essex	7627	6750	1107	943	117	99	8851	7792			
After ME	UK	973	1741	159	301	397	396	1529	2439			
	Total	28210	28210	3502	3502	1238	1238	32950	32950			
	Chelmsford Admin	25880	26002	2624	2649	762	781	27551	27709			
2021	Rest of Essex	8696	7696	1299	1106	122	104	9541	8396			
2021	UK	1131	2010	187	354	418	417	1660	2648			
	Total	35707	35707	4109	4109	1302	1302	38752	38752			
	Chelmsford Admin	31588	31778	3457	3490	845	866	32230	32453			
2036	Rest of Essex	10441	9225	1711	1457	135	115	11078	9729			
	UK	1388	2413	246	466	463	462	1936	3061			
	Total	43416	43416	5414	5414	1443	1443	45244	45244			

	IP											
	Trip Ende	Car		LG	LGV		SV	То	tal			
		0	D	0	D	0	D	0	D			
2021	Chelmsford Admin	6271	6283	388	392	37	38	4980	4989			
	Rest of Essex	1069	946	192	163	6	5	690	604			
	UK	158	269	28	52	21	21	131	209			
	Total	7498	7498	607	607	64	64	5802	5802			
	Chelmsford Admin	11978	12060	1221	1232	120	123	9660	9734			
2036	Rest of Essex	2814	2475	604	514	19	16	2227	1937			
	UK	415	672	87	165	66	66	407	622			
	Total	15207	15207	1911	1911	205	205	12294	12294			

	IP											
	Trip Endo	Car		LO	LGV		δV	Total				
		0	D	0	D	0	D	0	D			
2021	Chelmsford Admin	32%	32%	17%	17%	5%	5%	22%	22%			
	Rest of Essex	14%	14%	17%	17%	5%	5%	8%	8%			
	UK	16%	15%	17%	17%	5%	5%	9%	9%			
	Total	27%	27%	17%	17%	5%	5%	18%	18%			
	Chelmsford Admin	61%	61%	55%	55%	17%	17%	43%	43%			
2036	Rest of Essex	37%	37%	55%	55%	16%	16%	25%	25%			
	UK	43%	39%	55%	55%	17%	17%	27%	26%			
	Total	54%	54%	55%	55%	17%	17%	37%	37%			



	PM											
	Tuin Finds	Car		LGV		но	δV	То	tal			
	Trip Ends	0	D	0	D	0	D	0	D			
	Chelmsford Admin	23590	23624	3431	3347	1818	1865	28839	28836			
2014	Rest of Essex	10138	9802	1679	1662	342	341	12158	11805			
After ME	UK	2013	2315	347	447	1152	1107	3512	3869			
	Total	35741	35741	5457	5457	3312	3312	44510	44510			
	Chelmsford Admin	29547	30279	4027	3928	1914	1963	33530	34162			
2021	Rest of Essex	11848	10890	1970	1950	360	359	13391	12477			
2021	UK	2361	2587	407	525	1213	1165	3825	4106			
	Total	43756	43756	6404	6404	3487	3487	50746	50746			
	Chelmsford Admin	34826	35856	5305	5174	2121	2175	38217	39052			
2020	Rest of Essex	14032	12729	2595	2570	398	397	15400	14221			
2036	UK	2773	3046	536	692	1344	1291	4332	4676			
	Total	51631	51631	8435	8435	3863	3863	57949	57949			

	PM											
	Trip Endo	Ca	ır	LG	iV	но	δV	Total				
		0	D	0	D	0	D	0	D			
	Chelmsford Admin	5958	6655	596	581	96	98	4691	5327			
2021	Rest of Essex	1709	1089	291	288	18	18	1233	673			
2021	UK	348	272	60	78	61	59	313	237			
	Total	8015	8015	947	947	175	175	6236	6236			
	Chelmsford Admin	11236	12232	1873	1827	302	310	9378	10216			
2036	Rest of Essex	3894	2927	916	907	57	57	3241	2417			
	UK	760	731	189	244	192	184	820	807			
	Total	15890	15890	2979	2979	551	551	13439	13439			

	PM											
	Trip Ende		Car		LGV		HGV		tal			
		0	D	0	D	0	D	0	D			
2021	Chelmsford Admin	25%	28%	17%	17%	5%	5%	16%	18%			
	Rest of Essex	17%	11%	17%	17%	5%	5%	10%	6%			
	UK	17%	12%	17%	17%	5%	5%	9%	6%			
	Total	22%	22%	17%	17%	5%	5%	14%	14%			
	Chelmsford Admin	48%	52%	55%	55%	17%	17%	33%	35%			
2036	Rest of Essex	38%	30%	55%	55%	17%	17%	27%	20%			
	UK	38%	32%	55%	55%	17%	17%	23%	21%			
	Total	44%	44%	55%	55%	17%	17%	30%	30%			



Appendix E. Tripend growth by year and mode, Public Transport

			AM				
	Trin Fode	Ra	ail	В	JS	То	tal
	Trip Ends	0	D	0	D	0	D
	Chelmsford Admin	2887	1318	3659	3757	6546	5075
2014	Rest of Essex	383	277	817	719	1200	996
After ME	UK	1092	2768	0	0	1092	2768
	Total	4362	4362	4476	4476	8838	8838
	Chelmsford Admin	3131	1446	4088	4174	7218	5620
2021	Rest of Essex	400	292	839	753	1239	1044
2021	UK	1198	2990	0	0	1198	2990
	Total	4728	4728	4926	4926	9655	9655
	Chelmsford Admin	3336	1529	4520	4577	7856	6107
2020	Rest of Essex	419	317	893	835	1312	1152
2036	UK	1264	3172	0	0	1264	3172
	Total	5019	5019	5413	5413	10432	10432

	AM											
	Trip Ends	Rail		Βι	JS	Total						
		0	D	0	D	0	D					
2021	Chelmsford Admin	244	128	429	417	672	545					
	Rest of Essex	16	15	22	34	38	49					
	UK	106	223	0	0	106	223					
	Total	366	366	451	451	816	816					
	Chelmsford Admin	449	212	861	821	1309	1032					
2036	Rest of Essex	36	41	76	116	112	157					
	UK	172	405	0	0	172	405					
	Total	657	657	937	937	1593	1593					

	AM											
	Trip Ende	Rail		Βι	JS	Total						
	The Ellus	0	D	0	D	0	D					
2021	Chelmsford Admin	8%	10%	12%	11%	10%	11%					
	Rest of Essex	4%	5%	3%	5%	3%	5%					
	UK	10%	8%	0%	0%	10%	8%					
	Total	8%	8%	10%	10%	9%	9%					
	Chelmsford Admin	16%	16%	24%	22%	20%	20%					
2036	Rest of Essex	9%	15%	9%	16%	9%	16%					
	UK	16%	15%	0%	0%	16%	15%					
	Total	15%	15%	21%	21%	18%	18%					



IP								
The state		Rail		Bus		Total		
	Trip Ends	0	D	0	D	0	D	
	Chelmsford Admin	634	554	1540	1582	2174	2135	
2014	Rest of Essex	110	186	211	170	321	356	
After ME	UK	498	503	0	0	498	503	
	Total	1242	1242	1752	1752	2994	2994	
	Chelmsford Admin	885	760	2160	2204	3045	2964	
2021	Rest of Essex	128	231	221	177	349	408	
2021	UK	671	693	0	0	671	693	
	Total	1684	1684	2381	2381	4065	4065	
	Chelmsford Admin	955	827	2374	2427	3329	3254	
2036	Rest of Essex	144	254	248	196	392	450	
	UK	728	746	0	0	728	746	
	Total	1827	1827	2623	2623	4449	4449	

IP								
Trip Ends		Rail		Bus		Total		
		0	D	0	D	0	D	
2021	Chelmsford Admin	251	206	620	623	871	829	
	Rest of Essex	18	45	10	7	28	52	
	UK	172	190	0	0	172	190	
	Total	442	442	629	629	1071	1071	
2036	Chelmsford Admin	321	273	834	846	1155	1118	
	Rest of Essex	34	68	37	26	71	94	
	UK	230	243	0	0	230	243	
	Total	584	584	871	871	1455	1455	

IP								
Trip Ends		Rail		Bus		Total		
		0	D	0	D	0	D	
2021	Chelmsford Admin	40%	37%	40%	39%	40%	39%	
	Rest of Essex	17%	24%	5%	4%	9%	15%	
	UK	35%	38%	0%	0%	35%	38%	
	Total	36%	36%	36%	36%	36%	36%	
2036	Chelmsford Admin	51%	49%	54%	53%	53%	52%	
	Rest of Essex	31%	37%	17%	15%	22%	26%	
	UK	46%	48%	0%	0%	46%	48%	
	Total	47%	47%	50%	50%	49%	49%	



PM								
		Rail		Bus		Total		
	Thp Ends	0	D	0	D	0	D	
	Chelmsford Admin	1003	1334	1805	1855	2808	3190	
2014	Rest of Essex	129	395	351	301	480	695	
After ME	UK	1308	711	0	0	1308	711	
	Total	2440	2440	2156	2156	4596	4596	
	Chelmsford Admin	1143	1470	2164	2211	3308	3680	
2021	Rest of Essex	137	428	358	312	495	740	
2021	UK	1428	810	0	0	1428	810	
	Total	2707	2707	2523	2523	5230	5230	
	Chelmsford Admin	1204	1579	2349	2413	3553	3992	
2036	Rest of Essex	151	454	397	333	548	787	
	UK	1529	853	0	0	1529	853	
	Total	2885	2885	2746	2746	5631	5631	

PM								
Trip Ends		Rail		Bus		Total		
		0	D	0	D	0	D	
2021	Chelmsford Admin	141	135	359	356	500	491	
	Rest of Essex	7	33	7	11	14	44	
	UK	119	99	0	0	119	99	
	Total	267	267	367	367	634	634	
	Chelmsford Admin	202	244	544	558	746	802	
2036	Rest of Essex	22	59	46	32	68	91	
	UK	221	141	0	0	221	141	
	Total	445	445	590	590	1034	1034	

PM								
Trip Ends		Rail		Bus		Total		
		0	D	0	D	0	D	
2021	Chelmsford Admin	14%	10%	20%	19%	18%	15%	
	Rest of Essex	6%	8%	2%	4%	3%	6%	
	UK	9%	14%	0%	0%	9%	14%	
	Total	11%	11%	17%	17%	14%	14%	
2036	Chelmsford Admin	20%	18%	30%	30%	27%	25%	
	Rest of Essex	17%	15%	13%	11%	14%	13%	
	UK	17%	20%	0%	0%	17%	20%	
	Total	18%	18%	27%	27%	23%	23%	