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Transport Assessment

Proposed Residential Development

Cobbinsend Farm, Cobbinsend Road, Waltham Abbey, EN9 2AA

28 August 2020

**ENVIRONMENTAL AND
SUSTAINABILITY CONSULTANTS**

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Executive Summary

This report has been prepared in connection with the application for the development of 4 new detached houses on land at Cobbinsend Farm, Cobbinsend Road, Waltham Abbey.

From investigations in respect of sustainable accessibility, car parking provision, access arrangements and traffic generation, the main findings are:

- The level of parking provision satisfies the required parking standards, by providing each dwelling with a private driveway suitable for cars to park.
- Investigations into the number and severity of accidents recorded in the vicinity of the site are not indicative of defects in the highway layout and design. There have been no accidents on Cobbinsend Road within the last 5 years. Given the low volume of traffic travelling in both directions past the site which is less than 100 vehicles per weekday on average, the residential development is unlikely to have any impact on the existing road safety within the vicinity of the site.
- The existing site access is to be retained in its current form for use by the new development. The site access is considered appropriate for vehicles to safely enter and egress the development given the fact the access has been used for many years by the previous dairy farm without any issues to road safety. Together with the low traffic flows on the road and the reduction in intensity of proposed traffic from the residential development, there are unlikely to be any issues to the safe egress of vehicles from the site.
- The location of the proposed development offers low potential for local sustainable transport. Overall, it is considered that the most likely mode of transport will be the car, due to the lack of essential amenities within walking distance (there is no village shop). Whilst there is a bus stop located 2.2km from the site, the frequency of services is unlikely to encourage regular use. However, there is good accessibility to local rail stations that provide easy access into London.
- It is expected that 2 vehicles will be arriving and departing from the site during the AM peak (08:00 - 09:00), and 3 vehicles will be arriving and departing during the PM peak (17:00 - 18:00) and will therefore have no discernible impact to the flow of traffic on the surrounding network.

The Local Authority can rest assured that the impact on the local roads from the proposed development has been assessed in terms of traffic generation, sustainable accessibility and highway safety and would not present a detrimental impact to the highway network.

1 Introduction

- 1.1 This Transport Assessment (TA) has been submitted in connection with the application for the change in use of a dairy farm at Cobbinsend Farm into 4 residential dwellings, on Cobbinsend Road, Waltham Abbey, in order to assess the impact of the proposed development on the existing highway network.
- 1.2 **The report has been produced in line with the ‘Travel Plans, Transport Assessments and Statements’ (Ministry of Housing, Communities & Local Government 2014) and takes into account current Government policy within the revised National Planning Policy Framework (CLG 2019) and best practice guidance within ‘Manual for Streets’ (DfT 2007) and ‘Manual for Streets 2 - Wider Application of the Principles’ (CIHT 2010) , the Design Manual for Roads and Bridges (Highways Agency 2002) including CA 185 Vehicle Speed Measurement (formerly TA 22/81).**
- 1.3 The report has also been produced in line with local planning policy, including the Essex Design Guide which deals with highways and transportation infrastructure for new residential developments. In addition, the Essex Transport Strategy has been used to inform this document.

2 Background

- 2.1 The land for the proposed residential development is located to the east of Cobbinsend Road, to the outskirts of the town of Waltham Abbey, Essex.
- 2.2 The existing site includes a number of agricultural buildings and barns, with an existing access from Cobbinsend Road. The site is accessed from a series of rural lanes which appear to be used for access to a network of farms that are located between Harlow and Waltham Abbey.
- 2.3 The site is located to the north-eastern outskirts of the suburban town of Waltham Abbey and is encompassed by the rural and agricultural landscape. The villages of Copthall Green and Upshire are located to the south of the application site. There are a number of parks and woods located between the application site and Waltham Abbey, including Warlies Park and Fernhall Wood.
- 2.4 Waltham Abbey is located within Epping Forest District, which had a population of 124,660 recorded in the 2011 census. Epping Forest District is named after the 2,400 area of ancient woodland located between Epping and Forest Gate in Greater London. Waltham Abbey and the application site are located just north east of the forest. Therefore, despite the close proximity of major roads including the M25, the location of the application site retains a secluded rural character.

3 Scheme Overview

- 3.1 The existing site is comprised of a dairy farm that has been out of operation for at least the last 18 months. The site comprises a number of farm buildings and barns associated with this use. There is an existing access to the south west corner leading onto Cobbinsend Road.
- 3.2 The proposal will see the redevelopment of the site to form 4 residential dwellings, comprising 1 x 2 bedroom, 1 x 3 bedroom and 2 x 4 bedroom detached houses with gardens. Each dwelling is to have a private driveway accessed off the existing access road on Cobbinsend Road.

4 Scope of Assessment

- 4.1 This Transport Assessment has been produced to consider the following issues
- Proposed site access
 - Sustainable accessibility and car parking provision
 - Highway safety and existing accident data for the local area
 - Number of trips generated by the proposed development compared to the current land use
 - Analyses of impacts of trips from the proposed development
- 4.2 Existing traffic data for Cobbinsend Road, the highway from which the development is to be accessed, was collected via an ATC (automatic traffic count) survey installed on Cobbinsend Road outside the proposed access. The ATC survey equipment was left in-site for 7 days between 00:00 Friday 28th February 2020, and 24:00 Thursday 5th March 2020.
- 4.3 This report considers the extent of the transport and movement implications of the proposed development and the impact on the locality. In particular, the likely vehicle trip generation, and the accessibility of the site in terms of sustainable transport options and an assessment of the suitability of the proposed access from the site exit are all examined.
- 4.4 With regards to calculating the existing traffic from the current land use, the TRICS database was interrogated for suitable residential survey sites. There is no TRICS data available for the previous dairy farm use.
- 4.5 TRICS database was examined to determine the most appropriate trip rates for private housing developments with less than 30 dwellings in Edge of Town or Village/Neighbourhood centre Locations and Trip Rate Calculations were purchased from TRICS.
- 4.6 The report comprises the following sections:

Section 5 - Provides a description of the existing highway and pedestrian conditions in the site vicinity, including a site description, and assessments of the existing public transport, cycling and walking networks.

Section 6 - Sets out the development proposals for the amount and type, including a description of the development, proposed access and level of on-site parking provision and servicing.

Section 7 - Sets out the existing and proposed traffic generation for the site.

Section 8 - Summarises the key findings and concludes the report.

5 Description of Existing Conditions

5.1 This section describes the existing:

- site location and surrounding area
- development site
- local highway network
- existing traffic flows
- accident data
- sustainable modes of transport
- bus travel
- rail travel
- walking
- cycling

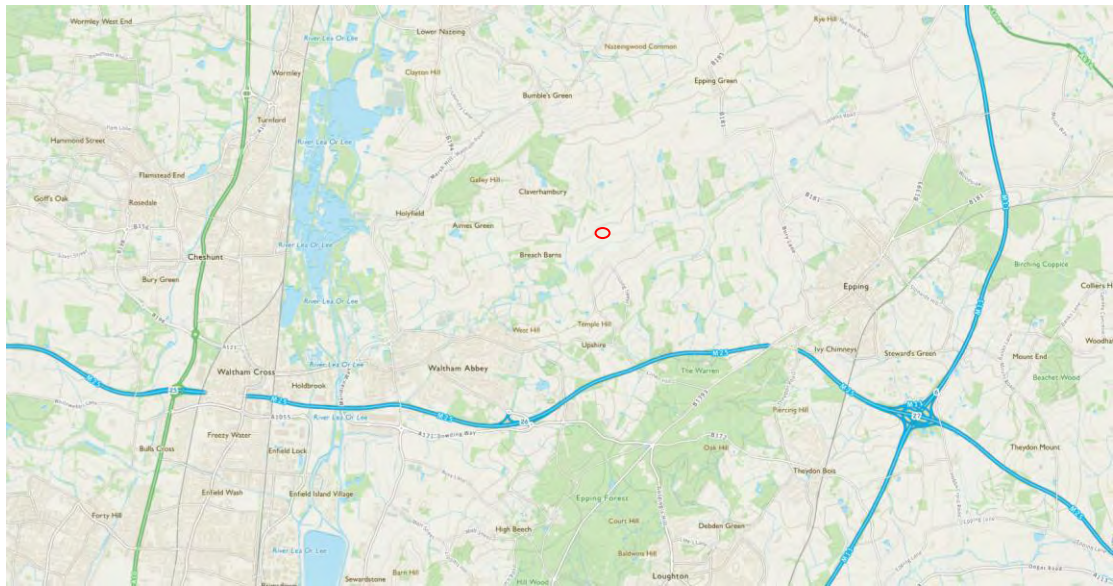
5.2 Site Location and Surrounding Area

The application site falls within the Local Highways Authority of Essex County Council and Planning Authority of Epping Forest District Council.

5.3 The application site is located within the rural area to the north eastern outskirts of Waltham Abbey, with a number of small villages/ hamlets located between. Waltham Abbey is a suburban market town which adjoins to the neighbouring town of Cheshunt. The M25 motorway runs along the south of the town and Central London is located 21 miles to the south by road.

5.4 Waltham Abbey is located within the Greater London Urban Area, within the outskirts of north east London. Therefore, the town has good links to other settlements such as Enfield and other outskirts of London. The M11 and M25 motorways are both in close proximity providing access to further destinations.

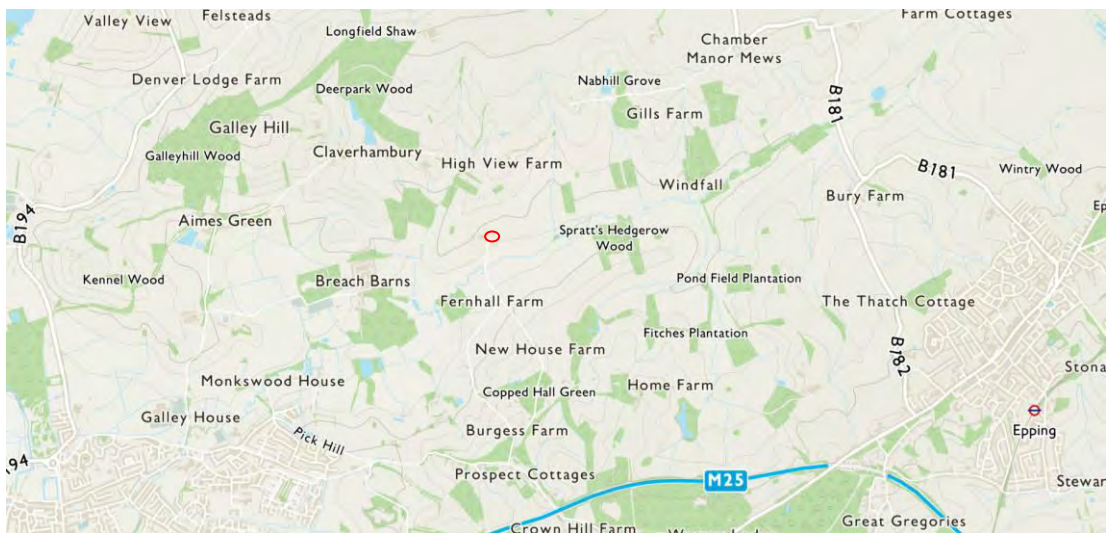
Figure 1: OS Map Showing Context of the Site Location



5.5 Development Site

The application site is located in the rural outskirts of Waltham Abbey, accompanied by farm dwellings only. The surrounding landscape is rural comprising agricultural land, parks and woods. The closest area of settlement is located to the south, consisting of two small villages.

Figure 2: OS Map Showing Location of the Site



5.6 The site currently comprises a number of farm buildings that have been part of a dairy farm that is no longer operational. There is an existing access to the south west corner of the site, from Cobbinsend Road.

5.7 Local Highway Network

Figures 1 and 2 above show the highway infrastructure surrounding the site. The site is located on Cobbinsend Road, a rural lane that provides access to the network of agricultural properties and fields situated between Waltham Abbey and Harlow. According to Essex Highways, Cobbinsend Road becomes a private road from Cobbinsend Farm northwards. The road continues to the north as a byway. The speed limit for Cobbinsend Road is the National Speed Limit, i.e. 60mph. Just south of the site, there is a triangular junction where Fernhall Lane and Long Street meet to form Cobbinsend Road. These two roads lead south and meet again where Long Street has a junction onto Fernhall Lane. Fernhall Lane then continues south for a short distance before meeting with Crown Hill, which leads east to west between Copthall Green and Waltham Abbey.

5.8 To the west, Crown Hill becomes Horseshoe Hill, and then Upshire Road on the approach to Waltham Abbey. Crown Hill has a speed limit of 30 mph within the village of Upshire and also narrows at points leading towards Waltham Abbey. Parking is not permitted on this road. The road then becomes Horseshoe Hill where the speed limit increases to 40mph on exit of Upshire Road and continues towards Upshire Road, where the limit reduces again to 30mph which continues through the centre of Waltham Abbey.

5.9 The M25 is a motorway that encircles almost all of Greater London and is known as one of the busiest in Britain. The M25 is accessible from Cobbinsend Road 3.4 miles to the south via Woodgreen Road and Honey Lane. The motorway provides access to all outer areas of London, including other major roads such as the M11, A1 and M1 which provide access to the rest of the country.

5.10 Existing Traffic Flows - Cobbinsend Road

To ascertain the existing traffic flows in proximity to the site, an ATC (automatic traffic count) survey was carried out.

5.11 The ATC was installed on Cobbinsend Road outside the proposed access, and data was collected between 00:00 Friday 28th February 2020 and 24:00 Thursday 5th March 2020.

Figure 3: Photograph of the ATC device in-situ on Cobbinsend Road



Table 1: Automatic Traffic Count Vehicle Flow - Northbound

Hour Ending	28/02/20 Fri	29/02/20 Sat	01/03/20 Sun	02/03/20 Mon	03/03/20 Tues	04/03/20 Wed	05/03/20 Thurs
1	0	0	0	0	1	0	0
2	0	1	0	0	0	0	0
3	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0
7	0	1	1	3	1	2	1
8	7	3	3	2	4	4	7
9	5	0	1	3	2	5	3
10	2	2	2	3	1	3	11
11	0	2	1	2	9	4	9
12	4	1	5	0	3	2	3
13	3	5	2	4	3	4	7
14	2	4	4	3	1	4	6
15	0	6	1	1	2	2	1
16	2	2	3	2	4	5	2
17	2	3	3	3	1	4	2
18	4	0	3	4	3	3	3
19	2	5	0	6	1	5	1
20	3	1	3	1	2	0	3
21	2	1	0	1	1	1	2
22	0	0	0	0	1	0	2
23	2	1	0	3	1	1	0
24	1	0	0	0	0	0	0
0-24	41	38	32	41	41	49	63

- 5.12 Due to the very low volume of traffic, no consistent peak hours are distinguishable. The standard weekday peak hours have been highlighted in the table above, i.e. 08:00 - 09:00, and 17:00 - 18:00. The data shows that a total of 305 vehicles travelled in a northbound direction on Cobbinsend Road during the 7-day survey period. The average weekday 24-hour total was 47 vehicles

Table 2: Automatic Traffic Count Vehicle Flow - Southbound

Hour Ending	28/02/20 Fri	29/02/20 Sat	01/03/20 Sun	02/03/20 Mon	03/03/20 Tues	04/03/20 Wed	05/03/20 Thurs
1	0	0	0	0	2	0	0
2	0	1	0	0	0	0	0
3	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0
7	3	0	1	6	4	5	4
8	6	2	3	3	2	2	5
9	4	2	1	3	1	5	4
10	2	2	5	4	2	5	12
11	0	3	0	2	8	2	7
12	2	2	4	0	5	2	7
13	1	2	2	4	2	4	4
14	2	2	2	2	0	5	4
15	0	4	1	1	0	0	1
16	2	1	8	2	4	1	2
17	1	5	3	3	2	3	1
18	6	0	2	5	5	3	2
19	1	3	1	4	4	4	2
20	2	1	1	2	1	0	2
21	0	0	0	2	0	0	3
22	0	0	0	0	0	0	1
23	1	0	0	1	0	1	0
24	1	0	0	0	0	0	0
0-24	34	30	34	44	42	42	61

5.13 The above data shows that as with the northbound traffic, there is a very low volume flow for southbound traffic which means that there is no consistent peak volume flow. The data shows that a total of 287 vehicles travelled in a southbound direction on Cobbinsend Road during the 7-day survey period. The average weekday 24-hour total was 45 vehicles.

5.14 The surveyed traffic data also included vehicle types and travelling speeds. Full details are included in Appendix A but are summarised below.

5.15 Vehicle Class

Northbound

Car/LGV/Caravan = 88 %

OGV1/Bus = 11 %

OGV2 = 1 %

Southbound

Car/LGV/Caravan = 93 %

OGV1/Bus = 7 %

OGV2 = 0 %

- 5.16 The vehicle class survey illustrates that the vast majority of vehicles travelling on Cobbinsend Road are in the car/LGV/caravan category. It is likely that the OGV1/ Bus vehicles are associated with agricultural vehicles, as this road is not on a bus route.

5.17 Vehicle Speed

- 5.18 A summary of the speed data recorded is given below:

Table 3: Speed Survey - Northbound

	5-DAY MEAN
0000-2400 Vehicle Flow	47
85 th ile Speed	24.0
% Vehicles >60 MPH Limit	0

Table 4: Speed Survey - Southbound

	5-DAY MEAN
0000-2400 Vehicle Flow	45
85 th ile Speed	19.9
% Vehicles >60 MPH Limit	0

- 5.19 The results above demonstrate that 100% vehicles recorded within the survey were travelling under the 60mph speed limit. The 85thile speed of vehicles travelling northbound was 24 mph (38.6kph) and travelling southbound was 19.9mph (32 kph).

5.20 Summary of Existing Traffic Survey

The survey data reveals a low volume of traffic on Cobbinsend Road with generally a similar volume of traffic in both directions. The data shows no real pattern for when peak hours occur, as they vary across both the AM and PM. 100% of vehicles were travelling under the 60mph speed limit, and the 85thile speeds were 24 mph and 19.9mph for northbound and southbound vehicles respectively. The majority of vehicles recorded in the survey were in the car/ LGV/ Van category, with a maximum of 11% of vehicles in the OGV1/ bus category.

5.21 Accident Data

Accident data was requested from Essex Highways Authority to determine whether any accidents had occurred on Cobbinsend Road within the last 5 years. The search area included Cobbinsend Road to the south up to and including the junction with Fernhall Lane. The email confirmation is included in Appendix C.

5.22 Accident Data Summary

Investigations into the number and severity of accidents recorded in the vicinity of the site are not indicative of defects in the highway layout and design. There have been no accidents on Cobbinsend Road within the last 5 years. Given the low volume of traffic travelling in both directions past the site which is less than 100 vehicles per weekday on average, the residential development is unlikely to have any impact on the existing road safety within the vicinity of the site.

5.23 Sustainable Accessibility

An investigation into the provision of sustainable travel options for potential residents of the application site has been carried out to assess the sustainable accessibility of the site. The following modes of transport have been investigated:

5.24 Bus Travel

The IHT Guidelines for "Planning for Public Transport in New Developments" state that the maximum walking distance to a bus stop should not exceed 400m if bus travel is to be maximised.

- 5.25 There are no bus stops within close proximity to the site, with the closest stops located in Upshire village, 1.4 miles to the south of the application site. There are also no footpaths along the route between the bus stop and the site. **Bus stop "Fern Hall" is served by bus route 13 operated by Swallow Coach Company, which runs between St Margaret's Hospital in Epping, to Waltham Cross Bus Station.**

5.26 The frequency of bus services in proximity to the site are summarised below:

Table 5: Summary of Bus Services

Service	Route	Day	Times		Frequency
			First	Last	
13	Epping, St Margaret's Hospital to Waltham Cross	Mon-Fri	06:53	18:23	60-90 mins
13	Epping, St Margaret's Hospital to Waltham Cross	Sat	08:04	18:34	90 mins
13	Waltham Cross to Epping St Margaret's Hospital	Mon-Fri	07:59	19:08	60-90 mins
13	Waltham Cross to Epping St Margaret's Hospital	Sat	08:53	17:48	90 mins

5.27 The distance to the bus stop and lack of footpaths is not convenient for residents of the proposed development to use the bus service on a regular basis, which is furthered by the poor frequency of services. Therefore, due to the rural location of the development, transport by bus is not considered a viable option for residents.

5.28 Rail Travel

There is no train station within close proximity to the site, however there are a number of railway and underground stations located within the nearby towns, as follows:

- Epping Underground station - 4.6 miles
- Theobald Grove Railway Station - 5.7 miles
- Enfield Lock Station - 6.7 miles
- Cheshunt Railway and Underground Station - 6.9 miles
- Harlow Town Railway Station - 11.8 miles

5.29 Epping underground station (zone 6) is the last stop on the Central Line providing access through Central London to West Ruislip approximately every 10 minutes. The journey to London takes less than an hour. Please visit the [Transport for London](https://tfl.gov.uk) website for more information on underground travel. There is also an application downloadable to Smart Phones where route planning is available.

5.30 Theobald Grove station operates services to London Liverpool Street and Cheshunt with a frequency of approximately 30 minutes. The station has a ticket office with opening hours of 06:15 - 17:45 on weekdays and 07:15 - 14:00 on Saturdays. Ticket machines are available.

There is a car park of 140 spaces and 6 cycle storage spaces. Part of the station has step-free access.

5.31 Other nearby stations listed above have destinations including Bishops Stortford, Hertford East, Broxbourne, Stratford, Stansted Airport and Cambridge.

5.32 Therefore, rail travel has a good viability for travelling to further destinations including London and could form part of a journey to/ from the site combined with a short car journey to and from the station.

5.33 Walking

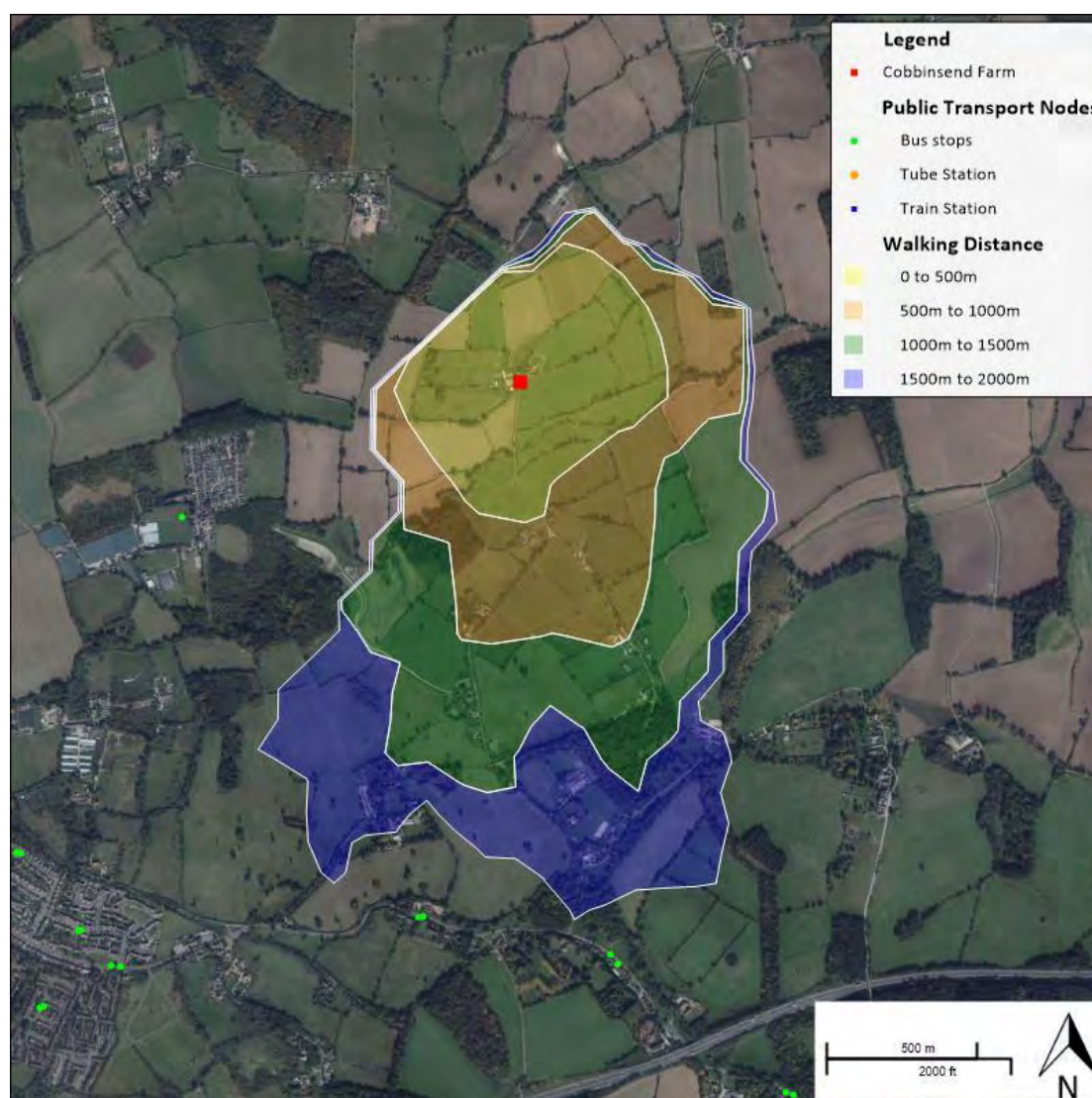
A person's willingness to walk is dependent on many factors including access to a car, safety, road congestion, weather, gradients, parking, health, direction of route and purpose of journey.

5.34 National Planning Policy Framework makes reference to the importance of encouraging walking as an alternative mode of travel which offers the greatest potential to replace short car trips, particularly under 2.0 km, (approximately 1.5 miles).

5.35 **The Institution of Highways and Transportation (IHT) publication “Guidelines for Providing for Journeys on Foot” note that walking accounts for over 25% of all journeys and 80% of journeys up to 2km.**

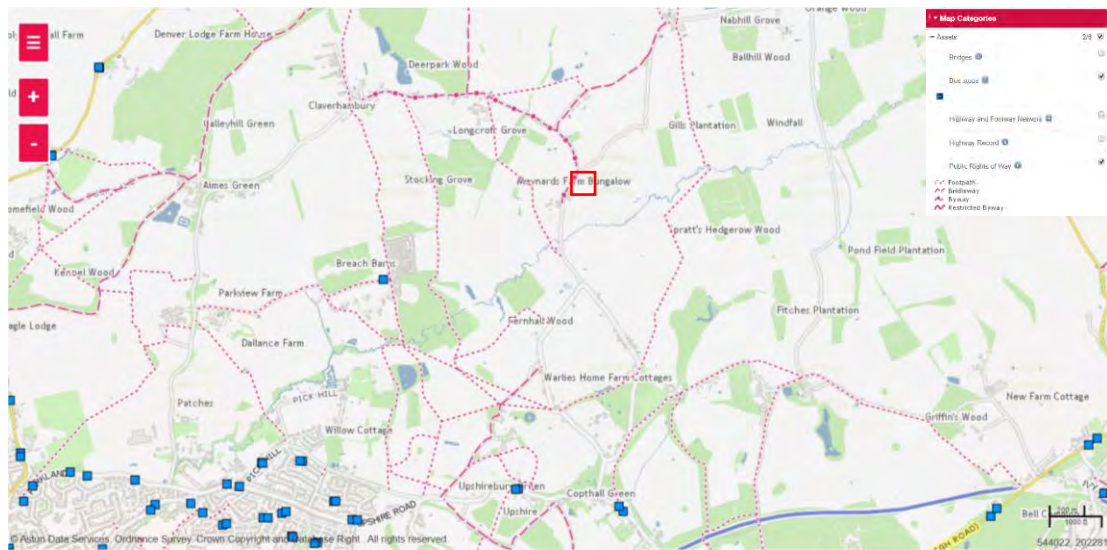
5.36 The 2.0 km walking isochrone map below shows that the site is located more than a 2km walk from other settlement including Waltham Abbey. The roads to the north of the site are unadopted agricultural lanes which limits access. Due to the rural nature of the location of the site, the majority of land located within the walking radius map is agricultural land, woods or parks, which offers excellent opportunity for recreational walking, as discussed overleaf. There is a bus stop within 2.2km from the application site.

Figure 4: 2.0km Walking Isochrone Map



- 5.37 The site is located in the rural landscape on the outskirts of Waltham Abbey, with the immediate surroundings consisting predominantly of agricultural fields and rural access roads.
- 5.38 The existing site has an access to the south west corner of the site from Cobbinsend Road. The proposals include the retention of this access.
- 5.39 Cobbinsend Road is a typical rural lane that has no footpaths or streetlighting. This continues for Long Street and Fernhall Lane. Crown Hill has occasional streetlighting and footpaths.

Figure 5: Public Rights of Way Map



- 5.40 The map above, courtesy of Essex Highways website demonstrates that there is a good provision of public right of ways within the vicinity of the site. There are a number of footpaths leading across the rural landscape that are likely to be use predominantly for recreational walking rather than a means of access due to the distance between the site and other amenities.
- 5.41 Given the proximity of the site to other amenities within the area, walking is considered to have a low viability as a mode of transport. Therefore, walking is likely to be predominantly used for recreational purposes only rather than a regular mode of transport from the proposed development.

5.42 Local Amenities

There are some local amenities and/ or places of work in the surrounding area that residents can access by foot, bicycle or bus. A selection of the nearest amenities is shown in the table:

Table 6: Local Amenities

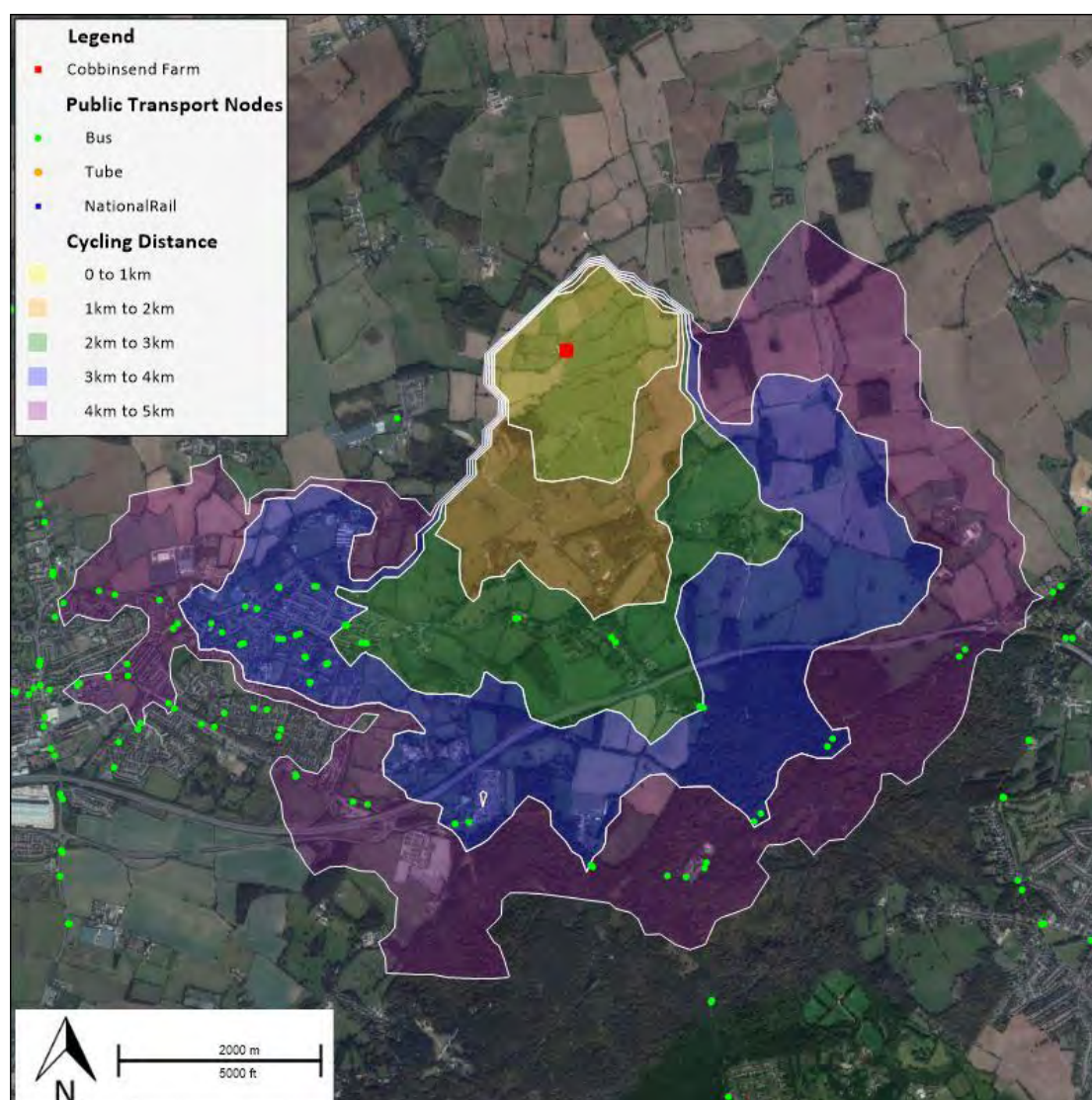
Amenity	Location	Distance	Walking Time*
Upshire Village Hall (Tumble Tots)	Horseshoe Hill	2.5km	32 mins
St Thomas's Church of England	Horseshoe Hill	2.4km	31 mins
The Horseshoes Country Pub & Dining Room	Horseshoe Hill	2.5km	32 mins
Upshire Primary School	Upshire Road	3.3km	41 mins
Copthall Trust & Gardens	Stables Courtyard	2.1km	27 mins
Co-op Food	Upshire Road	3.7km	46 mins

* Walking times based on "leisurely" 5km/hr (3mph)

5.43 Cycling

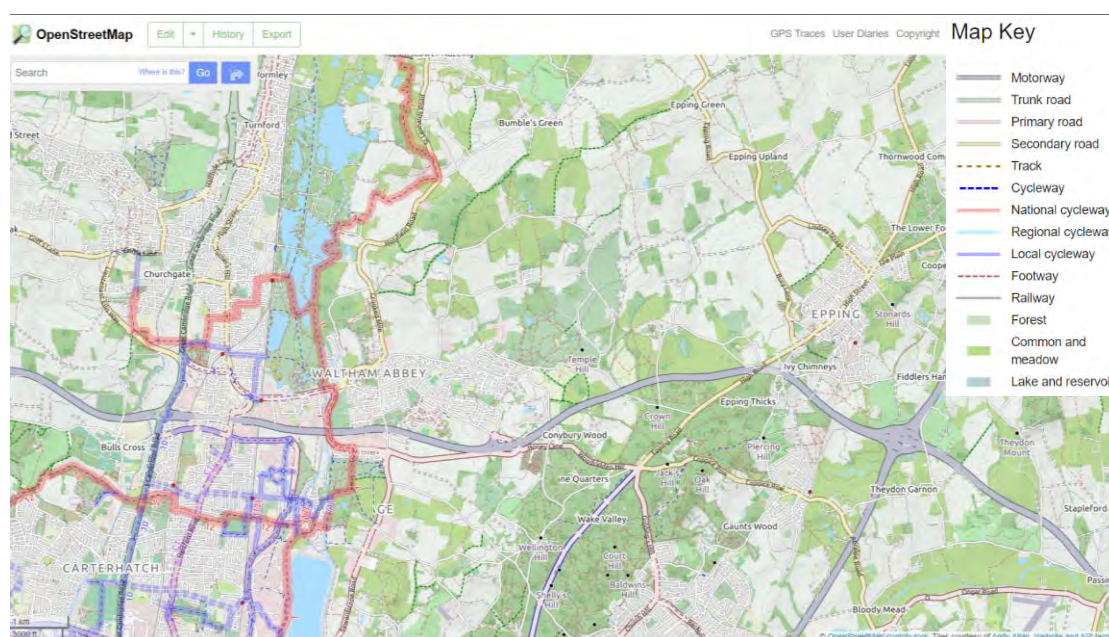
National Planning Policy Framework makes reference to the importance of encouraging cycling as an alternative mode of travel which has the potential to be a substitute for short car trips, particularly those under 5km and to form part of a longer journey by public transport.

- 5.44 The "Cycling Isochrone Map" overleaf shows that a 5km cycle catchment area, centered on the site, includes the eastern half of Waltham Abbey and smaller settlements along Upshire Road, including Upshire and Copthall Green. The tube and train stations located in Epping and Waltham Cross are just outside of the cycling catchment.

Figure 6: 5.0km Cycling Isochrone Map

5.45 The map extract below shows the availability of cycle routes surrounding the site.

Figure 7: Cycle Route Map



5.46 The map demonstrates that the closest cycleway to the site is a National Cycleway (Route 1) that runs north to south through Waltham Abbey, connecting Harlow to Central London. There is little other cycle route provision within Waltham Abbey.

5.47 **Cycle Streets website allows you to plan a cycle journey, allowing you to choose the fastest, quietest or balanced route based on the users own preferences.**

<https://walthamabbey.cyclestreets.net/>

5.48 The existing road network is considered reasonable to encourage cyclists and offers links to areas and some local amenities within an acceptable cycling distance, however due to the rural locality of the site, cycling is considered to provide recreational activities rather than a regular mode of travel.

5.49 Sustainable Accessibility Conclusion

The location of the proposed development offers low potential for local sustainable transport. Overall, it is considered that the most likely mode of transport will be the car, due to the lack of essential amenities within walking distance (there is no village shop). Whilst there is a bus stop located 2.2km from the site, the frequency of services is unlikely to encourage regular use. However, there is good accessibility to local rail stations that provide easy access into London.

6 Development Proposals

6.1 This section sets out the development proposals for the site in greater detail.

6.2 Development Proposals

A planning application is to be submitted for Cobbinsend Farm that involves a change of use from a dairy farm, to residential dwellings. The proposal involves the conversion and development of 4 detached dwellings, comprising 1 x 2 bedroom dwelling, 1 x 3 bedroom, and 2 x 4 bedroom dwellings. Each dwelling has a private driveway and garden.

6.3 The proposed site layout is shown below within the red boundary:

Figure 8: Proposed Site Layout



6.4 Proposed Access and Internal Road Layout

The existing site access is to be retained under the proposals, connecting to Cobbinsend Road to the south west of the site. The internal road provides access to each driveway.

The road layout provides sufficient width and turning facilities, suitable for cars to gain access to each proposed dwelling, and for emergency, service and refuse vehicle to enter the site.

6.5 Car Parking Provision

This section assesses the amount of proposed car parking against the standards stipulated by the Local Authority. The parking standards required by Essex County Council are set out in the Parking Standards: Design and Good Practise 2009.

6.6 Parking Standards

The car parking standards provides guidance on the demand for car parking space in residential developments. The standards state that it is recognised that providing a reduced number of parking spaces at a travel origin (dwelling) does not discourage people from owning a car. Therefore, parking standards for origins should be used as a minimum standard.

6.7 The following table states the parking standards for residential dwellings:

Use	Vehicle	Cycle	PTW	Disabled
	Minimum	Minimum	Minimum	Minimum
1 bedroom	1 space per dwelling*	1 secure covered space per dwelling. None if garage or secure area is provided within curtilage of dwelling	N/A	N/A if parking is in curtilage of dwelling, otherwise as Visitor/ unallocated
2+ bedroom	2 spaces per dwelling*			
Retirement developments (e.g. warden assisted independent living accommodation)	1 space per dwelling	1 space per 8 units (visitors)	2 PTW spaces and 1 space per 2 dwellings for mobility scooters	N/A if parking is in curtilage of dwelling, otherwise as Visitor/ unallocated
Visitor/ unallocated	0.25 spaces per dwelling (unallocated) (rounded up to nearest whole number)	If no garage or secure area is provided within curtilage of dwelling then 1 covered and secure space per dwelling in a communal area for residents plus 1 space per 8 dwellings for visitors	1 space, + 1 per 20 car spaces (for 1 st 100 car spaces), then 1 space per 30 car spaces (over 100 car spaces)	200 vehicle bays or less = 3 bays or 6% of total capacity, whichever is greater, Over 200 vehicle bays = 4 bays plus 4% of total capacity

6.8 Informative notes:

- Standards exclude garages under 7m x 3m (internal dimensions) as a parking space but can include undercroft parking and car ports providing they have no other use.
- Mobility scooter spaces should be secure and covered with charging facilities
- Visitor/ unallocated vehicle parking can, subject to appropriate design, be located on or near the road frontage
- Unallocated cycle parking for residents to be secure and covered, located in easily accessible locations throughout the development
- Reductions of the vehicle standard may be considered if there is a development within an urban area (including town centre locations) that has good links to sustainable transport.
- Car Clubs should be promoted in low provision/ car free residential developments and car club spaces provided.

6.9 Based on the above standards, the following car parking spaces will be required

- 4 x 2+ bedroom houses = 8 parking spaces

6.10 The standards require a total of 4 secure covered cycle parking spaces.

6.11 Parking Provision

The proposals include 2 driveway parking spaces for each of the 4 houses. Therefore, it is considered that the development provides sufficient parking provision and is unlikely to **create a situation where there is an 'overspill' of car parking on the highway**. As a result, no highway safety issues are raised.

The development will provide cycle parking within the curtilage of each dwelling, in a safe and secure location.

6.12 Charging Points for Electric Vehicles

As far as we are aware, Essex County Council currently have no requirements for electric vehicle charging points for new developments.

6.13 Deliveries, Servicing and Emergency Vehicles

The road layout must accommodate the safe passage of emergency, delivery and refuse collection vehicles. Some deliveries will be required for individual residents who may utilise online shopping or postal deliveries. This type of delivery can be accommodated by kerbside parking to drop off the delivery or by Royal Mail delivery on foot by the postal delivery

service. The outline layout also appears appropriate for emergency vehicles, including ambulances and fire engines, to gain access to all parts of the site.

6.14 Refuse Collection

Bin storage areas will be included within the site layout, close to the front access within the cartilage of each dwelling. Household waste collections are carried out weekly by Epping Forest District Council. Thursday is the current collection day for Cobbinsend Road. The following collections are carried out on a fortnightly rotation: Food & Garden Big and Black Bin, and Food & Garden Bin and Recycling. Residents must place their bins at the edge of their property adjacent to the public highway by 7am on their collection day. The layout shows an appropriate road for use by refuse vehicles to gain access to the site and return to the public highway in a forward direction without the need for reversing.

7 Trip Generation

7.1 Introduction

This section provides details of the traffic movements through the site access and egress arrangement, generated by all existing site users. Calculations for the predicted traffic for the proposed residential development are also provided here.

7.2 Existing Trips

The previous use of the site has been examined to determine the baseline from which to compare the proposed trips. As the client came into ownership of the site after the closure of the dairy farm, which has not been operational in the last 18 months, no information regarding trips is available. Furthermore, the TRICS database does not have any specific sites for a dairy farm. Therefore, as a worst case scenario, the proposed trips will be compared to a baseline of zero existing trips.

7.3 Proposed Trips

The proposal is for the development of four new 2, 3 and 4 bedroom detached houses with associated parking space and landscaping.

7.4 In order to provide the most robust traffic generation scenario for the site, the TRICS database was examined to determine the most appropriate trip rates for private housing developments with less than 30 dwellings in Edge of Town or Village/Neighbourhood centre Locations and Trip Rate Calculations were purchased. The full data can be found in Appendix D.

7.5 Based on the TRICS trip rates, the residential development would generate the following traffic:

Table 7: Trip Rates & Traffic Generation - Proposed Site

Time Period	Trip Rates (1 dwelling)		Traffic Generation (4 dwellings)	
	Arrive	Depart	Total Arrive	Total Depart
AM Peak 08:00-09:00	0.094	0.386	0.376	1.544
PM Peak 17:00-18:00	0.462	0.244	1.848	0.976
07:00 - 19:00	2.555	2.649	10.22	10.596

- 7.6 The table above demonstrates that the proposed residential use of the site will generate 2 vehicular trips during the AM peak, and then 3 trips during the PM peak hour. In total, 10 vehicles will arrive at the site, and 11 vehicles will depart from the site during a full day.

7.7 Traffic Impact

It is expected that the majority of vehicles entering and exiting the site will be travelling south along Cobbinsend Road, with very few expected to travel north. Given that that daily average 24 hour total number of vehicles recorded on Cobbinsend Road is 92 vehicles, the predicted traffic generated by the residential development would result in an increase of 23%, i.e. 21 additional vehicles. Furthermore, as the change in use is from agriculture to residential, it is expected that the type of vehicle will be different. Farm vehicles such as tractors and HGVs will be replaced with cars and vehicles associated with residential living i.e. refuse vehicles.

7.8 Traffic Impact Conclusion

As there is no data available to compare existing trips to, the proposal indicates an increase in trips generated by the site of 21 trips per day. During the AM peak, 2 vehicles will enter or exit the site, and during the PM peak 3 vehicles will arrive and depart. Due to the very low volume in traffic recorded for Cobbinsend Road, the increase in vehicles results in a 23% increase but it is anticipated that there will be no discernible impact to the flow of traffic on the surrounding network from the proposed residential development. The residential use will in actual fact be a betterment in terms of reduced traffic in comparison to the previous land use.

8 Summary and Conclusions

8.1 This report has been prepared in connection with the planning application for the development of a residential scheme on Cobbinsend Road, Waltham Abbey.

From investigations in respect of sustainable accessibility, car parking provision, access arrangements and traffic generation, the main findings are:

- The level of parking provision satisfies the required parking standards, by providing each dwelling with a private driveway suitable for cars to park.
- Investigations into the number and severity of accidents recorded in the vicinity of the site are not indicative of defects in the highway layout and design. There have been no accidents on Cobbinsend Road within the last 5 years. Given the low volume of traffic travelling in both directions past the site which is less than 100 vehicles per weekday on average, the residential development is unlikely to have any impact on the existing road safety within the vicinity of the site.
- The existing site access is to be retained in its current form for use by the new development. The site access is considered appropriate for vehicles to safely enter and egress the development given the fact the access has been used for many years by the previous dairy farm without any issues to road safety. Together with the low traffic flows on the road and the reduction in intensity of proposed traffic from the residential development, there are unlikely to be any issues to the safe egress of vehicles from the site.
- The location of the proposed development offers low potential for local sustainable transport. Overall, it is considered that the most likely mode of transport will be the car, due to the lack of essential amenities within walking distance (there is no village shop). Whilst there is a bus stop located 2.2km from the site, the frequency of services is unlikely to encourage regular use. However, there is good accessibility to local rail stations that provide easy access into London.
- It is expected that 2 vehicles will be arriving and departing from the site during the AM peak (08:00 - 09:00), and 3 vehicles will be arriving and departing during the PM peak (17:00 - 18:00) and will therefore have no discernible impact to the flow of traffic on the surrounding network.

The Local Authority can rest assured that the impact on the local roads from the proposed development has been assessed in terms of traffic generation, sustainable accessibility and highway safety and would not present a detrimental impact to the highway network.

This Report has been prepared by:

Encon Associates Limited

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Nottingham

NG5 7DR

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Signed for and on behalf of Encon Associates Limited

A handwritten signature in black ink, appearing to read 'M. J. Bentley', is written over a faint, circular official stamp.

Mark Bentley MCIHT

Traffic and Transportation Division

Date: 28 August 2020

Appendix A - ATC Survey Data

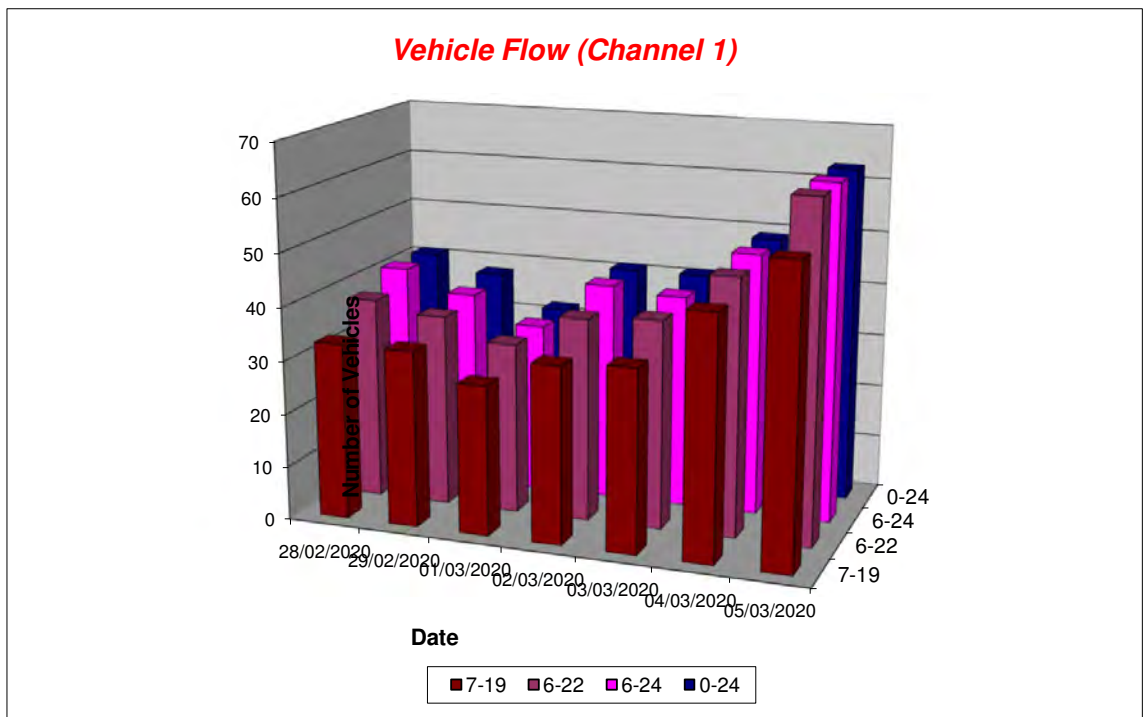
Waltham Abbey ATC, Cobbinsend Road

Channel 1 - Northbound

Vehicle Flow

Week 1

Hr Ending	28/02/2020 Friday	29/02/2020 Saturday	01/03/2020 Sunday	02/03/2020 Monday	03/03/2020 Tuesday	04/03/2020 Wednesday	05/03/2020 Thursday	5 Day Ave	7 Day Ave
1	0	0	0	0	1	0	0	0	0
2	0	1	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0
7	0	1	1	3	1	2	1	1	1
8	7	3	3	2	4	4	7	5	4
9	5	0	1	3	2	5	3	4	3
10	2	2	2	3	1	3	11	4	3
11	0	2	1	2	9	4	9	5	4
12	4	1	5	0	3	2	3	2	3
13	3	5	2	4	3	4	7	4	4
14	2	4	4	3	1	4	6	3	3
15	0	6	1	1	2	2	1	1	2
16	2	2	3	2	4	5	2	3	3
17	2	3	3	3	1	4	2	2	3
18	4	0	3	4	3	3	3	3	3
19	2	5	0	6	1	5	1	3	3
20	3	1	3	1	2	0	3	2	2
21	2	1	0	1	1	1	2	1	1
22	0	0	0	0	1	0	2	1	0
23	2	1	0	3	1	1	0	1	1
24	1	0	0	0	0	0	0	0	0
7-19	33	33	28	33	34	45	55	40	37
6-22	38	36	32	38	39	48	63	45	42
6-24	41	37	32	41	40	49	63	47	43
0-24	41	38	32	41	41	49	63	47	44



Waltham Abbey ATC, Cobbinsend Road

Channel 1 - Northbound

Average Speed

Week 1

Hr Ending	28/02/2020 Friday	29/02/2020 Saturday	01/03/2020 Sunday	02/03/2020 Monday	03/03/2020 Tuesday	04/03/2020 Wednesday	05/03/2020 Thursday
1	-	-	-	-	15.5	-	-
2	-	15.5	-	-	-	-	-
3	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-
7	-	25.5	15.5	15.5	15.5	15.5	15.5
8	18.4	25.5	15.5	15.5	18.0	15.5	19.8
9	25.5	-	15.5	12.0	25.5	15.5	25.5
10	15.5	25.5	10.2	15.5	15.5	15.3	25.5
11	-	15.5	15.5	15.5	16.6	20.5	23.3
12	15.5	15.5	13.4	-	15.5	15.5	18.8
13	18.8	15.5	15.5	12.9	15.5	15.5	15.5
14	15.5	18.0	15.4	15.3	15.5	15.5	17.2
15	-	16.7	15.5	15.5	15.5	15.5	25.5
16	15.5	20.5	18.8	20.5	12.9	13.4	15.5
17	20.5	15.5	15.5	25.5	25.5	18.0	20.5
18	18.0	-	15.5	15.4	15.5	18.8	18.8
19	20.5	17.5	-	15.5	15.5	13.4	15.5
20	15.5	15.5	15.5	15.5	15.5	-	15.5
21	20.5	15.5	-	15.5	15.5	15.5	15.5
22	-	-	-	-	25.5	-	5.0
23	15.5	15.5	-	18.8	5.0	15.5	-
24	15.5	-	-	-	-	-	-
10-12	15.5	15.5	13.8	15.5	16.3	18.8	22.2
14-16	15.5	17.6	18.0	18.8	13.8	14.0	18.8
0-24	18.4	18.1	15.1	16.2	16.4	15.9	19.8

7 Day Ave 17.1

85th Percentile

Hr Ending	28/02/2020 Friday	29/02/2020 Saturday	01/03/2020 Sunday	02/03/2020 Monday	03/03/2020 Tuesday	04/03/2020 Wednesday	05/03/2020 Thursday
1	-	-	-	-	16.0	-	-
2	-	15.6	-	-	-	-	-
3	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-
7	-	26.4	15.7	15.9	16.4	16.0	16.4
8	26.2	25.9	16.2	15.8	25.8	16.0	26.2
9	26.0	-	16.5	16.4	26.3	15.9	26.0
10	16.1	26.0	15.7	16.5	15.9	25.9	25.9
11	-	16.3	16.0	15.9	25.8	25.8	25.6
12	15.8	15.6	15.6	-	16.4	15.6	26.3
13	25.8	16.1	16.5	15.8	16.1	15.7	16.0
14	16.3	26.0	26.2	25.7	16.1	16.5	26.3
15	-	33.3	15.5	15.7	15.9	15.6	26.1
16	15.5	26.1	26.1	26.1	15.6	15.9	16.3
17	26.3	16.1	15.6	25.9	26.1	25.9	25.5
18	26.3	-	15.6	25.9	16.2	26.0	25.7
19	26.2	25.8	-	16.2	16.4	15.7	15.6
20	15.5	15.8	16.3	15.8	16.3	-	15.6
21	25.9	16.3	-	16.1	15.5	16.0	15.8
22	-	-	-	-	26.0	-	5.1
23	16.4	16.3	-	25.7	5.9	15.8	-
24	16.3	-	-	-	-	-	-
10-12	15.9	16.1	15.8	15.7	25.9	26.1	25.5
14-16	16.5	26.5	25.5	26.1	16.2	16.0	26.0
0-24	26.4	26.4	15.8	25.6	26.0	16.0	26.2

7 Day Ave 23.2

Waltham Abbey ATC, Cobbinsend Road

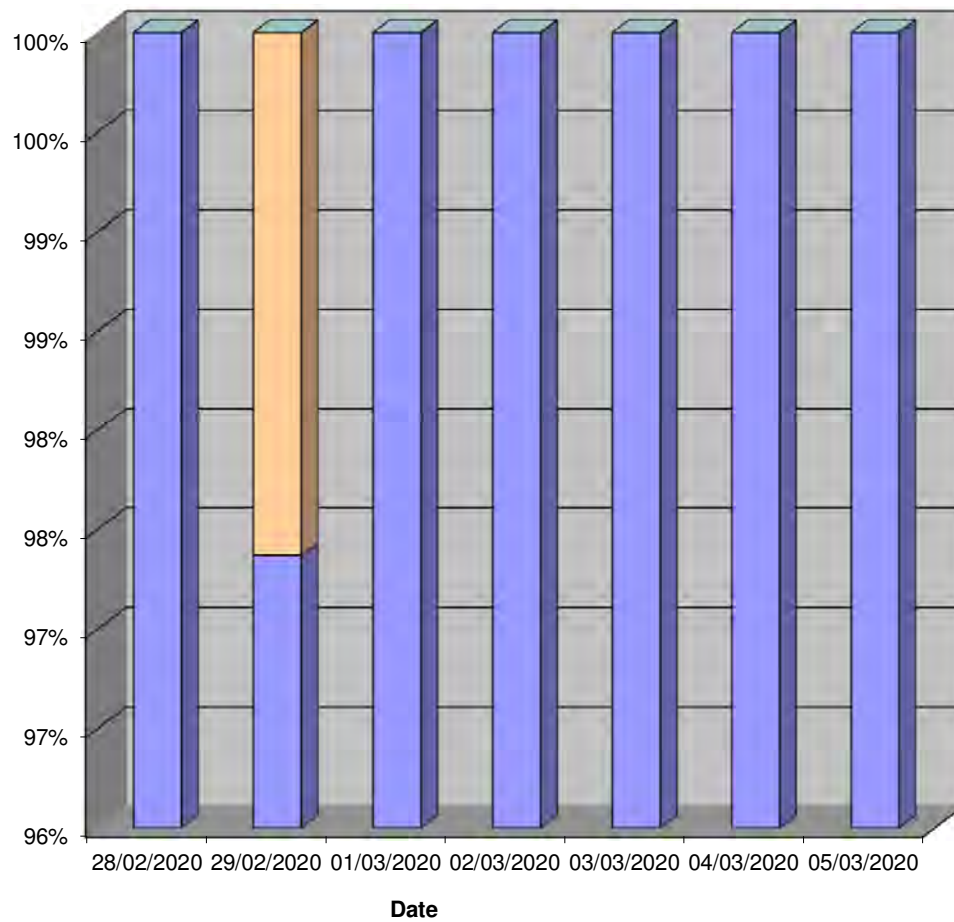
Channel 1 - Northbound

Speed Summary

Week 1

Speed (MPH)	28/02/2020 Friday	29/02/2020 Saturday	01/03/2020 Sunday	02/03/2020 Monday	03/03/2020 Tuesday	04/03/2020 Wednesday	05/03/2020 Thursday
0-30	41	37	32	41	41	49	63
31-45	0	1	0	0	0	0	0
46-60	0	0	0	0	0	0	0
61-100	0	0	0	0	0	0	0
TOTAL	41	38	32	41	41	49	63

Speed Summary (MPH)



0-30 31-45 46-60 61-100

Waltham Abbey ATC, Cobbinsend Road

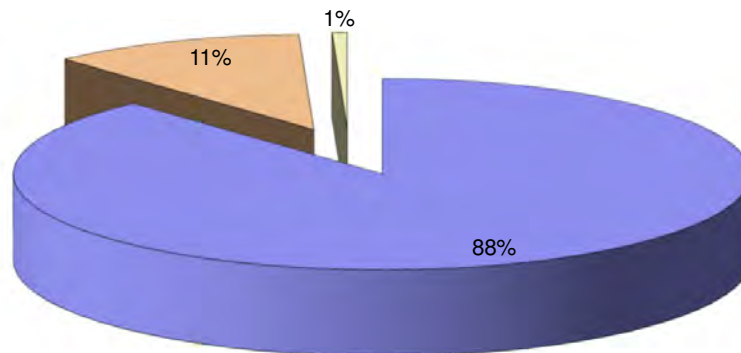
Channel 1 - Northbound

Vehicle Class

Week 1

Classes Day / Time	Car / LGV / Caravan - 1	OGV1 / Bus - 2,3,5,6,7,12	OGV2 - 4,8,9,10,11,13	TOTAL - 1-13
28/02/2020				
7-19	29	3	1	33
6-22	34	3	1	38
6-24	36	4	1	41
0-24	36	4	1	41
29/02/2020				
7-19	27	5	1	33
6-22	30	5	1	36
6-24	31	5	1	37
0-24	32	5	1	38
01/03/2020				
7-19	28	0	0	28
6-22	32	0	0	32
6-24	32	0	0	32
0-24	32	0	0	32
02/03/2020				
7-19	27	6	0	33
6-22	32	6	0	38
6-24	35	6	0	41
0-24	35	6	0	41
03/03/2020				
7-19	30	4	0	34
6-22	34	5	0	39
6-24	35	5	0	40
0-24	36	5	0	41
04/03/2020				
7-19	34	11	0	45
6-22	37	11	0	48
6-24	38	11	0	49
0-24	38	11	0	49
05/03/2020				
7-19	52	3	0	55
6-22	60	3	0	63
6-24	60	3	0	63
0-24	60	3	0	63
Average				
7-19	32	5	0	37
6-22	37	5	0	42
6-24	38	5	0	43
0-24	38	5	0	44

Total Vehicle Class Distribution



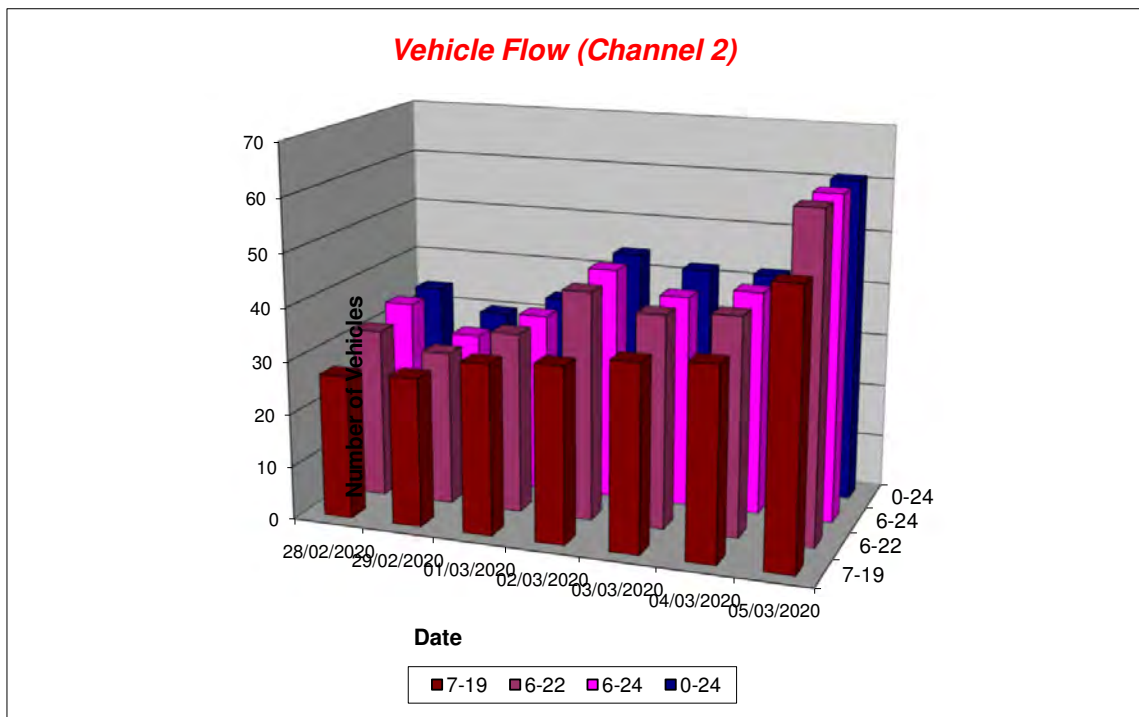
Waltham Abbey ATC, Cobbinsend Road

Channel 2 - Southbound

Vehicle Flow

Week 1

Hr Ending	28/02/2020 Friday	29/02/2020 Saturday	01/03/2020 Sunday	02/03/2020 Monday	03/03/2020 Tuesday	04/03/2020 Wednesday	05/03/2020 Thursday	5 Day Ave	7 Day Ave
1	0	0	0	0	2	0	0	0	0
2	0	1	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0
7	3	0	1	6	4	5	4	4	3
8	6	2	3	3	2	2	5	4	3
9	4	2	1	3	1	5	4	3	3
10	2	2	5	4	2	5	12	5	5
11	0	3	0	2	8	2	7	4	3
12	2	2	4	0	5	2	7	3	3
13	1	2	2	4	2	4	4	3	3
14	2	2	2	2	0	5	4	3	2
15	0	4	1	1	0	0	1	0	1
16	2	1	8	2	4	1	2	2	3
17	1	5	3	3	2	3	1	2	3
18	6	0	2	5	5	3	2	4	3
19	1	3	1	4	4	4	2	3	3
20	2	1	1	2	1	0	2	1	1
21	0	0	0	2	0	0	3	1	1
22	0	0	0	0	0	0	1	0	0
23	1	0	0	1	0	1	0	1	0
24	1	0	0	0	0	0	0	0	0
7-19	27	28	32	33	35	36	51	36	35
6-22	32	29	34	43	40	41	61	43	40
6-24	34	29	34	44	40	42	61	44	41
0-24	34	30	34	44	42	42	61	45	41



Waltham Abbey ATC, Cobbinsend Road

Channel 2 - Southbound

Average Speed

Week 1

Hr Ending	28/02/2020 Friday	29/02/2020 Saturday	01/03/2020 Sunday	02/03/2020 Monday	03/03/2020 Tuesday	04/03/2020 Wednesday	05/03/2020 Thursday
1	-	-	-	-	15.5	-	-
2	-	15.5	-	-	-	-	-
3	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-
7	12.0	-	5.0	15.5	15.5	23.5	15.5
8	15.5	10.2	15.5	15.5	15.5	15.5	15.5
9	15.5	15.5	15.5	15.5	15.5	19.5	23.0
10	15.5	15.5	13.4	12.8	25.5	17.5	15.5
11	-	12.0	-	15.5	15.4	15.5	15.5
12	10.2	15.5	7.6	-	15.5	15.5	15.5
13	15.5	15.5	15.5	20.5	15.5	15.5	15.5
14	15.5	15.5	10.2	15.5	-	15.5	18.0
15	-	15.5	15.5	5.0	-	-	15.5
16	5.0	15.5	8.9	20.5	12.9	15.5	10.2
17	15.5	13.4	8.5	15.5	24.2	15.3	25.5
18	15.3	-	15.5	17.5	25.5	15.5	15.5
19	25.5	18.8	25.5	15.5	27.4	18.0	10.2
20	15.5	5.0	5.0	15.5	25.5	-	5.0
21	-	-	-	20.5	-	-	15.3
22	-	-	-	-	-	-	5.0
23	5.0	-	-	15.5	-	15.5	-
24	15.5	-	-	-	-	-	-
10-12	10.2	13.4	7.6	15.5	15.5	15.5	15.5
14-16	5.0	15.5	9.7	15.3	12.9	15.5	12.0
0-24	14.2	14.4	11.5	16.1	18.7	17.4	15.5

7 Day Ave 15.4

85th Percentile

Hr Ending	28/02/2020 Friday	29/02/2020 Saturday	01/03/2020 Sunday	02/03/2020 Monday	03/03/2020 Tuesday	04/03/2020 Wednesday	05/03/2020 Thursday
1	-	-	-	-	16.3	-	-
2	-	15.8	-	-	-	-	-
3	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-
6	-	-	-	-	-	-	-
7	16.0	-	5.8	16.1	16.3	25.7	16.2
8	16.3	15.6	15.8	15.9	16.2	16.1	16.2
9	15.6	16.1	15.7	16.5	16.2	26.0	26.1
10	15.7	15.7	16.0	25.6	26.5	26.2	16.3
11	-	16.4	-	16.4	15.8	16.4	15.7
12	16.2	15.6	15.8	-	16.0	15.9	16.3
13	16.0	15.9	15.8	26.1	15.9	15.8	15.7
14	15.9	15.8	15.5	15.8	-	15.8	26.5
15	-	16.4	16.0	5.1	-	-	15.6
16	5.1	16.3	15.7	26.0	16.2	15.7	15.6
17	16.2	15.8	16.4	15.7	33.2	26.0	26.3
18	26.4	-	16.1	26.5	25.9	15.7	15.9
19	26.0	26.2	26.3	15.6	33.5	26.1	16.0
20	15.6	5.3	5.9	15.5	26.3	-	5.1
21	-	-	-	25.8	-	-	25.6
22	-	-	-	-	-	-	5.2
23	5.8	-	-	16.0	-	15.9	-
24	15.9	-	-	-	-	-	-
10-12	16.0	15.6	15.8	16.4	16.0	16.4	15.5
14-16	5.5	15.5	16.0	26.0	15.9	16.0	16.2
0-24	15.7	15.8	15.6	16.1	26.0	25.7	16.0

7 Day Ave 18.7

Waltham Abbey ATC, Cobbinsend Road

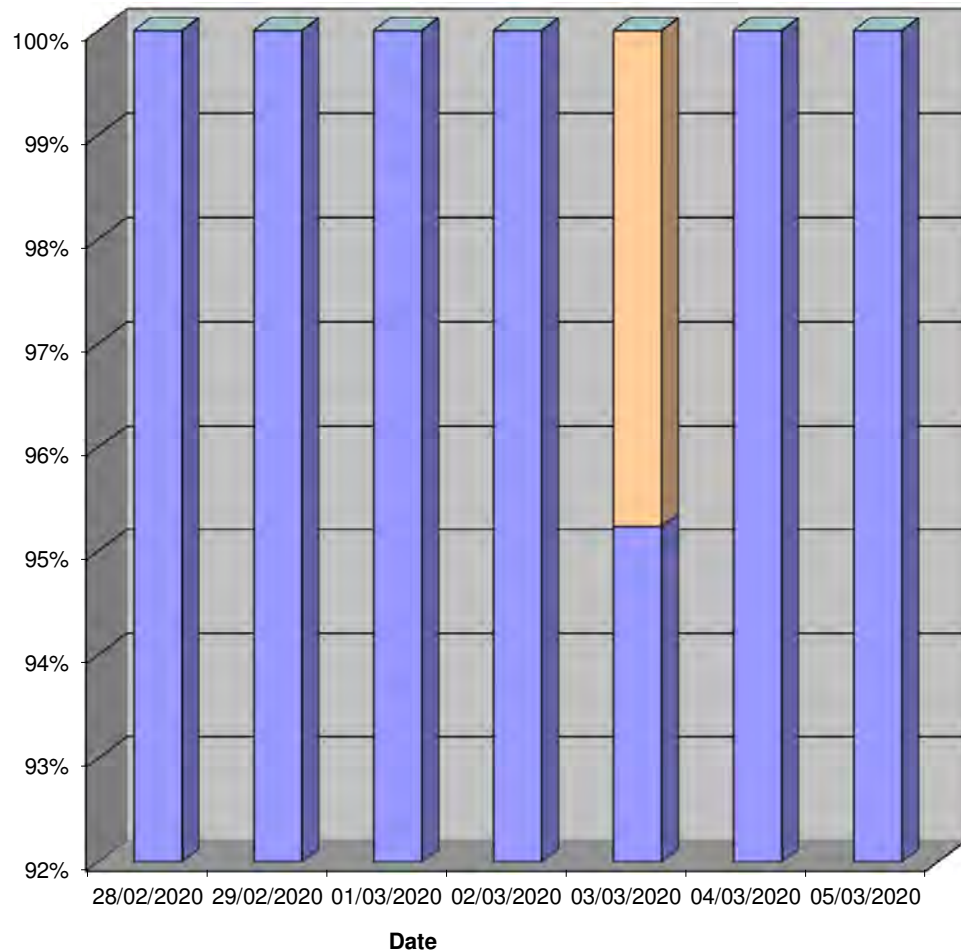
Channel 2 - Southbound

Speed Summary

Week 1

Speed (MPH)	28/02/2020 Friday	29/02/2020 Saturday	01/03/2020 Sunday	02/03/2020 Monday	03/03/2020 Tuesday	04/03/2020 Wednesday	05/03/2020 Thursday
0-30	34	30	34	44	40	42	61
31-45	0	0	0	0	2	0	0
46-60	0	0	0	0	0	0	0
61-100	0	0	0	0	0	0	0
TOTAL	34	30	34	44	42	42	61

Speed Summary (MPH)



■ 0-30
 ■ 31-45
 ■ 46-60
 ■ 61-100

Waltham Abbey ATC, Cobbinsend Road

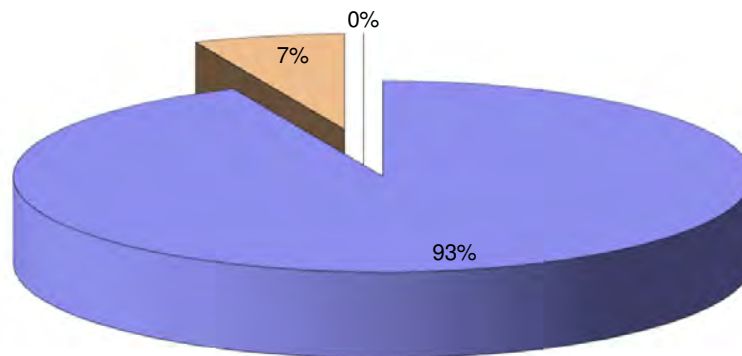
Channel 2 - Southbound

Vehicle Class

Week 1

Classes Day / Time	Car / LGV / Caravan - 1	OGV1 / Bus - 2,3,5,6,7,12	OGV2 - 4,8,9,10,11,13	TOTAL - 1-13
28/02/2020				
7-19	27	0	0	27
6-22	30	2	0	32
6-24	32	2	0	34
0-24	32	2	0	34
29/02/2020				
7-19	27	1	0	28
6-22	28	1	0	29
6-24	28	1	0	29
0-24	29	1	0	30
01/03/2020				
7-19	32	0	0	32
6-22	34	0	0	34
6-24	34	0	0	34
0-24	34	0	0	34
02/03/2020				
7-19	29	4	0	33
6-22	39	4	0	43
6-24	40	4	0	44
0-24	40	4	0	44
03/03/2020				
7-19	31	4	0	35
6-22	36	4	0	40
6-24	36	4	0	40
0-24	37	5	0	42
04/03/2020				
7-19	31	5	0	36
6-22	36	5	0	41
6-24	37	5	0	42
0-24	37	5	0	42
05/03/2020				
7-19	50	1	0	51
6-22	59	2	0	61
6-24	59	2	0	61
0-24	59	2	0	61
Average				
7-19	32	2	0	35
6-22	37	3	0	40
6-24	38	3	0	41
0-24	38	3	0	41

Total Vehicle Class Distribution



Appendix B - Sustainable Transport Information



The information on this timetable is expected to be valid until at least 2nd September 2020. Where we know of variations, before or after this date, then we show these at the top of each affected column in the table.

Direction of stops: where shown (eg: W-bound) this is the compass direction towards which the bus is pointing when it stops

Mondays to Fridays

Epping, inside St. Margaret's Hospital	0835	1000	1130	1300	1430	1600	1730
\$ Epping, o/s St. Margaret's Hospital - main Road	0835	1000	1130	1300	1430	1600	1730
\$ Epping, opp Maltings Lane	0836	1001	1131	1301	1431	1601	1731
\$ Epping, opp Council Offices	0838	1003	1133	1303	1433	1603	1733
\$ Epping, opp Church	0839	1004	1134	1304	1434	1604	1734
\$ Epping, opp Nicholl Road	0840	1005	1135	1305	1435	1605	1735
\$ Epping, o/s Woodlands	0841	1006	1136	1306	1436	1606	1736
Epping, o/s Railway Station	0843	1008	1138	1308	1438	1608	1738
\$ Epping, opp Woodlands	0843	1008	1138	1308	1438	1608	1738
\$ Epping, adj Woodland Grove	0844	1009	1139	1309	1439	1609	1739
\$ Epping, adj Sunnyside Road	0845	1010	1140	1310	1440	1610	1740
\$ Epping, opp Western Avenue	0846	1011	1141	1311	1441	1611	1741
\$ Ivy Chimneys, opp Meadow View	0847	1012	1142	1312	1442	1612	1742
Ivy Chimneys, opp Fishers Lane	0849	1014	1144	1314	1444	1614	1744
\$ Epping, opp Park Cottages	0850	1015	1145	1315	1445	1615	1745
\$ Waltham Abbey, Crown Hill (NW-bound)	0852	1017	1147	1317	1447	1617	1747
\$ Waltham Abbey, opp Fern Hall	0853	1018	1148	1318	1448	1618	1748
Upshire, opp Village Hall	0854	1019	1149	1319	1449	1619	1749
Waltham Abbey, o/s Upshire Shops	0857	1022	1152	1322	1452	1622	1752
\$ Waltham Abbey, adj Geisthorp Court	0857	1022	1152	1322	1452	1622	1752
\$ Waltham Abbey, adj Tillingham Court	0858	1023	1153	1323	1453	1623	1753
\$ Waltham Abbey, Broomfield Court (N-bound)	0858	1023	1153	1323	1453	1623	1753
\$ Waltham Abbey, adj Wormyngford Court	0858	1023	1153	1323	1453	1623	1753
\$ Waltham Abbey, opp Jubilee Court	0859	1024	1154	1324	1454	1624	1754
\$ Waltham Abbey, opp Edward Court	0859	1024	1154	1324	1454	1624	1754
\$ Waltham Abbey, adj Congreve Road	0900	1025	1155	1325	1455	1625	1755
\$ Waltham Abbey, adj Newteswell	0901	1026	1156	1326	1456	1626	1756
Waltham Abbey, Parklands (SW-bound)	0902	1027	1157	1327	1457	1627	1757
\$ Waltham Abbey, adj Saxon Way	0903	1028	1158	1328	1458	1628	1758
\$ Waltham Abbey, Quaker Lane (W-bound)	0904	1029	1159	1329	1459	1629	1759
Waltham Abbey, o/s Bemor Builders	0905	1030	1200	1330	1500	1630	1800
\$ Waltham Abbey, o/s McDonalds	0906	1031	1201	1331	1501	1631	1801
\$ Waltham Cross, nr Lea Road	0907	1032	1202	1332	1502	1632	1802
\$ Waltham Cross, adj Queensway	0909	1034	1204	1334	1504	1634	1804
\$ Waltham Cross, Waltham Cross Railway Station (Stop F)	0911	1036	1206	1336	1506	1636	1806
Waltham Cross, Bus Station (Stop C)	0913	1038	1208	1338	1508	1638	1808

Saturdays

Epping, inside St. Margaret's Hospital	0835	1000	1130	1300	1430	1600	1730
\$ Epping, o/s St. Margaret's Hospital - main Road	0835	1000	1130	1300	1430	1600	1730
\$ Epping, opp Maltings Lane	0836	1001	1131	1301	1431	1601	1731
\$ Epping, opp Council Offices	0838	1003	1133	1303	1433	1603	1733
\$ Epping, opp Church	0839	1004	1134	1304	1434	1604	1734
\$ Epping, opp Nicholl Road	0840	1005	1135	1305	1435	1605	1735
\$ Epping, o/s Woodlands	0841	1006	1136	1306	1436	1606	1736
Epping, o/s Railway Station	0843	1008	1138	1308	1438	1608	1738
\$ Epping, opp Woodlands	0843	1008	1138	1308	1438	1608	1738
\$ Epping, adj Woodland Grove	0844	1009	1139	1309	1439	1609	1739
\$ Epping, adj Sunnyside Road	0845	1010	1140	1310	1440	1610	1740
\$ Epping, opp Western Avenue	0846	1011	1141	1311	1441	1611	1741
\$ Ivy Chimneys, opp Meadow View	0847	1012	1142	1312	1442	1612	1742
Ivy Chimneys, opp Fishers Lane	0849	1014	1144	1314	1444	1614	1744
\$ Epping, opp Park Cottages	0850	1015	1145	1315	1445	1615	1745
\$ Waltham Abbey, Crown Hill (NW-bound)	0852	1017	1147	1317	1447	1617	1747
\$ Waltham Abbey, opp Fern Hall	0853	1018	1148	1318	1448	1618	1748
Upshire, opp Village Hall	0854	1019	1149	1319	1449	1619	1749
Waltham Abbey, o/s Upshire Shops	0857	1022	1152	1322	1452	1622	1752
\$ Waltham Abbey, adj Geisthorp Court	0857	1022	1152	1322	1452	1622	1752
\$ Waltham Abbey, adj Tillingham Court	0858	1023	1153	1323	1453	1623	1753
\$ Waltham Abbey, Broomfield Court (N-bound)	0858	1023	1153	1323	1453	1623	1753
\$ Waltham Abbey, adj Wormyngford Court	0858	1023	1153	1323	1453	1623	1753
\$ Waltham Abbey, opp Jubilee Court	0859	1024	1154	1324	1454	1624	1754
\$ Waltham Abbey, opp Edward Court	0859	1024	1154	1324	1454	1624	1754
\$ Waltham Abbey, adj Congreve Road	0900	1025	1155	1325	1455	1625	1755
\$ Waltham Abbey, adj Newteswell	0901	1026	1156	1326	1456	1626	1756
Waltham Abbey, Parklands (SW-bound)	0902	1027	1157	1327	1457	1627	1757
\$ Waltham Abbey, adj Saxon Way	0903	1028	1158	1328	1458	1628	1758
\$ Waltham Abbey, Quaker Lane (W-bound)	0904	1029	1159	1329	1459	1629	1759
Waltham Abbey, o/s Bemor Builders	0905	1030	1200	1330	1500	1630	1800
\$ Waltham Abbey, o/s McDonalds	0906	1031	1201	1331	1501	1631	1801
\$ Waltham Cross, nr Lea Road	0907	1032	1202	1332	1502	1632	1802
\$ Waltham Cross, adj Queensway	0909	1034	1204	1334	1504	1634	1804
\$ Waltham Cross, Waltham Cross Railway Station (Stop F)	0911	1036	1206	1336	1506	1636	1806
Waltham Cross, Bus Station (Stop C)	0913	1038	1208	1338	1508	1638	1808

Sundays

no service

Notes: \$ - Time at this stop is indicative. You are advised to be at any stop several minutes before the times shown



The information on this timetable is expected to be valid until at least 2nd September 2020. Where we know of variations, before or after this date, then we show these at the top of each affected column in the table.

Direction of stops: where shown (eg: W-bound) this is the compass direction towards which the bus is pointing when it stops

Mondays to Fridays

Waltham Cross, Bus Station (Stop C)	0745	0915	1045	1215	1345	1515	1645
\$ Waltham Cross, Waltham Cross Railway Station (Stop E)	0746	0916	1046	1216	1346	1516	1646
\$ Waltham Cross, opp Queensway	0747	0917	1047	1217	1347	1517	1647
\$ Waltham Cross, opp Lea Road	0749	0919	1049	1219	1349	1519	1649
\$ Waltham Abbey, Highbridge Roundabout (S-bound)	0751	0921	1051	1221	1351	1521	1651
Waltham Abbey, Quaker Lane (Stop A)	0753	0923	1053	1223	1353	1523	1653
\$ Waltham Abbey, Quaker Lane (Stop B)	0753	0923	1053	1223	1353	1523	1653
\$ Waltham Abbey, adj Sun Street	0753	0923	1053	1223	1353	1523	1653
\$ Waltham Abbey, opp Saxon Way	0754	0924	1054	1224	1354	1524	1654
Waltham Abbey, Parklands (NE-bound)	0756	0926	1056	1226	1356	1526	1656
\$ Waltham Abbey, opp Newteswell	0756	0926	1056	1226	1356	1526	1656
\$ Waltham Abbey, opp Anwell Court	0758	0928	1058	1228	1358	1528	1658
\$ Waltham Abbey, adj Edward Court	0758	0928	1058	1228	1358	1528	1658
\$ Waltham Abbey, o/s Jubilee Court	0758	0928	1058	1228	1358	1528	1658
\$ Waltham Abbey, opp Wormyngford Court	0759	0929	1059	1229	1359	1529	1659
\$ Waltham Abbey, Broomfield Court (S-bound)	0759	0929	1059	1229	1359	1529	1659
\$ Waltham Abbey, opp Tillingham Court	0800	0930	1100	1230	1400	1530	1700
\$ Waltham Abbey, opp Geithorp Court	0800	0930	1100	1230	1400	1530	1700
Waltham Abbey, o/s Upshire Shops	0801	0931	1101	1231	1401	1531	1701
Upshire, o/s Village Hall	0804	0934	1104	1234	1404	1534	1704
\$ Waltham Abbey, adj Fern Hall	0804	0934	1104	1234	1404	1534	1704
\$ Waltham Abbey, Crown Hill (SE-bound)	0805	0935	1105	1235	1405	1535	1705
\$ Waltham Abbey, opp Ambresbury Banks	0806	0936	1106	1236	1406	1536	1706
\$ Epping, o/s Park Cottages	0807	0937	1107	1237	1407	1537	1707
Ivy Chimneys, adj Fishers Lane	0809	0939	1109	1239	1409	1539	1709
\$ Ivy Chimneys, adj Meadow View	0810	0940	1110	1240	1410	1540	1710
\$ Epping, adj Western Avenue	0811	0941	1111	1241	1411	1541	1711
\$ Epping, opp Sunnyside Road	0812	0942	1112	1242	1412	1542	1712
\$ Epping, opp Woodland Grove	0813	0943	1113	1243	1413	1543	1713
\$ Epping, o/s Woodlands	0814	0944	1114	1244	1414	1544	1714
Epping, o/s Railway Station	0815	0945	1115	1245	1415	1545	1715
\$ Epping, opp Woodlands	0815	0945	1115	1245	1415	1545	1715
\$ Epping, adj Nicholl Road	0817	0947	1117	1247	1417	1547	1717
\$ Epping, o/s Church	0817	0947	1117	1247	1417	1547	1717
\$ Epping, o/s Council Offices	0818	0948	1118	1248	1418	1548	1718
\$ Epping, adj Maltings Lane	0820	0950	1120	1250	1420	1550	1720
Epping, inside St. Margaret's Hospital	0823	0953	1123	1253	1423	1553	1723

Saturdays

Waltham Cross, Bus Station (Stop C)	0745	0915	1045	1215	1345	1515	1645
\$ Waltham Cross, Waltham Cross Railway Station (Stop E)	0746	0916	1046	1216	1346	1516	1646
\$ Waltham Cross, opp Queensway	0747	0917	1047	1217	1347	1517	1647
\$ Waltham Cross, opp Lea Road	0749	0919	1049	1219	1349	1519	1649
\$ Waltham Abbey, Highbridge Roundabout (S-bound)	0751	0921	1051	1221	1351	1521	1651
Waltham Abbey, Quaker Lane (Stop A)	0753	0923	1053	1223	1353	1523	1653
\$ Waltham Abbey, Quaker Lane (Stop B)	0753	0923	1053	1223	1353	1523	1653
\$ Waltham Abbey, adj Sun Street	0753	0923	1053	1223	1353	1523	1653
\$ Waltham Abbey, opp Saxon Way	0754	0924	1054	1224	1354	1524	1654
Waltham Abbey, Parklands (NE-bound)	0756	0926	1056	1226	1356	1526	1656
\$ Waltham Abbey, opp Newteswell	0756	0926	1056	1226	1356	1526	1656
\$ Waltham Abbey, opp Anwell Court	0758	0928	1058	1228	1358	1528	1658
\$ Waltham Abbey, adj Edward Court	0758	0928	1058	1228	1358	1528	1658
\$ Waltham Abbey, o/s Jubilee Court	0758	0928	1058	1228	1358	1528	1658
\$ Waltham Abbey, opp Wormyngford Court	0759	0929	1059	1229	1359	1529	1659
\$ Waltham Abbey, Broomfield Court (S-bound)	0759	0929	1059	1229	1359	1529	1659
\$ Waltham Abbey, opp Tillingham Court	0800	0930	1100	1230	1400	1530	1700
\$ Waltham Abbey, opp Geithorp Court	0800	0930	1100	1230	1400	1530	1700
Waltham Abbey, o/s Upshire Shops	0801	0931	1101	1231	1401	1531	1701
Upshire, o/s Village Hall	0804	0934	1104	1234	1404	1534	1704
\$ Waltham Abbey, adj Fern Hall	0804	0934	1104	1234	1404	1534	1704
\$ Waltham Abbey, Crown Hill (SE-bound)	0805	0935	1105	1235	1405	1535	1705
\$ Waltham Abbey, opp Ambresbury Banks	0806	0936	1106	1236	1406	1536	1706
\$ Epping, o/s Park Cottages	0807	0937	1107	1237	1407	1537	1707
Ivy Chimneys, adj Fishers Lane	0809	0939	1109	1239	1409	1539	1709
\$ Ivy Chimneys, adj Meadow View	0810	0940	1110	1240	1410	1540	1710
\$ Epping, adj Western Avenue	0811	0941	1111	1241	1411	1541	1711
\$ Epping, opp Sunnyside Road	0812	0942	1112	1242	1412	1542	1712
\$ Epping, opp Woodland Grove	0813	0943	1113	1243	1413	1543	1713
\$ Epping, o/s Woodlands	0814	0944	1114	1244	1414	1544	1714
Epping, o/s Railway Station	0815	0945	1115	1245	1415	1545	1715
\$ Epping, opp Woodlands	0815	0945	1115	1245	1415	1545	1715
\$ Epping, adj Nicholl Road	0817	0947	1117	1247	1417	1547	1717
\$ Epping, o/s Church	0817	0947	1117	1247	1417	1547	1717
\$ Epping, o/s Council Offices	0818	0948	1118	1248	1418	1548	1718
\$ Epping, adj Maltings Lane	0820	0950	1120	1250	1420	1550	1720
Epping, inside St. Margaret's Hospital	0823	0953	1123	1253	1423	1553	1723

Sundays

no service

Notes: \$ - Time at this stop is indicative. You are advised to be at any stop several minutes before the times shown

Appendix C - Accident Data Correspondence

Emily Kempson

From: Accident Data <AccidentData@essexhighways.org>
Sent: 18 March 2020 15:17
To: Emily Kempson
Subject: RE: Road Traffic Accident Data request Waltham Abbey (A4472)

Follow Up Flag: Follow up
Flag Status: Flagged

SIR/MADAM,

PROVISION OF PERSONAL INJURY ACCIDENT DATA – Waltham Abbey

We have no record of any personal injury road traffic collisions in the area required for the 5 year period from 01/02/2015 to 31/01/2020 (most recent complete 5 year period available).

In this instance, the total cost will be a £30.00+VAT administration fee for conducting the search.

If you have any questions or require any further information please feel free to contact me.

Many Thanks

Belinda

From: Emily Kempson <emily@enconassociates.com>
Sent: 17 March 2020 14:35
To: Accident Data <AccidentData@essexhighways.org>
Subject: RE: Road Traffic Accident Data request Waltham Abbey (A4472)

Good afternoon Belinda,

Many thanks for getting back to me so quickly, please proceed with the below.

The Purchase order number is: A4472

The billing address is: Encon Associates Ltd, 10 Chapel Lane, Arnold, Nottingham, NG5 7DR

Kind Regards,

Emily Kempson BSc (Hons), GradCIHT
Environmental Consultant



Sustainable Buildings Consultancy

Nottingham Head Office, 10 Chapel Lane, Arnold, Nottingham, NG5 7DR

From: Accident Data <AccidentData@essexhighways.org>
Sent: 17 March 2020 14:23
To: Emily Kempson <emily@enconassociates.com>
Subject: RE: Road Traffic Accident Data request Waltham Abbey (A4472)

Dear Emily,

Thank you for your email requesting personal injury accident data at Waltham Abbey.

There will be a cost of £100.00+vat per site for the accident report and an additional cost of £50.00+vat per site if a plot showing the accidents is required.

In this instance, the total cost will be £150.00+vat, can you please confirm that you are happy with these costs.

If the area concerned does not contain any personal injury accident data, there will be a £30.00+VAT administration fee for conducting the search.

Once the data has been provided you will be invoiced directly by Essex County Council. If you would like to proceed with the request, please kindly reply to AccidentData@essexhighways.org with a Purchase Order Number, full company billing address and a map of the area required if this has not already been provided. Once this has been received, you should receive the data within 3 working days.

Many Thanks

Belinda

From: Emily Kempson <emily@enconassociates.com>

Sent: 17 March 2020 13:55

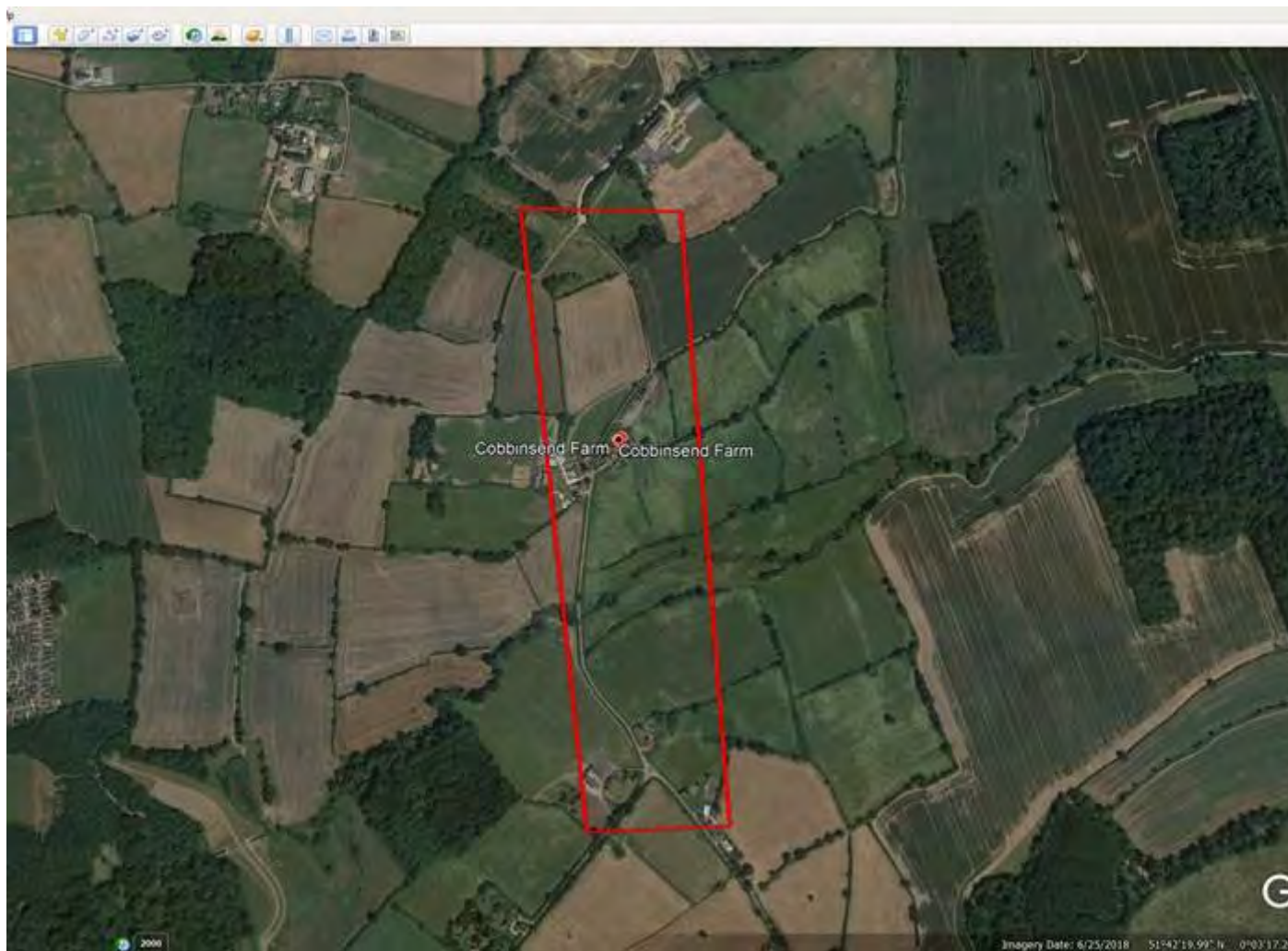
To: Accident Data <AccidentData@essexhighways.org>

Subject: Road Traffic Accident Data request Waltham Abbey (A4472)

Good afternoon,

I hope you are well. I am looking to obtain road traffic accident data for a specific area within Waltham Abbey - please see the below image which defines the area of interest, centred on Cobbinsend Farm, Cobbinsend Road, Waltham Abbey, which extends south to the junction onto Fernhall Lane and Long Street.

The information that I require includes data from the last 5 years, including date, time, location, road conditions, severity, vehicles involved, casualties with a location map if possible.



Please let me know if you require any more information, I look forward to hearing from you

Kind Regards,

Emily Kempson BSc (Hons), GradCIHT
Environmental Consultant



Sustainable Buildings Consultancy

Telephone: 01159 875599

Skype: enconassociates

Website:

Please click [HERE](#) for our offices

Please click [HERE](#) for our company brochure



Appendix D - TRICS Data

Filtering Summary

Land Use	03/A	RESIDENTIAL/HOUSES PRIVATELY OWNED
Selected Trip Rate Calculation Parameter Range	4-30 DWELLS	
Actual Trip Rate Calculation Parameter Range	7-30 DWELLS	
Date Range	Minimum: 01/01/10	Maximum: 03/07/18
Parking Spaces Range	Selected: 12 to 1726	Actual: 12 to 1726
Percentage of dwellings privately owned:	All Surveys Included	
Days of the week selected	Monday	1
	Tuesday	1
	Wednesday	5
	Thursday	4
Main Location Types selected	Edge of Town	10
	Neighbourhood Centre (PPS6 Local Centre)	1
Population <1 Mile ranges selected	1,000 or Less	1
	1,001 to 5,000	4
	5,001 to 10,000	1
	10,001 to 15,000	4
	20,001 to 25,000	1
Population <5 Mile ranges selected	5,000 or Less	3
	5,001 to 25,000	2
	25,001 to 50,000	2
	50,001 to 75,000	1
	75,001 to 100,000	3
Car Ownership <5 Mile ranges selected	0.6 to 1.0	3
	1.1 to 1.5	7
	1.6 to 2.0	1
PTAL Rating	No PTAL Present	11

Calculation Reference: AUDIT-700101-190118-0122

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
 Category : A - HOUSES PRIVATELY OWNED
 VEHICLES

Selected regions and areas:

04	EAST ANGLIA	
	NF NORFOLK	1 days
	SF SUFFOLK	1 days
06	WEST MIDLANDS	
	SH SHROPSHIRE	1 days
	ST STAFFORDSHIRE	1 days
07	YORKSHIRE & NORTH LINCOLNSHIRE	
	NY NORTH YORKSHIRE	2 days
08	NORTH WEST	
	CH CHESHIRE	1 days
12	CONNAUGHT	
	CS SLIGO	1 days
	RO ROSCOMMON	1 days
14	LEINSTER	
	CC CARLOW	1 days
16	ULSTER (REPUBLIC OF IRELAND)	
	DN DONEGAL	1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Secondary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: Number of dwellings
 Actual Range: 7 to 30 (units:)
 Range Selected by User: 4 to 30 (units:)

Parking Spaces Range: Selected: 12 to 1726 Actual: 12 to 1726

Percentage of dwellings privately owned: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/10 to 03/07/18

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Monday	1 days
Tuesday	1 days
Wednesday	5 days
Thursday	4 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	11 days
Directional ATC Count	0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaken using machines.

Selected Locations:

Edge of Town	10
Neighbourhood Centre (PPS6 Local Centre)	1

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Residential Zone	8
Village	1
No Sub Category	2

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Secondary Filtering selection:

Use Class:

C3

11 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 1 mile:

1,000 or Less	1 days
1,001 to 5,000	4 days
5,001 to 10,000	1 days
10,001 to 15,000	4 days
20,001 to 25,000	1 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

5,000 or Less	3 days
5,001 to 25,000	2 days
25,001 to 50,000	2 days
50,001 to 75,000	1 days
75,001 to 100,000	3 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.6 to 1.0	3 days
1.1 to 1.5	7 days
1.6 to 2.0	1 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

No

11 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present

11 days

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

Site(1):	CC-03-A-01	Site area:	1.45 hect
Development Name:	DETACHED HOUSES	Number of dwellings:	23
Location:	CARLOW	Housing density:	19
Postcode:		Total Bedrooms:	92
Main Location Type:	Edge of Town	Survey Date:	25/05/16
Sub-Location Type:	Residential Zone	Survey Day:	Wednesday
PTAL:	n/a	Parking Spaces:	70
Site(2):	CH-03-A-09	Site area:	0.73 hect
Development Name:	TERRACED HOUSES	Number of dwellings:	24
Location:	MACCLESFIELD	Housing density:	39
Postcode:	SK10 2NS	Total Bedrooms:	72
Main Location Type:	Edge of Town	Survey Date:	24/11/14
Sub-Location Type:	Residential Zone	Survey Day:	Monday
PTAL:	n/a	Parking Spaces:	32
Site(3):	CS-03-A-03	Site area:	1.20 hect
Development Name:	MIXED HOUSES	Number of dwellings:	30
Location:	STRANDHILL	Housing density:	33
Postcode:		Total Bedrooms:	90
Main Location Type:	Neighbourhood Centre (PPS6 Local Centre)	Survey Date:	27/10/16
Sub-Location Type:	Village	Survey Day:	Thursday
PTAL:	n/a	Parking Spaces:	59
Site(4):	DN-03-A-02	Site area:	1.02 hect
Development Name:	DETACHED	Number of dwellings:	7
Location:	BALLYBOFEY	Housing density:	8
Postcode:		Total Bedrooms:	35
Main Location Type:	Edge of Town	Survey Date:	05/09/13
Sub-Location Type:	Residential Zone	Survey Day:	Thursday
PTAL:	n/a	Parking Spaces:	35
Site(5):	NF-03-A-03	Site area:	0.63 hect
Development Name:	DETACHED HOUSES	Number of dwellings:	10
Location:	THETFORD	Housing density:	20
Postcode:	IP24 1EY	Total Bedrooms:	40
Main Location Type:	Edge of Town	Survey Date:	16/09/15
Sub-Location Type:	Residential Zone	Survey Day:	Wednesday
PTAL:	n/a	Parking Spaces:	37
Site(6):	NY-03-A-07	Site area:	0.77 hect
Development Name:	DETACHED & SEMI DET.	Number of dwellings:	23
Location:	BOROUGHBRIDGE	Housing density:	35
Postcode:	YO51 9US	Total Bedrooms:	67
Main Location Type:	Edge of Town	Survey Date:	18/10/11
Sub-Location Type:	No Sub Category	Survey Day:	Tuesday
PTAL:	n/a	Parking Spaces:	45
Site(7):	NY-03-A-11	Site area:	1.79 hect
Development Name:	PRIVATE HOUSING	Number of dwellings:	23
Location:	BOROUGHBRIDGE	Housing density:	15
Postcode:	YO51 9LQ	Total Bedrooms:	101
Main Location Type:	Edge of Town	Survey Date:	18/09/13
Sub-Location Type:	Residential Zone	Survey Day:	Wednesday
PTAL:	n/a	Parking Spaces:	144
Site(8):	RO-03-A-03	Site area:	4.08 hect
Development Name:	DETACHED HOUSES	Number of dwellings:	23
Location:	BOYLE	Housing density:	8
Postcode:		Total Bedrooms:	96
Main Location Type:	Edge of Town	Survey Date:	25/09/14
Sub-Location Type:	No Sub Category	Survey Day:	Thursday
PTAL:	n/a	Parking Spaces:	84
Site(9):	SF-03-A-05	Site area:	1.15 hect
Development Name:	DETACHED HOUSES	Number of dwellings:	18
Location:	BURY ST EDMUNDS	Housing density:	19
Postcode:	IP33 2SN	Total Bedrooms:	78
Main Location Type:	Edge of Town	Survey Date:	09/09/15
Sub-Location Type:	Residential Zone	Survey Day:	Wednesday
PTAL:	n/a	Parking Spaces:	75
Site(10):	SH-03-A-06	Site area:	0.80 hect
Development Name:	BUNGALOWS	Number of dwellings:	16
Location:	SHREWSBURY	Housing density:	24
Postcode:	SY1 2RB	Total Bedrooms:	34
Main Location Type:	Edge of Town	Survey Date:	22/05/14
Sub-Location Type:	Residential Zone	Survey Day:	Thursday
PTAL:	n/a	Parking Spaces:	32

LIST OF SITES relevant to selection parameters (Cont.)

Site(11): ST-03-A-08
Development Name: DETACHED HOUSES
Location: STAFFORD
Postcode: ST17 4JS
Main Location Type: Edge of Town
Sub-Location Type: Residential Zone
PTAL: n/a

Site area: 0.80 hect
Number of dwellings: 26
Housing density: 37
Total Bedrooms: 90
Survey Date: 22/11/17
Survey Day: Wednesday
Parking Spaces: 89

Trip Rates for Key Periods		Trips per 1 dwells DWELLS	
Period	Inbound	Outbound	Total
0800-0900	0.094	0.386	0.480
1700-1800	0.462	0.224	0.686

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
VEHICLES

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	11	20	0.076	11	20	0.215	11	20	0.291
08:00 - 09:00	11	20	0.094	11	20	0.386	11	20	0.480
09:00 - 10:00	11	20	0.152	11	20	0.233	11	20	0.385
10:00 - 11:00	11	20	0.161	11	20	0.166	11	20	0.327
11:00 - 12:00	11	20	0.152	11	20	0.166	11	20	0.318
12:00 - 13:00	11	20	0.184	11	20	0.170	11	20	0.354
13:00 - 14:00	11	20	0.202	11	20	0.206	11	20	0.408
14:00 - 15:00	11	20	0.148	11	20	0.215	11	20	0.363
15:00 - 16:00	11	20	0.274	11	20	0.256	11	20	0.530
16:00 - 17:00	11	20	0.341	11	20	0.224	11	20	0.565
17:00 - 18:00	11	20	0.462	11	20	0.224	11	20	0.686
18:00 - 19:00	11	20	0.309	11	20	0.188	11	20	0.497
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			2.555			2.649			5.204

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

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Parameter summary

Trip rate parameter range selected:	7 - 30 (units:)
Survey date date range:	01/01/10 - 03/07/18
Number of weekdays (Monday-Friday):	11
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	1
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

TAXIS

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	11	20	0.000	11	20	0.000	11	20	0.000
08:00 - 09:00	11	20	0.000	11	20	0.000	11	20	0.000
09:00 - 10:00	11	20	0.000	11	20	0.000	11	20	0.000
10:00 - 11:00	11	20	0.009	11	20	0.009	11	20	0.018
11:00 - 12:00	11	20	0.000	11	20	0.000	11	20	0.000
12:00 - 13:00	11	20	0.000	11	20	0.000	11	20	0.000
13:00 - 14:00	11	20	0.000	11	20	0.000	11	20	0.000
14:00 - 15:00	11	20	0.000	11	20	0.000	11	20	0.000
15:00 - 16:00	11	20	0.000	11	20	0.000	11	20	0.000
16:00 - 17:00	11	20	0.004	11	20	0.004	11	20	0.008
17:00 - 18:00	11	20	0.000	11	20	0.000	11	20	0.000
18:00 - 19:00	11	20	0.000	11	20	0.000	11	20	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:	0.013			0.013			0.026		

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

OGVS

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	11	20	0.000	11	20	0.004	11	20	0.004
08:00 - 09:00	11	20	0.000	11	20	0.000	11	20	0.000
09:00 - 10:00	11	20	0.000	11	20	0.000	11	20	0.000
10:00 - 11:00	11	20	0.009	11	20	0.000	11	20	0.009
11:00 - 12:00	11	20	0.004	11	20	0.009	11	20	0.013
12:00 - 13:00	11	20	0.000	11	20	0.000	11	20	0.000
13:00 - 14:00	11	20	0.004	11	20	0.004	11	20	0.008
14:00 - 15:00	11	20	0.000	11	20	0.000	11	20	0.000
15:00 - 16:00	11	20	0.000	11	20	0.000	11	20	0.000
16:00 - 17:00	11	20	0.000	11	20	0.000	11	20	0.000
17:00 - 18:00	11	20	0.004	11	20	0.004	11	20	0.008
18:00 - 19:00	11	20	0.000	11	20	0.000	11	20	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:	0.021			0.021			0.042		

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

PSVS

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	11	20	0.000	11	20	0.000	11	20	0.000
08:00 - 09:00	11	20	0.004	11	20	0.004	11	20	0.008
09:00 - 10:00	11	20	0.000	11	20	0.000	11	20	0.000
10:00 - 11:00	11	20	0.000	11	20	0.000	11	20	0.000
11:00 - 12:00	11	20	0.000	11	20	0.000	11	20	0.000
12:00 - 13:00	11	20	0.000	11	20	0.000	11	20	0.000
13:00 - 14:00	11	20	0.000	11	20	0.000	11	20	0.000
14:00 - 15:00	11	20	0.000	11	20	0.000	11	20	0.000
15:00 - 16:00	11	20	0.000	11	20	0.000	11	20	0.000
16:00 - 17:00	11	20	0.000	11	20	0.000	11	20	0.000
17:00 - 18:00	11	20	0.004	11	20	0.004	11	20	0.008
18:00 - 19:00	11	20	0.000	11	20	0.000	11	20	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.008			0.008			0.016

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

CYCLISTS

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	11	20	0.000	11	20	0.013	11	20	0.013
08:00 - 09:00	11	20	0.000	11	20	0.009	11	20	0.009
09:00 - 10:00	11	20	0.000	11	20	0.009	11	20	0.009
10:00 - 11:00	11	20	0.004	11	20	0.000	11	20	0.004
11:00 - 12:00	11	20	0.013	11	20	0.022	11	20	0.035
12:00 - 13:00	11	20	0.009	11	20	0.004	11	20	0.013
13:00 - 14:00	11	20	0.013	11	20	0.004	11	20	0.017
14:00 - 15:00	11	20	0.004	11	20	0.000	11	20	0.004
15:00 - 16:00	11	20	0.022	11	20	0.009	11	20	0.031
16:00 - 17:00	11	20	0.004	11	20	0.000	11	20	0.004
17:00 - 18:00	11	20	0.013	11	20	0.004	11	20	0.017
18:00 - 19:00	11	20	0.004	11	20	0.004	11	20	0.008
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.086			0.078			0.164

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.