

Epping Forest District Cycling Action Plan

Highways/Transport Planning

March 2018



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Executive Summary

Essex Highways was commissioned by Essex County Council to produce a Cycling Action Plan (CAP) for Epping Forest District, as part of a commitment in the Essex Cycling Strategy to create Cycling Action Plans for every Borough/District/City.

The purpose of the Essex Cycling Strategy is to set out the key elements of a long term plan that will lead to a significant and sustained increase in cycling in Essex, establishing it in the public's mind as a 'normal or regular' mode of travel, especially for short A-to-B trips, and as a major participation activity and sport for all ages.

To help achieve this, Essex is committed to establishing a coherent, comprehensive and advantageous cycle network in every major urban area, utilising a combination of on-carriageway and off-carriageway cycle facilities. To enable this, each Borough/ District/City in Essex will have an up-to-date Cycling Action Plan (renewed every five years). These are seen as key elements of a long term plan that will lead to a significant and sustained increase in cycling in Epping Forest District Borough and in Essex.

This document sets out the Cycling Action Plan (CAP) for Epping Forest District, which is targeted towards the specific needs of Epping Forest residents, which will assist Essex County Council (ECC) in tackling wider problems associated with poor health, pollution, traffic congestion and inequalities of opportunity for the youth population and people on low incomes.

The aims of this Action Plan are to:

- Identify how cycling levels can be increased in the District;
- Enable any funding for new cycling schemes in Epping Forest to be prioritised;
- Create a usable, high-quality cycle network that connects residential areas with key employment locations, railway stations, underground stations and town centres; and
- Create opportunities to increase recreational cycling in Epping Forest.

Understanding current levels and conditions for cycling has been important in developing this CAP, which has involved analysis and consideration of 2011 Census data, the Active People Survey (by Sport England), the Department for Transport count data, collision data, cycle crime statistics and topography.

In order to create an environment where cycling is normal for the residents of Epping Forest, it will be necessary to remove existing barriers to cycling and establish a series of cycle routes, with the aim of creating a connected cycle network over time. Cycling infrastructure should provide for both key utility journeys and encourage leisure cycling.

The key recommendations and schemes are listed in Sections 6, 7 and 8 of this CAP and are summarised in Section 11 and below.

Key Recommendations

Taking into account the current barriers to cycling in Epping Forest District, commuter flow analysis and locations of committed development, the following key recommendations have been made for cycle enhancements in the District:

- Review existing route signage and lighting;
- Improve maintenance of existing routes (it is an aim of the Essex Cycle Strategy to prioritise more frequent and improved maintenance of the cycle network but as yet, responsibility for this has yet to be identified);
- Prioritise access to the town centres and railway stations;
- Increased provision of useful cycle routes in Waltham Abbey, Loughton/Buckhurst Hill and Epping, in particular;
- Provide new and improved cycle routes with a focus on satiating the considerable demand for commuter trips at railway stations;
- Fill obvious gaps in the existing cycle-route network (on alignments with cycle-friendly topography);
- Provide new infrastructure on key roads with cycle-friendly topography but no existing facilities;
- Update the existing cycle map every two years taking on board new innovation in cycle-map design, and promote it and disseminate it widely through a range of channels and outlets;
- Implement the recommended Flagship Route located in Waltham Abbey, which provides an E-W route linking residential areas to the town centre, as well as Waltham Abbey to existing provision in Hertfordshire, providing a route to Waltham Cross train station.

Next Steps

This is a draft Action Plan and, although the potential schemes have been developed in discussion with Council representatives, further consultation is required before the overall Action Plan can be finalised.

The character of the existing highway network has been taken into account, when developing potential cycle routes and schemes – in particular existing traffic levels. Broad costs of schemes have been identified, as well as broadly prioritising schemes against deliverability, directness, extension of the existing network and proximity to key attractors. However, the potential routes and schemes have not been constrained to a set budget and the feasibility and the precise cost of the routes can only be established through further study.

1 Introduction

1.1 Preamble

As part of the county-wide Essex Cycling Strategy, Cycling Action Plans are being developed for the individual Boroughs and Districts of Essex, including one for Epping Forest District. This document provides an opportunity to develop and promote cycling in Epping Forest through improved infrastructure, together with the wider promotion of cycling by Active Essex, Essex County Council (ECC) and Epping Forest District Council (EFDC), to establish it in the public's mind as a 'normal' mode of travel, especially for short a-to-b trips, and as a major participation activity and sport for all ages.

Two key commitments of the Essex Cycling Strategy are to:

- Establish a coherent, comprehensive and advantageous cycle network in every major urban area, utilising a combination of on-carriageway and off-carriageway cycle facilities; and
- Ensure each District has an up to date Cycling Action Plan (renewed every 5 years).

The Cycling Action Plans should help to identify high quality and well planned infrastructure which will be vital in encouraging cycling and improving safety. ECC will ensure that every urban area has a well-planned cycle network that:

- Connects key destinations;
- Supports a network of recreational routes; and
- Caters for all users and abilities.

Coherent cycle networks will ensure that:

- The physical barriers to cycling in many of Essex's urban areas are progressively broken down; and
- Cycling becomes a prioritised mode of transport in the mind of Essex residents.

In addition, Active Essex (County Sports Partnership) priority aims and how cycling helps achieve these aims are included in **Error! Reference source not found..**

Table 1-1: Active Essex priority aims

Active Essex priority aims	How cycling helps achieve these aims
Increase participation in sport and physical activity	Cycling is one of the most popular sports in Essex and can be enjoyed by people of all ages
Encourage healthy and active lifestyles	Cycling provides a means of active transport that can help to reduce the number of short car journeys
Develop sporting pathways	Alex Dowsett, cycling world record breaker, is from Essex and benefited from Active Essex Sporting Ambassador funding and support when he was a talented young cyclist
Encourage lifelong learning and skills development	Bikeability courses help children and adults to acquire physical skills and road safety awareness

1.2 Background

Location

Epping Forest District, illustrated in Figure 1.1 below, is a predominantly rural area in South-West Essex, with a number of large settlements in the south of the District, which are home to the majority of the population - namely Loughton, Waltham Abbey, Buckhurst Hill, Chigwell and Epping. The Office for National Statistics (2014) estimates the population of Epping Forest District at 130,300¹

Epping Forest District borders the Lee Valley and Hertfordshire to its West, the London Boroughs of Enfield, Waltham Forest, Redbridge and Havering to the South and West, and Brentwood Borough and the Chelmsford City Administrative Area to the East. Harlow District and Uttlesford District border Epping Forest District to the north.

The District is connected to London by eight Central Line stations and numerous TfL bus routes. It is bisected north to south by the M11 and east to west by the M25 with junctions to connect with each.

¹ Nomis, Labour Market Profile – Epping Forest, 2016



Figure 1-1 Epping Forest District Map

1.3 Aims of the Action Plan

The aims of the Action Plan are to:

- Identify how cycling levels can be increased in the District;
- Enable any funding for new cycling schemes in Epping Forest to be prioritised;
- Create a usable, high-quality cycle network that connects residential areas with key employment locations, railway stations, underground stations and town centres; and
- Create opportunities to increase recreational cycling in Epping Forest.

This is a draft Action Plan and, although the potential schemes have been developed in discussion with Council representatives, further consultation is required before the overall Action Plan can be finalised.

1.5 Report Structure

The remainder of this Action Plan is set out as follows:

- Section 2 – Policy Review;
- Section 3 – Data Analysis;
- Section 4 – Existing Network Provision and Barriers;
- Section 5 – Epping Forest’s Cycling Potential;
- Section 6 – Potential Infrastructure Improvements;
- Section 7 – Prioritisation and Costings of Potential Schemes;
- Section 8 – Flagship Routes;
- Section 9 – Smarter Travel Measures;
- Section 10 – Delivery and Funding; and
- Section 11 – Key Recommendations.

2 Policy Review

2.1 Introduction

This section provides a summary of the relevant national and local policies related specifically to cycling and where the promotion of cycling and provision of infrastructure could have a role to play. Relevant National, Regional and Local Policy contexts have been examined through consideration of the following documents: the UK Government's Cycling and Walking Investment Strategy (CWIS, 2017), the Essex Transport Strategy (2011) and the Epping Forest Draft Local Plan (2016).

These documents indicate that there is a great deal of support for cycling at all levels. At a national level, there is a long term vision for cycling to become the normal mode of choice for short journeys or as part of a longer journey. At a regional level, there is a particular emphasis on providing sustainable access and travel choice for Essex residents. It is recommended that cycling will be promoted as a way to reduce congestion within urban areas, to encourage healthier lifestyles, and as a valuable leisure and tourism opportunity that is important to the local economy.

In local terms, the emerging Local Plan for Epping Forest District highlights the growing emphasis on walking, cycling and public transport modes. It identifies that safety issues and high traffic volumes are the reason for current low levels of cycling. The need to promote more transport choice, including providing coherent and direct walking and cycling networks to provide genuine alternatives to the car are recognised.

2.2 National Policy Context

2.2.1 Cycling and Walking Investment Strategy (CWIS)

Under the Infrastructure Act 2015, the UK Government is required to set a Cycling and Walking Investment Strategy (CWIS) for England. A Draft First CWIS was published at the end of March 2016, which set out the UK Government's ambition for creating a walking and cycling nation, the targets and objectives they are working towards, the financial resources available to meet their objectives, the strategy for delivering the objectives, and the governance arrangements that will review this delivery. Following consultation, a final version of the Strategy was published in 2017.

The final Cycling and Walking Investment Strategy states that the Government "wants to make cycling and walking the natural choices for shorter journeys, or as part of a longer journey". The aim is for more people to have access to safe, attractive routes for cycling and walking by 2040. By 2040, the ambition is to deliver:

Better Safety (a safe and reliable way to travel for short journeys), through:

- Streets where cyclists and walkers feel they belong, and are safe;
- Better connected communities;
- Safer traffic speeds, with lower speed limits where appropriate to the local area; and
- Cycle training opportunities for all children.

Better mobility (more people cycling and walking – easy, normal and enjoyable), through:

- More high quality cycling facilities
- More urban areas that are considered walkable;
- Rural roads which provide improved safety for walking and cycling;
- More networks of routes around public transport hubs and town centres; with safe paths along busy roads;
- Better links to schools and workplaces;
- Technological innovations that can promote more and safer walking and cycling;
- Behaviour change opportunities to support increased walking and cycling; and
- Better integrated routes for those with disabilities or health conditions.

Better streets (places that have cycling and walking at their heart), by:

- Places designed for people of all abilities and ages so they can choose to walk or cycle with ease;
- Improved public realm;
- Better planning for walking and cycling;
- More community-based activities, such as led rides and play streets where local places want them; and
- A wider green network of paths, routes and open spaces.

The document recognises that great progress has been made on cycling in the past six years. Cycling rates have increased in areas where dedicated funding has been made available and spend on cycling has risen from around £2 per person in 2010 to £6 per person in England in 2016-17. The Government want to build on these successes and to help achieve this have made over £1 billion of Government funding available to local bodies that may be invested in walking and cycling over the next five years. The £1.2 billion is allocated as follows:

- £50 million to provide cycling proficiency training for further 1.3 million children;

- £101 million to improve cycling infrastructure and expand cycle routes between the city centres, local communities, and key employment and retail sites;
- £85 million to make improvements to 200 sections of roads for cyclists;
- £80 million for safety and awareness training for cyclists, extra secure cycle storage, bike repair, maintenance courses and road safety measures;
- £389.5 million for councils to invest in walking and cycling schemes; and
- £476.4 million from local growth funding to support walking and cycling.

In addition, the government is investing an extra:

- £5 million on improving cycle facilities at railway stations;
- £1 million on Living Streets' outreach programmes to encourage children to walk to school; and
- £1 million on [Cycling UK's 'Big Bike Revival' scheme](#) which provides free bike maintenance and cycling classes.

By 2020, the objectives of the CWIS are to:

- Increase cycling activity, where cycling activity is measured as the estimated total number of cycle stages made;
- Increase walking activity, where walking activity is measured as the total number of walking stages per person;
- Reduce the rate of cyclists killed or seriously injured on England's roads, measured as the number of fatalities and serious injuries per billion miles cycled; and
- Increase the percentage of children aged 5 to 10 that usually walk to school.

2.2.2 Cycling and Walking Infrastructure Plans (CWIP)

A National CWIP is being developed to inform the CWIS. This will include the identification of nationally significant locations/infrastructure. Six outputs are currently being developed, three national and three local:

- The national outputs focus on identifying criteria for national significance and developing a pipeline of potential schemes.
- The local outputs are focused on developing a Level of Service tool, and guidance to Local Authorities on developing their own Local CWIP.

Local Cycling and Walking Infrastructure Plans (LCWIPs), as set out in the Government's Cycling and Walking Investment Strategy, are a new, strategic approach to identifying cycling and walking improvements required at the local level. They enable a long-term approach to developing local cycling and walking

networks, ideally over a 10 year period, and form a vital part of the Government's strategy to increase the number of trips made on foot or by cycle.

While only focusing on cycling it is hoped that ECC's suite of Cycling Action Plans will contribute to the future development of an Essex CWIP by providing:

- A network plan for cycling which identifies preferred routes and core zones for further development;
- A prioritised programme of infrastructure improvements for future investment; and
- A report which sets out the underlying analysis carried out and provides a narrative which supports the identified improvements and network.

Highways England has also published recommendations for building cycle infrastructure for the strategic road network (SRN) in IAN195/16. The document is to ensure SRN infrastructure facilitates the convenient and safe movement of cycle traffic crossing or travelling along the SRN, where cycling is legally permitted, the document sets out how SRN infrastructure will support Highways England's objectives for cycle traffic.²

2.2.3 Department for Transport- Setting Local Speed Limits (2013)³

Roads should be designed so that mistakes made by road users do not result in death or serious injury. Effective speed management is part of creating a safe road environment which is fit for purpose. Speed limits should be evidence led and self-explaining and seek to reinforce people's assessment of what is a safe speed to travel. Traffic authorities set local speed limits in situations where local needs and conditions suggest a speed limit which is lower than the national speed limit. Traffic authorities are asked to keep their speed limits under review with changing circumstances, and to consider the introduction of more 20mph limits and zones, over time, in urban areas and built-up village streets that are primarily residential, to ensure greater safety for pedestrians and cyclists.

20mph zones require traffic calming measures (e.g. speed humps, chicanes) or repeater signage so that no point within a zone is more than 50 metres from a sign. 20mph zones encourage healthier and more sustainable transport modes such as walking and cycling. Based on this positive effect on road safety, and a generally favourable reception from local residents, traffic authorities are able to use their power to introduce 20mph speed limits or zones on:

² Standards for Highways, 2016

<http://www.standardsforhighways.co.uk/ha/standards/ians/pdfs/ian195.pdf>

³ DfT, 2013

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/63975/circular-01-2013.pdf

- Major streets where there are – or could be - significant numbers of journeys on foot, and/or where pedal cycle movements are an important consideration, and this outweighs the disadvantage of longer journey times for motorised traffic.

This is in addition to:

- Residential streets in cities, towns and villages, particularly where the streets are being used by people on foot and on bicycles, there is community support and the characteristics of the street are suitable.

2.3 Regional Policy Context

2.3.1 Essex Transport Policy

The Essex Transport Strategy (2011) will seek to achieve the following five broad outcomes:

- Provide connectivity for Essex communities and international gateways to support sustainable economic growth and regeneration;
- Reduce carbon dioxide emissions and improve air quality through lifestyle changes, innovation and technology;
- Improve safety on the transport network and enhance and promote a safe travelling environment;
- Secure and maintain all transport assets to an appropriate standard and ensure that the network is available for use; and
- Provide sustainable access and travel choice for Essex residents to help create sustainable communities.

'Policy 14 – Cycling' states that Essex County Council will encourage cycling by:

- Promoting the benefits of cycling;
- Developing existing cycling networks in other towns where cycling offers an appropriate local solution;
- Working with schools and employers to improve facilities for cyclists;
- Improving access to local services by integrating the Public Rights of Way, walking and cycling networks to form continuous routes; and
- Providing training opportunities to school children and adults.

Cycling will be promoted as a way to reduce congestion within urban areas, to encourage healthier lifestyles, and as a valuable leisure and tourism opportunity that is important to the local economy.

Improving the safety of the cycling network is also a key concern within the *Essex Transport Strategy*. Policy 14 of the plan sets out Essex County Council's approach to encouraging cycling, which includes developing cycle networks

within towns across Essex and improving access to local services and schools for cyclists. In terms of locational priorities in relation to cycling, the plan identifies Basildon (including Laindon and Pitsea) as a priority area, seeking improvements to the town's cycle networks, including links with surrounding areas such as Billericay and Wickford.

The *Essex Transport Strategy* seeks to promote sustainable travel, by providing the infrastructure for sustainable travel and promoting the use of travel plans. With regard to cycling, the *Essex Transport Strategy* considers actions to improve access for cyclists and pedestrians in particular, and identifies the following improvements as essential:

- Addressing gaps in existing networks;
- Better linkages for walking and cycling routes within the Public Rights of Way network;
- Improving signing;
- Improving crossing facilities; and
- Ensuring that pedestrian routes are accessible for everyone.

The *Infrastructure Act 2015* includes a new legal requirement for the Government to produce a cycling and walking investment strategy. The DfT's *Cycling Delivery Plan (2014)* refers to a new national cycling target, to double the number of cycling stages (trips) nationally over a 10 year period. This new target will be adopted by Essex County Council as part of the *Essex Cycle Strategy (2015)*.

Additionally, the Government has introduced a £6bn Local Growth Fund for cycling and walking. It has also set a target of achieving an annual cycling spend of £10 to £20 per head of the population. In the District this could see between £1.3m and £2.6m per year spent on improving cycling provision (*mid year 2016 population estimate 130,300⁴).

2.3.2 Essex Cycle Strategy (2016)

In response to the legal requirement, and also the requirements of the Essex Transport Strategy, the Essex Cycle Strategy has been prepared with the aim of setting out a strategy for providing coherent cycle networks. The purpose of the strategy is to set out the key elements of a long term plan that will lead to a significant and sustained increase in cycling in Essex, establishing it in the public's mind as a 'normal' mode of travel, especially for short a-to-b trips, and as a major participation activity and sport for all ages. The strategy has been produced in conjunction with Essex County Council, the 12 Essex Boroughs/ Districts, the two Unitary Authorities (Southend-on-Sea and Thurrock) and other

⁴ Nomis, Labour Market Profile – Epping Forest, 2016

key stakeholders. It has taken account of current UK policy, data on cycling levels within Essex and best practice from around the world. Specifically, it commits to:

- I. Establishing a coherent, comprehensive and advantageous cycle network in every major urban area, utilising a combination of on-carriageway and off-carriageway cycle facilities;
- II. Ensuring each Borough or District has an up to date cycling action plan (renewed every 5 years);
- III. Providing well placed and high quality cycle parking at key public destinations such as town centres, leisure facilities and railway stations;
- IV. Ensuring that all new housing includes secure and easily accessible cycle storage and that new secure cycle storage is facilitated in existing housing developments;
- V. Ensuring that cycling is prioritised over motorised transport in all new developments – making it easier to carry out short trips by bicycle than by car. Cycle routes within commercial and residential developments will be more direct and convenient than car routes and will connect in to existing cycling infrastructure on leaving the site;
- VI. Prioritising more frequent and good maintenance of our cycle network;
- VII. Providing a clear and consistent standard of good quality, well placed cycle signage – to an appropriate density, with provision of journey times as well as distances (to cater for all audiences) where possible;
- VIII. Continuing to improve cycle safety at sites with actual and perceived safety problems; and
- IX. Developing an improved mechanism for the reporting of safety issues.

2.4 Local Policy Context

2.4.1 Epping Forest District New Local Plan

The South East Local Enterprise Partnership's (SELEP) '2014 Growth Deal and Economic Plan' expects 115,000 new homes and 171,000 jobs in Essex by 2031.

In September 2015, the Cooperation for Sustainable Development Board noted an updated Strategic Housing Market Assessment (SHMA) for West Essex / East Herts which covers Epping Forest District and an associated report on economic growth. The SHMA identified a housing need for the area as 46,100; with Epping Forest potentially needing to provide up to 11,300 of that (subject to confirmation); it should be noted though that the SHMA identifies this housing need for up to 2033.

Housing sites in Epping Forest District are currently being evaluated for inclusion in the District's Preferred Spatial Option for future development. As part of the site selection process, sustainable accessibility reviews have been undertaken with a particular focus on the appraisal of current and potential levels of walking and cycling in the District. An established cycling strategy for Epping Forest

District will therefore play an important role in the acceptance and successful delivery of the District's Local Plan.

Its draft release for the public domain was in early Autumn 2016 for five weeks, before formal consultation started in late October 2016. Advance availability effectively gave local residents 11 weeks to consider it, with responses being received in the final six week period.

Key things to note in terms of cycling in the draft included:

- The key issues for the plan to address were the management of congestion, HGVs on local roads and provision of opportunities for walking, cycling and public transport, in addition to the management of commuter parking around London Underground Stations.
- By 2033 Epping Forest will be a place where access to public transport, walking and cycling will be promoted, with the aim of promoting healthy lifestyles, reducing the effects of traffic congestion and improving accessibility to services and the countryside without a car.
- To locate new development where there are the greatest opportunities for utilising public transport, cycling and walking.
- Responses to the Community Choices Consultation and Stakeholder engagement included a district wide green infrastructure strategy. Strong support was expressed for an accessible green infrastructure network for: people, including those with particular access requirements, animals, walking and cycling and enhancing open spaces;
- Public said of the need to increase cycling facilities, and said the reason that there currently is a low level of cycling is because of safety issues, and high volumes of traffic;
- The need to promote more transport choice was highlighted, including providing coherent and direct cycling and walking networks to provide a genuine alternative to the car and facilitate a modal shift.

3 Data Analysis

3.1 Introduction

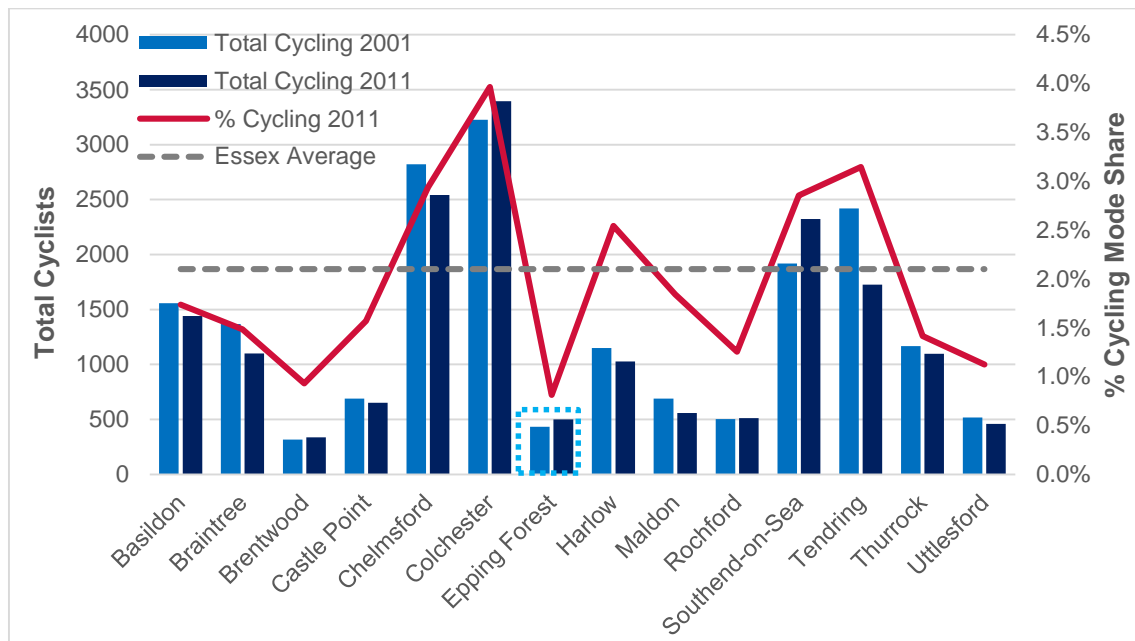
When planning for cycling infrastructure it is important to first understand current levels and conditions for cycling. This section includes analysis of:

- 2011 Census data;
- The Active People Survey (by Sport England);
- Department for Transport count data;
- Collision data;
- Cycle crime statistics; and
- Topography.

3.2 Census Data

As part of the 10 year national Census, respondents are asked to state their main mode of travel to work by distance. The 2001 and 2011 Census results for Essex are provided in Figure 3-1, below.

Figure 3-1: 2001 and 2011 Census Cycling to Work by District



As shown above, based on 2011 Census data, Epping Forest District has some of the lowest levels of cycling numbers within the Essex Boroughs/Districts, with only 500 people cycling to work every day in 2011. This equates to just 0.8% of all journeys to work being made by bicycle within Epping Forest District. Although this is higher than Brentwood Borough and Uttlesford District, it is significantly less than the other two neighbouring authorities to the District, namely Chelmsford and Harlow and it is significantly below the Essex average of 1.4%.

Epping Forest District is one of a few Boroughs/Districts that showed an increase in cycling to work between the 2001 and 2011 Census; from 432 cyclists to 500. This is in contrast to the general trend which has been widely observed across many shire counties in England and Wales, where despite the number of people cycling to work growing by 90,000 between 2001 and 2011, the proportion remained the same at 2.8%. The decline (and perhaps even the low existing levels) in cycling to work across Essex and many other shire counties has been attributed to failures in local policy and a lack of infrastructure⁵. Whereas, in urban areas, cycling to work increased due to the implementation of improved infrastructure, thus this balanced the decline experienced in rural areas and means the proportion of people cycling to work remained the same as in 2001 at 2.8%.

The dispersed nature of rural and shire areas (e.g. rural residents drive longer distances to access retail services etc.) is likely to encourage car use, which in turn could displace cycling as an everyday choice of transport mode. The implementation of improved infrastructure will obviously be important to encourage more people to travel by bike. The measures suggested in this Cycling Action Plan will attempt to make cycling more popular as a modal choice especially for shorter trips within, to and through the town centres, as well as encouraging cycling for leisure.

Within Epping Forest district itself, 2% of internal journeys to work are made by bicycle, equating to 146 cyclists per day. The largest movements of cycle journey to work trips originating in Epping Forest are to East areas (241 trips) and London (198 trips). Figure 3.2 to 3.4 shows the percentage of people cycling to work by origin in Epping / Waltham Abbey/ Loughton.

⁵ <http://www.sustrans.org.uk/press-releases/governments-must-get-times-cycling-work-levelsstagnate-over-10-years>

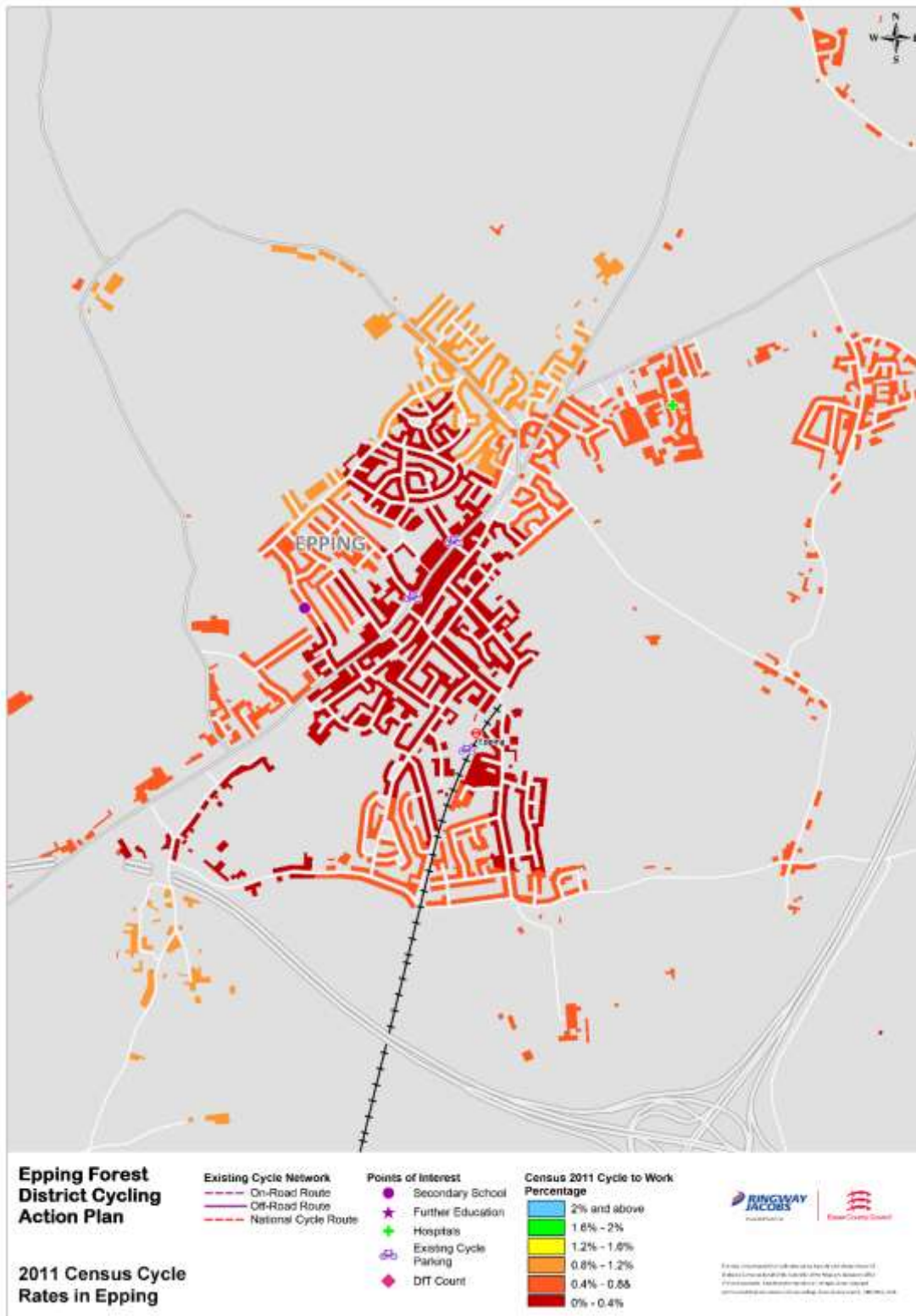


Figure 3-2 Percentage of People Cycling to Work by Origin in Epping

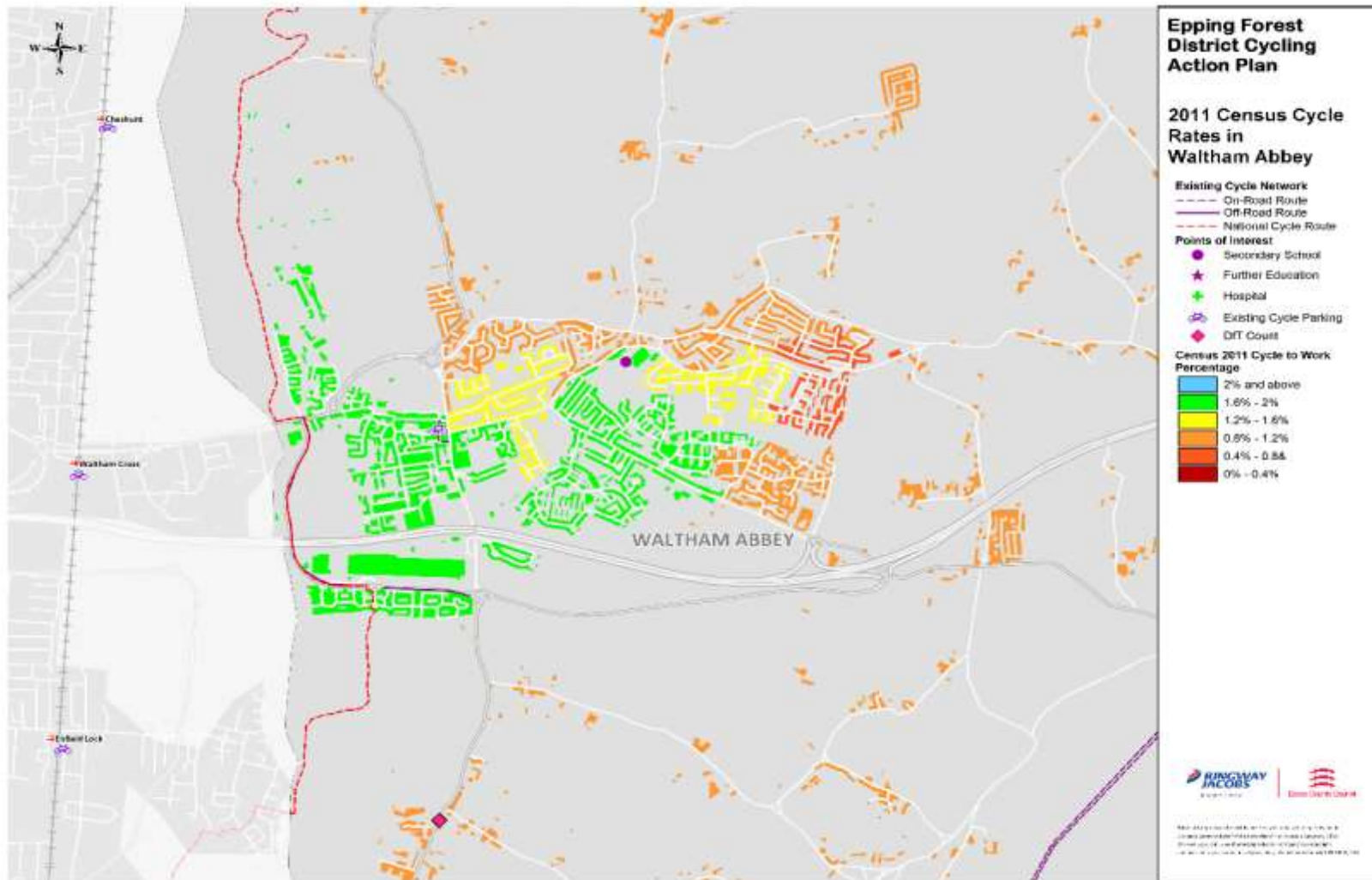


Figure 3-3 Percentage of People Cycling to Work by Origin in Waltham Abbey

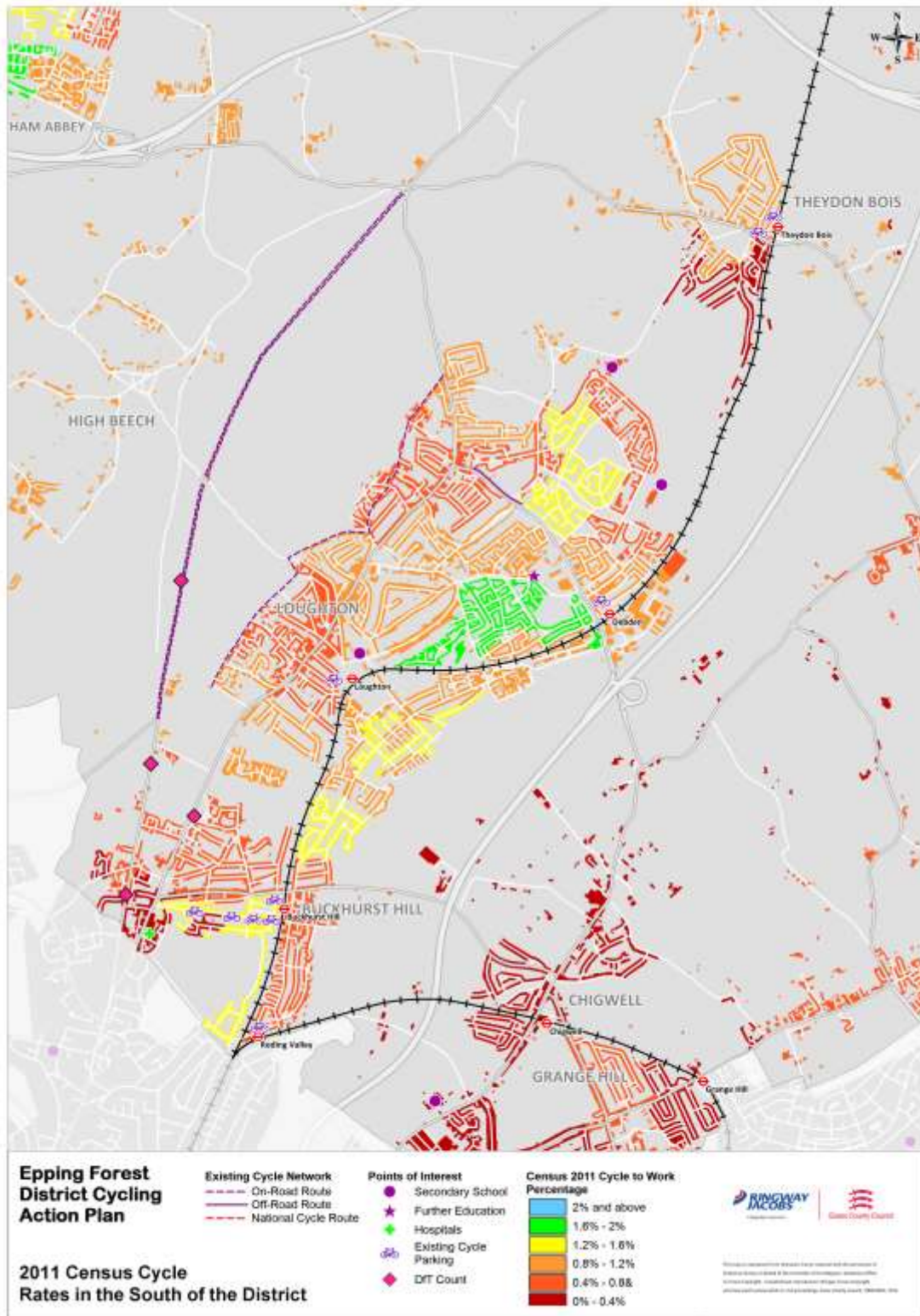


Figure 3-4 Percentage of People Cycling to Work by Origin in Loughton

3.3 Sport England Active People Survey

Sport England carry out an Active People Survey annually, which involves interviewing 500 people from every District in England about their propensity to do physical activity. It is the largest survey of sport and active recreation in Europe.

Error! Reference source not found. shows the 2010-2013 average propensity to cycle at least once per month for any purpose based on the Sport England data. During this period, Epping Forest District recorded one of the lowest propensities to cycle in Essex with 12.2%, compared to a county average of 15%.

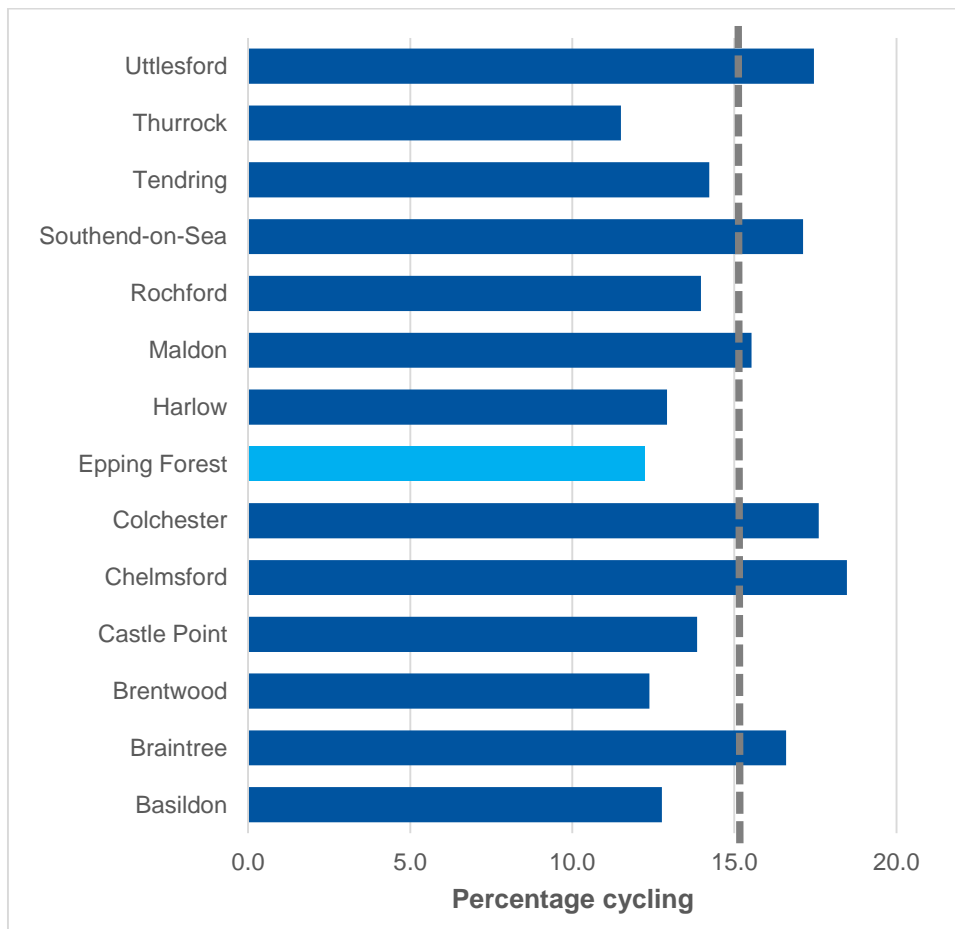


Figure 3-5 Sport England Survey (average propensity to cycle at least once per month between 2010 & 2013)

3.4 DfT Count Data

The Department for Transport (DfT) collects vehicular flow data at various locations on the road network around the country. These counts record all vehicles using the carriageway, including cyclists, and the data provides a snapshot overview of the cycle usage along particular routes within the District.

There are 72 count sites located in Epping Forest District, of which nine sites recorded an Annual Average Daily Flow (AADF) of more than 50 cyclists per day in 2014. This is shown in Table 3.1 below.

Table 3-1

Table 3-1: DfT AADF count locations and flow of cyclists (2016)

Count location	Annual Average Daily Flow - Cyclists
B194 Nazeing New Road (East of Broxbourne and the Lea Valley Walk Towpath, West of National Cycle Network (NCN) Route 1)	132
B194 Nazeing Road (East of NCN Route 1)	73
A104 Epping New Road, South of Junction with Manor Road (North of Buckhurst Hill)	106
A121 High Road next to Roebuck Green	93
A104 Epping New Road - southern end of the forest	134
Bury Road North of Farm End	58
A112 North of Butlers Drive	68
Toot Hill Road North of Mill lane (location in-between Epping and Chipping Ongar)	94

Of the above locations, the two highlighted in bold text (A121 High Road next to Roebuck Green, and the A104 Epping New Road at the southern end of the forest,) have had specific potential improvement schemes suggested as part of this Cycling Action Plan. The other Epping New Road site was also considered, but it was felt that it would be better in regard to improving cyclist safety, to provide a quieter route through some of the suburban streets of Buckhurst Hill (Roebuck Lane) and the area of Epping Forest known as North Farm. This will link in with the potential schemes at the locations identified by the bold text above which lead through The Warren and The Stubbles forest areas. It was not possible to generate potential schemes of a similar nature in The Nazeing (New) Road and Toot Hill Road areas listed in the table above, given the distance between these locations and the major population areas which this Cycling Action Plan was focused around.

3.5 Collision Data

Fear of personal injury is often cited as a barrier to cycling but whilst this is an important issue, it is useful to use statistics rather than just perception to direct improvements to highway infrastructure to improve the cycling environment. The

location of cycling personal injury collisions also serves to identify where cyclists are travelling in higher numbers which can be useful when deciding where to prioritise new infrastructure.

Table 3.2, shows the total number (and severity) of recorded collisions involving cyclists by District for the 5 year period between August 2012 and July 2017. Figures below for 'Essex' exclude the Unitary Authorities of Southend and Thurrock, figures for 'Greater Essex' include these areas. It is also illustrated in the map in figure 3.6.

Table 3-2: Personal Injury Collisions involving cyclists August 2012 to July 2017

District	Fatal	Serious	Slight	Grand Total	% of total cycle collisions in Greater Essex	Number cycling to work ⁶	% of total cycle to work trips in Greater Essex
BASILDON	0	37	135	172	8%	1412	8%
BRAINTREE	2	37	90	129	6%	1070	6%
BRENTWOOD	0	16	41	57	3%	320	2%
CASTLE POINT	0	24	69	93	5%	631	4%
CHELMSFORD	2	56	194	252	12%	2486	14%
COLCHESTER	0	72	227	299	15%	3310	19%
EPPING FOREST	1	36	105	142	7%	482	3%
HARLOW	2	13	60	75	4%	1018	6%
MALDON	1	15	42	58	3%	548	3%
ROCHFORD	1	25	63	89	4%	498	3%
SOUTHEND	1	63	266	330	16%	2260	13%
TENDRING	3	28	117	148	7%	1683	10%
THURROCK	0	35	101	136	7%	1078	6%
UTTLESFORD	0	18	41	59	3%	433	3%
ESSEX	12	412	1285	1709		13891	
GREATER ESSEX	13	475	1551	2039		17229	

Table 3.2 shows the total number of collisions involving cyclists for each District, classified by severity (fatal, serious or slight). It also shows the total of number of people who cycle to work in each District and then the corresponding percentage for each district. For Epping Forest it shows that the District only accounts for 3% of the total number of people who cycle to work in Essex, but it accounts for 7% of collisions involving cyclists. In comparison with the other Boroughs/Districts and Unitary Authorities of Essex, those which have a similar number of residents

⁶ Office for National Statistics (2011) <https://www.ons.gov.uk/ons/rel/census/2011-census.../cycling-to-work/reftable.xls>

cycling, like Uttlesford and Maldon only have a 3% share of the total number of collisions, and generally the percentage of people who cycle to work corresponds with the number of collisions in that district.

However, it is reasonable to assume that the relationship between cycling to work and all cycle trips is relatively consistent across Essex. As such it would appear that there is a need for cycling safety improvements within the Epping Forest District.

Figure 3.6 shows the collisions involving cyclists in Epping Forest from August 2012 to July 2017. The map shows a concentration in the south west of the district within the towns of Waltham Abbey, Loughton/Buckhurst Hill, and Epping, as well as various incidents along the B1393 (Epping New Road, High Road, Thornwood Road, London Road). Potential schemes outlined in this Cycling Action Plan focus on these towns, and attempt to respond to these areas where collisions have occurred. This CAP is not concerned with inter-urban cycling movements at this stage, so alternatives/ improvements to the B1393 have not generally been addressed between urban areas. Within the towns themselves (Epping for example), the improved network of potential routes means cyclists can avoid using those roads less suited to cycling, such as the B1393 (ie utilising potential scheme 46 instead). Where improvements have been identified along the B1393 (potential scheme 61 along the High Street), the scheme will be designed to improve conditions for cyclists and so, reduce accidents. Details can be found under specific schemes in Table 7.1.

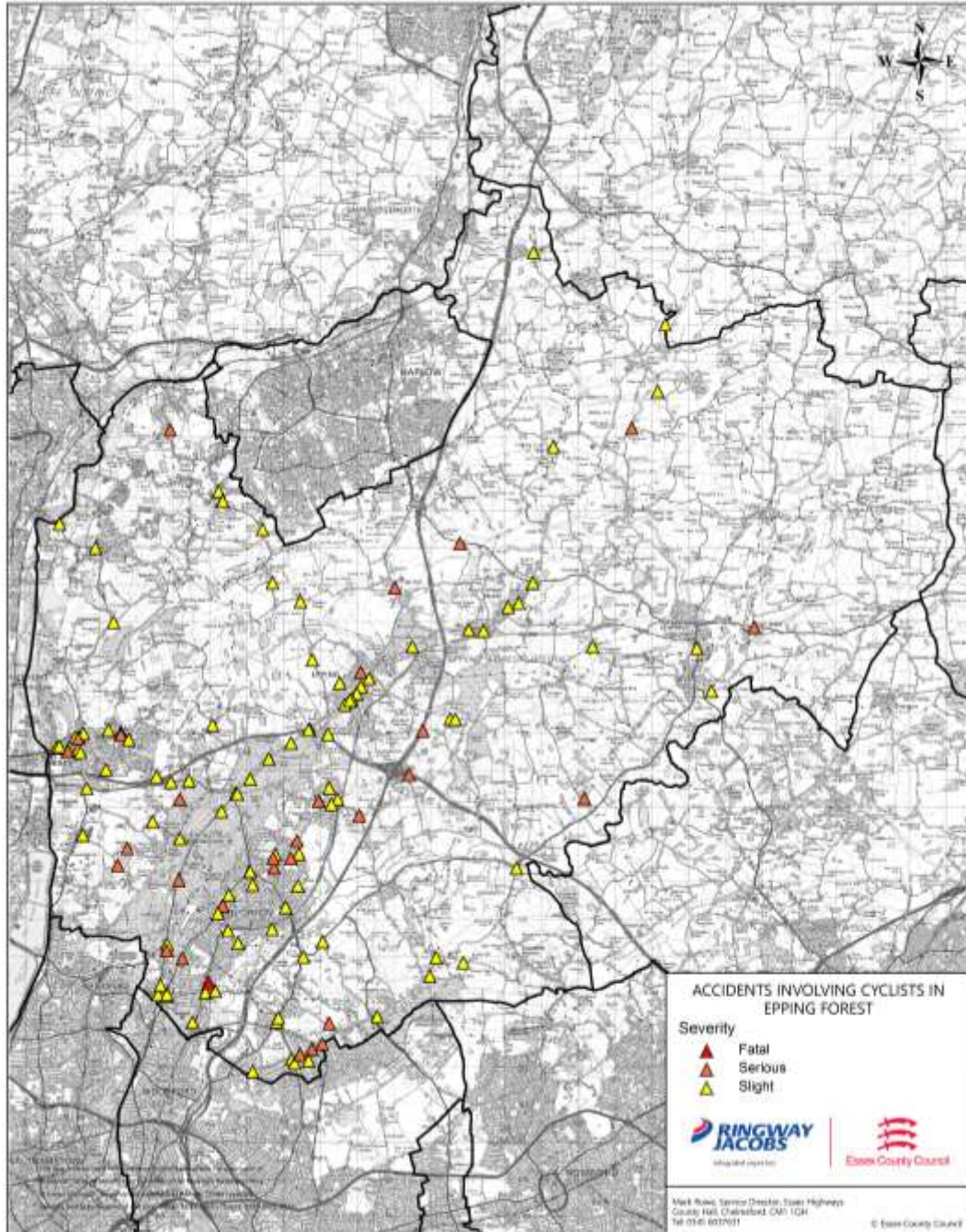


Figure 3-6 Collisions Involving Cyclists in Epping Forest

3.6 Cycle Crime

Cycle crime (mainly theft) is reported both to Essex Police and British Transport Police, though it should be noted that cycle thefts are generally accepted as being under reported. Figures for both these constabularies are combined by District in Table 3.3 below. Note that the figures below for 'Essex' exclude the Unitary Authorities of Southend and Thurrock, figures for 'Greater Essex' include these areas.

Table 3-3: Reported cycle thefts by District

District	Year Ending June 2016	Year Ending June 2017	% of all cycle thefts in Essex 2017	Annual number of cycle thefts per cycle commuter ²
Basildon	173	203	8%	0.15
Braintree	160	154	6%	0.15
Brentwood	34	71	3%	0.23
Castle Point	63	81	3%	0.13
Chelmsford	334	450	17%	0.19
Colchester	247	390	15%	0.12
Epping Forest	69	53	2%	0.12
Harlow	166	244	9%	0.25
Maldon	14	21	1%	0.04
Rochford	51	23	1%	0.05
Southend	403	467	18%	0.22
Tendring	124	160	6%	0.10
Thurrock	251	235	9%	0.23
Uttlesford	23	27	1%	0.07
Essex	1458	1877		0.14
Greater Essex	2112	2579	100%	0.16

2. Based on 2017 thefts and Census 2011 Journey to work by cycle total for District/ Borough/ City (NOMIS)

Epping Forest District accounts for 2% of the total number of thefts in Essex, which is more in line with the percentage of people that cycle to work in the district. It has the 11th highest level of cycle thefts in Greater Essex in terms of total number of reported crimes (2017) and the 10th highest level of annual number of cycle thefts per cycle commuter trip. The annual number of cycle thefts per cycle commuter is below the average figure recorded for Essex, which indicates that the level of cycle crime is relatively low in the district.

Statistics from the British Transport Police Crime Maps and Statistics website⁷ show that in the 24-month period between January 2015 and December 2016, there were 21 bicycle thefts at Tube Stations where cycling facilities are currently

⁷ <http://crimemaps.btp.police.uk/>

provided. This Cycling Action Plan recommends improvements to secure cycle parking at all of the Tube Stations and CCTV provision where possible, although this will require discussions and agreement with TfL, LUL and National Car Parks Ltd. See Section 4.2.2 for more details of current cycle parking provision.

Table 3-4: Reported cycle thefts at Tube Stations in Epping Forest District

Tube Station	2015	2016
Buckhurst Hill	2	0
Chigwell	0	0
Debden	3	3
Epping	1	3
Grange Hill	0	0
Loughton	2	3
Roding Valley	0	1
Theydon Bois	0	2
Roydon (National Rail Trains between London and Cambridge)	1	0
Total	9	12

3.7 Topography

There are a number of factors which determine the popularity of cycling in any given area. Of the geographical factors, by far the most significant is topography, as identified in many research studies and policy statements. These include research carried out by Dr John Parkin who concluded that ‘hilliness was found to be, by far, the most significant determiner of the proportion that cycled to work in a District’⁸. The topography of Epping Forest District is shown in Figure 3.7, below.

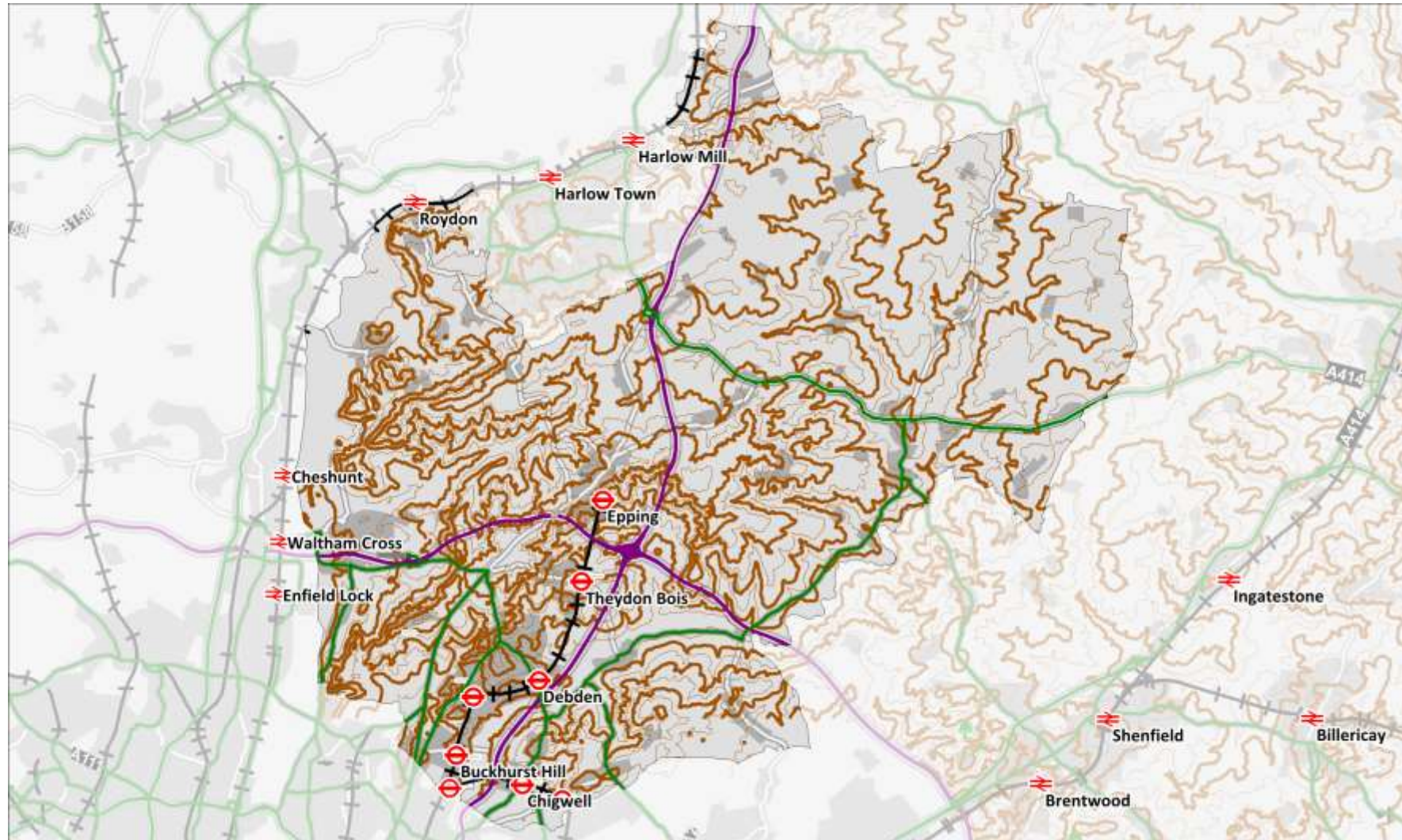
Epping Forest as a district has varying topography, with the highest elevation in the north and middle of the District, stretching from Waltham Abbey in the west, in an arc across to Epping and North Weald, up to the southern border with Harlow District, and in the far east of the District adjacent to the Brentwood Borough and the Administrative Area governed by Chelmsford City Council.

Within the District, the lowest areas are characterised by the Lee Valley to the west and the River Roding in the south stretching to the east, and much of the rest of the district is relatively flat, at between 30-60 metres above mean sea level.

⁸ Parkin, J. Wardman, M and Matthew, P. (2008) *Estimation of the determinants of bicycle mode share for the journey to work using census data*. Transportation, 35 (1). pp. 93-109.

The main topographical barrier to inter-urban cycling is the higher ground in the centre of the District. However, changes in height are significant in urban areas, if the gradients are steep. This is a particular issue in north-west Loughton and North Epping, where we have sought to find potential routes that avoid particularly steep inclines.

Figure 3-7: Topography of Epping Forest District



4 Existing Network Provision and Barriers

4.1 Introduction

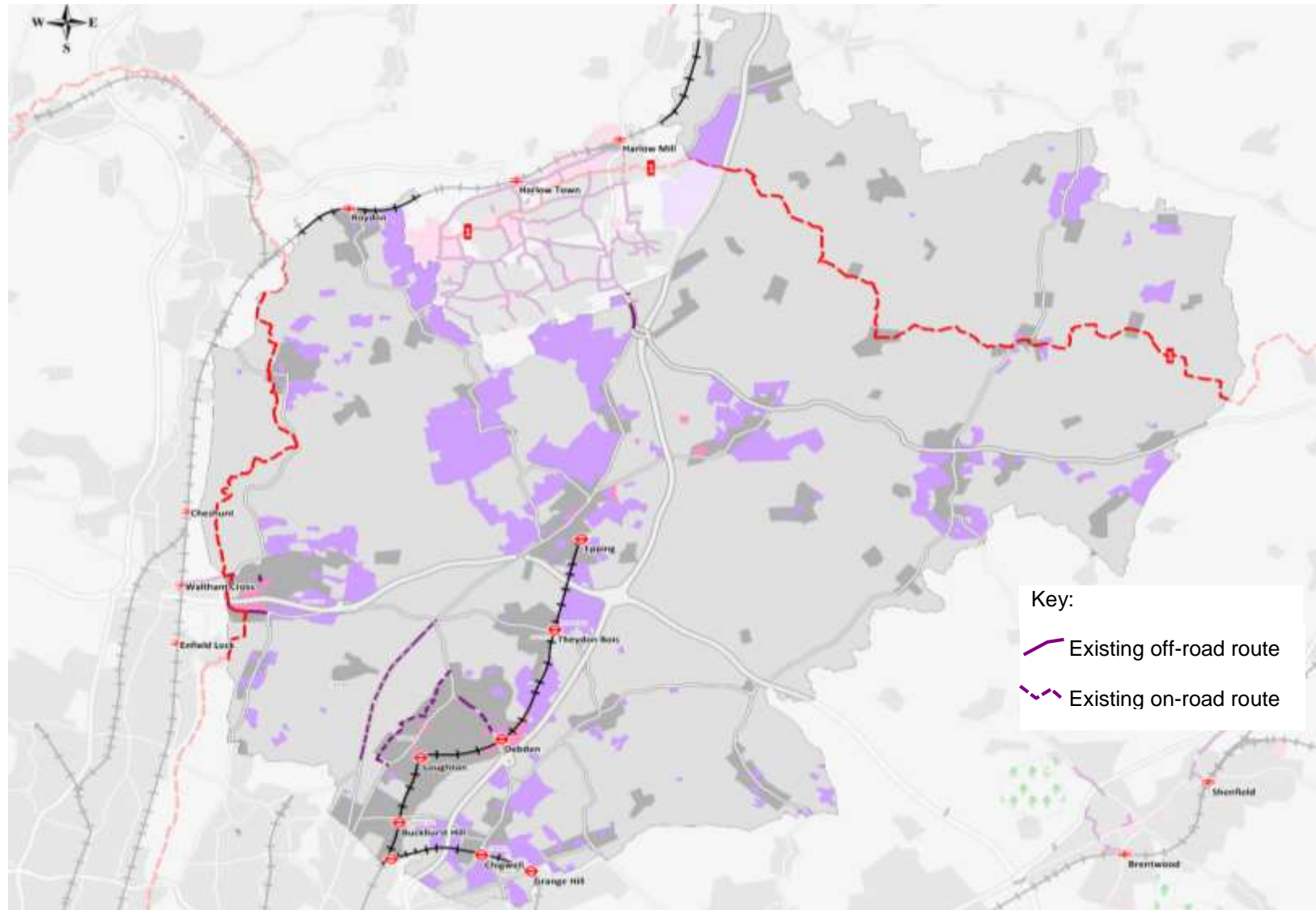
The District of Epping Forest lies in the south west corner of the county of Essex. It borders the Boroughs of Brentwood and Chelmsford to the east, Harlow to the north and three London boroughs to the west and south. It is connected to London by eight Central Line stations and numerous TfL bus routes. It is named after and contains a large part of Epping Forest. It includes the urban areas of Waltham Abbey, Chigwell, Loughton, Buckhurst Hill and Chipping Ongar.

4.2 Existing Cycling Infrastructure

Notwithstanding the high levels of leisure cycling that occur within Epping Forest, utility cycling infrastructure in Epping Forest District is very limited at present. Figure 4.1 provides an overview of the extent of the existing cycle routes in the District, which includes a few unconnected sections of on and off road cycle routes.

The following subsections describe the current cycling provision in the major settlements within the District.

Figure 4-1: Existing cycling infrastructure in Epping Forest District



4.2.1 Epping

At present, Epping and the surrounding area have limited cycling-related infrastructure.

There are no on-road cycle lanes within the town of Epping. However, there is a recently re-built off-road route that connects Epping to Coopersale. The route also, via parkland and a bridge over the heritage railway, provides access to St Margaret's and Spencer Close Hospitals. This is an un-lit shared-use path, made of varying materials throughout, as shown in the photos below. The path also crosses a skate park used for recreation.

Figure 4-2: Epping – Coopersale Paths and Infrastructure



The nearby village of Coopersale has provision for pedestrians and cyclists to access through routes which are not accessible to cars and other motorised vehicles. This form of development increases the attractiveness of active modes of travel such as walking and cycling, especially for short local trips to the parade of shops in the village, and three nearby public houses.

In the more rural areas in this part of the District, there is a lack of off-road cycle routes, and limited provision of quiet lanes and signed routes between settlements. This is of particular significance between North Weald Bassett and Epping, where the busy road network and high vehicle speeds at points along the

B181 are a deterrent to cycling. Conversely, the Epping New Road has on-road cycle lanes (for a distance of approx. 2.5 miles between West Loughton and the Wake Arms Roundabout), which are narrower than the new Traffic Signs Regulations and General Directions 2016 require. The route is not suitable for new or occasional cyclists. In places, these cycle lanes are extremely close to the carriageway edge, and anecdotal evidence suggests that they are actively avoided by cyclists, who prefer to cycle in the main traffic flow, which then limits vehicles attempting close (and fast) passes. Potential scheme 45 recommends that existing advisory cycle lanes are widened along Epping New Road, and additional diagram 1057s are included which may require centre-line removal and will assist in visually narrowing the road and slowing vehicle speeds.

Epping Tube Station currently has only 38 cycle parking spaces, as shown in Figure 4.3 below. This is a low provision, when compared with the 500+ spaces available for car parking. During site visits in February 2016, it was observed that this cycle parking was well utilised with occupancy rates of around 90%. This is likely to be even higher during summer months, resulting in a need for more spaces. The cycle parking is, however, covered and is well located - adjacent to the main station entrance with high levels of passive surveillance. Section 1.4.4 of ECC's Station Travel Plans study (April 2015) suggests that space may be available within a nearby compound to allow for the parking of a further 108 bicycles. Additional cycle parking capacity and improvements to the current provision would require discussions and agreement with TfL, LUL and National Car Parks Ltd.

Figure 4-3: Epping Tube Station: existing cycle parking provision



The town centre of Epping features a number of sets of 'Sheffield' style cycle stands, in areas such as the High Street and at the hospital. However, these were observed to be not well utilised during site visits, as shown in Figure 4.4 below

Some street furniture was being used as informal cycle parking, within a short distance of the Sheffield stands, which suggests that the Sheffield stands could be installed in an inconvenient location, or positioned in such a way that that cyclists are not confident that their bicycles will be safe. It would appear, for example, that the stands in the left-hand photo in Figure 4.4, are positioned very close to the bus bay and cyclists may be worried about manoeuvring buses hitting their bicycles. The stands in the right-hand photo in Figure 4.4 do not appear to have much natural surveillance and this might put cyclists off using them. Neither set of stands is covered.

Figure.4-4: Existing cycle parking in Epping Town Centre



4.2.2 Loughton, Debden, Chigwell and environs

The infrastructure provision for cyclists in Epping Forest District is currently poor in terms of continuity and information provision.

There are only a couple of off-road cycle routes provided on short stretches in the north of Loughton, in the vicinity of Epping Forest College. An unsegregated shared-use section (Figure 4.5 below) narrows quickly and finishes suddenly along Rectory Lane adjacent to the northbound carriageway at Newmans Lane. There are then no signs to show that the route then continues as an on-road facility along Lawton Road on the other side of Rectory Lane, until the segregated off-road section starts near Pyrles Lane. This Action Plan has suggested a scheme in this location to make this route safer and more attractive to use (potential scheme 42).

Figure 4-5: Example of existing signage in North Loughton



There is an existing signed cycle route on quiet roads to the north-west of Loughton (Nursery Road, Staples Road, York Hill and Baldwin's Hill). These roads have low levels of traffic and the route provides an alternative north-south road avoiding the busy town centre. For people who live on the route, it would be an attractive option for cycling. However, there are a number of hills on the route and the fact that it doesn't serve the town centre will limit its use, unless it can be connected to a wider network of quiet routes or leisure routes. Potential scheme 22 proposes a connection between this existing route and Loughton Underground station. Potential scheme 42 links this existing route to existing facilities on Rectory Lane, with onward links to Debden Underground station.

There is an approx. 2.5 mile long primarily on-road cycle lane in place through Epping Forest along both sides of the A104 Epping New Road. From collision data analysis, there were five incidents recorded along these cycle lanes during 2014. The cycle lanes are very narrow and combined with poor road surface quality, the 40 mph speed limit and forest debris, they are currently not appropriate for new or occasional cyclists. This Action Plan has suggested improvements along this road and along a quieter road parallel to it, to try and make this route safer and more attractive to use. It will be necessary to reduce traffic speeds along Epping New Road to make the on-road cycle lanes safe and viable (potential scheme 45). Removal of the centre line markings and addition of wider advisory cycle lanes will help to create a visual narrowing of the road which will encourage motorists to reduce speeds. However, more stringent

measures must be considered, such as lowering of speed limits to at least 30mph, before cycle lanes can be safely implemented on-road.

Higher numbers of cyclists were observed on the North Loughton site visits than the Epping and Waltham Abbey site visits. This could be attributed to the size of the development and its connectivity with other areas, most notably southwards into London. Buckhurst Hill is situated approximately 5 miles north-east of the Walthamstow-end of TfL's Quietway 2, which will offer a route to Central London and was due to open in Spring 2017.

Chigwell is situated just 3 miles north of the proposed TfL Quietway 6 at Barkingside, which would provide a means for cyclists to get from the Hainault Area in the London Borough of Redbridge via the Crossrail stations to the eastern end of Cycle Superhighway Route 2 (CS2) in Mile End, East London.

Buckhurst Hill is approximately 8.5 miles north of Route CS3 as well, between Barking and Tower Gateway. CS3 then links in to TfL's new East-West Cycle Superhighway (EWCS) along the River Thames to Westminster and on through Hyde Park. See figures 4.6 and 4.7 for maps of how the suggested network can relate to existing routes in the surrounding area. Connecting into the TfL Quietway and Cycle Superhighway schemes would potentially provide huge benefits for people who cycle in the Epping Forest area.

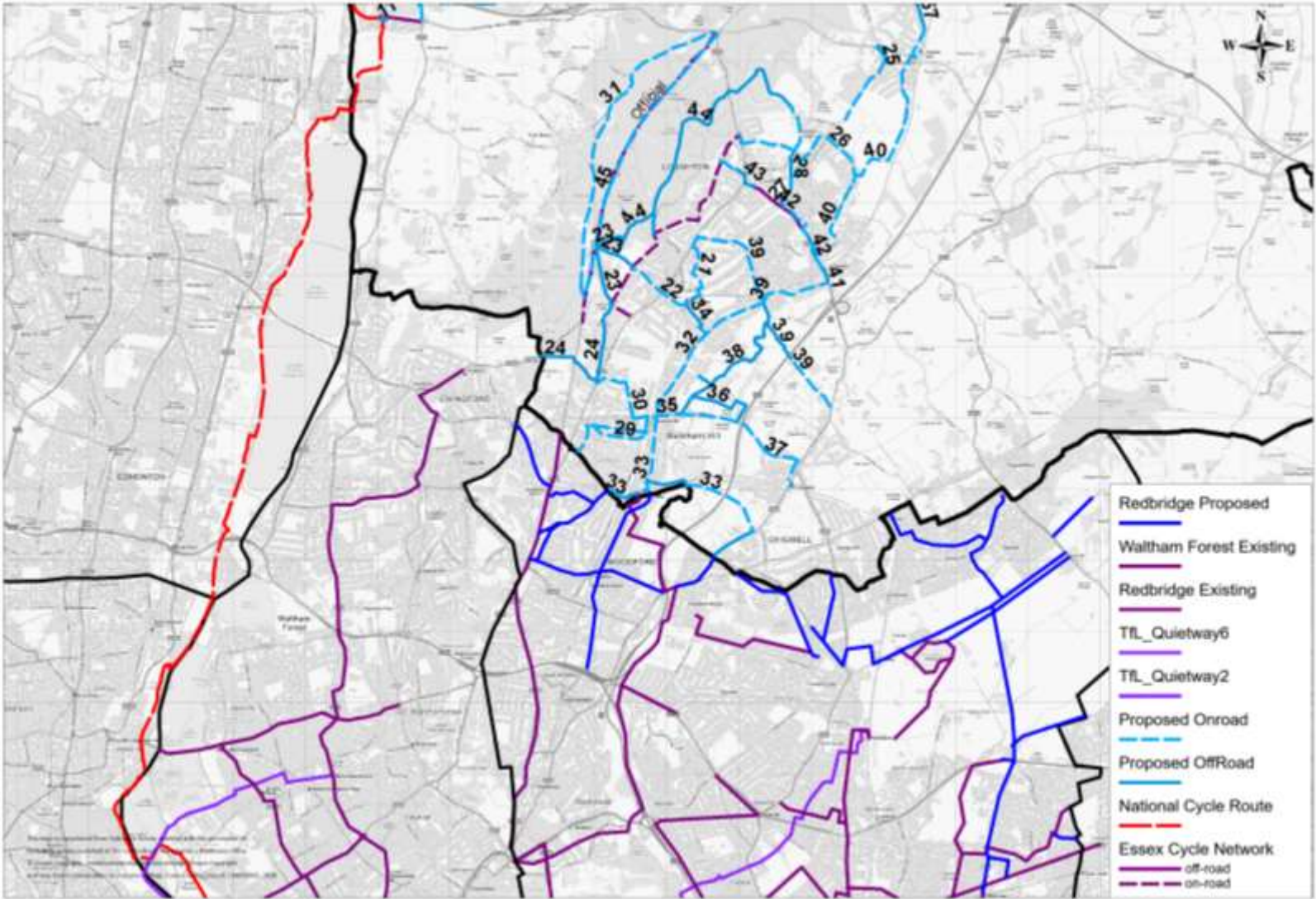


Figure 4-6 Map to show how the Potential routes in Loughton and Buckhurst Hill relate to the existing and proposed network in London Boroughs of Redbridge and Waltham Forest

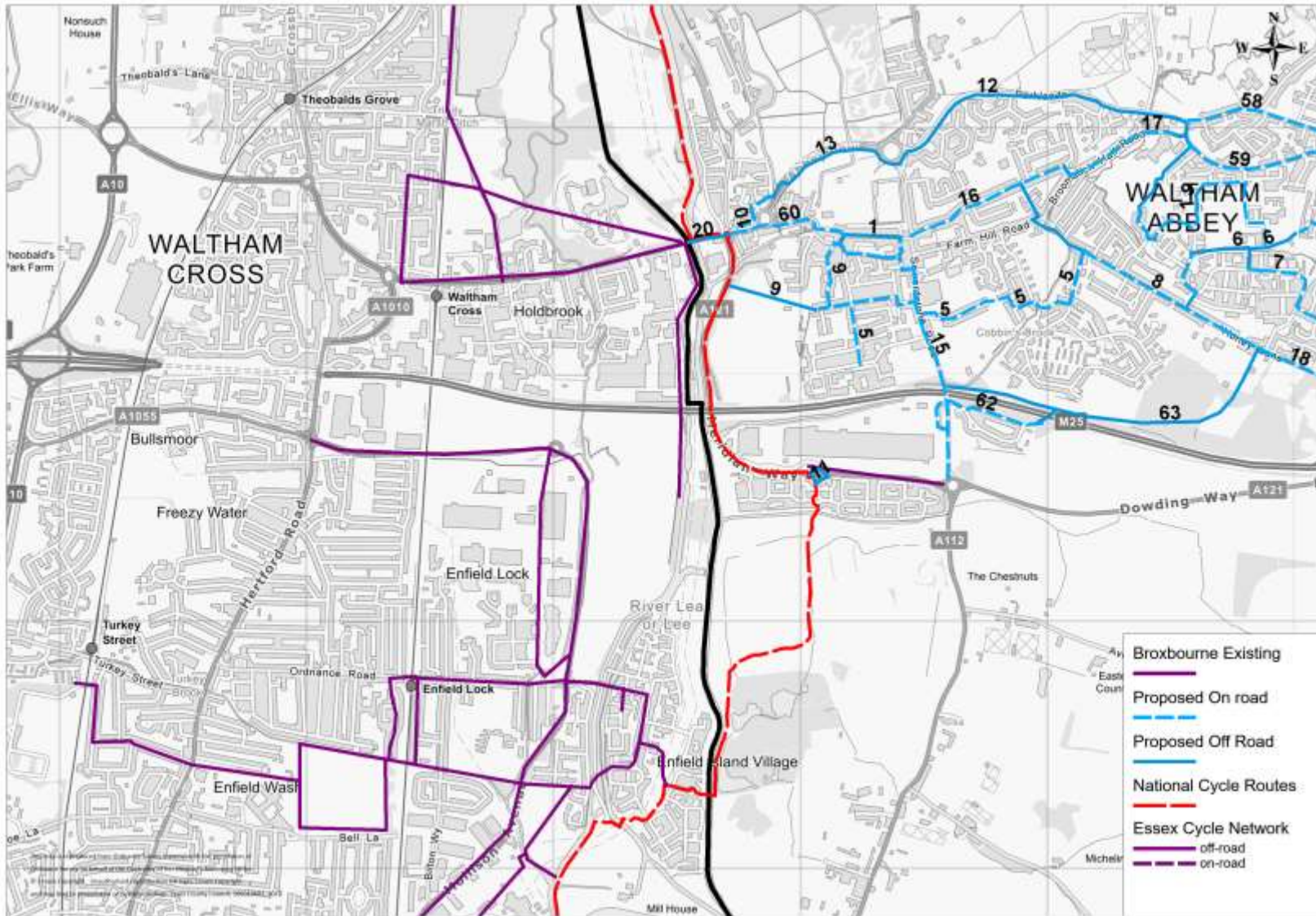


Figure 4-7 Map to show how the Potential routes in Waltham Abbey relate to the existing network in London Borough of Enfield and Broxbourne

The Roding Valley Way is a relatively new part-built, cycle route connecting the area north of Woodford to Ilford via a mixture of traffic free paths and on-road sections. The route terminates at the junction of Cherry Tree Rise and Station Approach, near the Roding Valley London Underground Station, just south of the boundary between Essex/Epping Forest District and the London Borough of Redbridge. The Roding Valley Way route could be extended north into Essex and Epping Forest District to link up with Buckhurst Hill, Loughton and Debden Tube Stations, thereby enhancing north / south connectivity and should be viewed as a key component in the region’s cycling network. Scheme 47 has been determined as a potential route.

Cycle parking at the tube stations is very limited currently, and ought to be improved as a means of attracting cyclists, particularly commuters, who would be more likely to ride on the improved routes suggested, if safe and more secure parking provision was available.

Table 4-1: Current cycle parking provision at Tube Stations within the Epping Forest District

Tube Station	Cycle Parking Spaces
Buckhurst Hill	16
Chigwell	0
Debden	8
Epping	11
Grange Hill	0
Loughton	20
Roding Valley	6
Theydon Bois	10

A developer-financed highway improvement scheme, progressed from July 2016 until April 2017 along Chigwell Lane (the approach to Debden London Underground Station), The Broadway, Borders Lane and Langston Road has improved conditions for motorists and pedestrians but not cyclists.

The planned works included new pedestrian crossings, improved street lighting and drainage systems; footway and carriageway widening and the replacing of mini roundabouts with traffic signal-controlled junctions. This scheme currently does not include any specific cycling infrastructure measures. Consequently any potential improvements to benefit cycling here would have to be retrospectively installed and have been considered as part of the potential CAP scheme 41.

4.2.3 Waltham Abbey

Waltham Abbey has a limited amount of existing cycling infrastructure. There is a cycle route around the Lee Valley which travels through the western side of the area. Figures 4.6 and 4.7 show examples of the existing infrastructure.

National Cycle Network (NCN) Route 1 travels to the West of the town, heading north-south through the Lee Valley. This is generally in the form of a shared-use path next to roads, or in parkland (see Figure 4.6). There are two sections where NCN Route 1 is interrupted at major junctions, where cyclists must dismount: Station Road and Beaulieu Drive crossing in Waltham Abbey and the Fleming Road roundabout south of the town. Potential Scheme 20 identified in this CAP addresses the Station Road/ Beaulieu Drive crossing by suggesting an upgrade of the existing zebra crossing. Potential scheme 11, identified in this CAP proposes a toucan crossing across the western arm of the Fleming Road roundabout, to assist cyclists using NCR1.

Figure 4-8: National Cycle Network (NCN) Route 1 along the River Lea



Gunpowder Park, south of Waltham Abbey has a number of publicly accessible paths that pass east-west through it, connecting the A112 Sewardstone Road to NCN Route 1. However, there is a lack of signage to indicate whether cycling is permissible on these paths and accesses are narrow.

The shared-use path that forms part of NCN Route 1 is continued west of the District into Hertfordshire and cycle paths are provided from the border of the district to the nearby train stations of Waltham Cross and Theobalds Grove. Potential scheme 20 (part of the Flagship Route for this CAP) will enable the existing facilities in Hertfordshire to connect into Waltham Abbey with continuous provision for cyclists.

A short (approximately 200m long) cycle route is signed from Sewardstone Road into the town centre. The route consists of low quality paths, some quiet streets and two pedestrian crossings. It forms a short cut to the town centre, but does not form part of a wider cycle network and has some significant breaks in the route, which force cyclists to use footways or a busy signalised junction (Quaker Lane). Quaker Lane itself has been considered in terms of what could be

achieved there to link with and make better use of the existing infrastructure (see potential scheme 2).

Cycling is currently prohibited along the pedestrianised Sun Street through the centre of Waltham Abbey. There appears to be a bicycle locking scheme on the eastern end, near the junction with Sun Street. However instructions on how to lock the bicycles have been worn away or removed and it is not clear how it should be used (see Figure 4.9). Replacing this with more mainstream cycle parking, preferably sheltered, would be a huge improvement and encourage more people to cycle to the town centre.

Figure 4-9: Sun Street/Quaker Lane Cycle Locking Scheme, Waltham Abbey



Although not within Epping Forest District, Census data confirms that 190 commuters from Waltham Abbey use Waltham Cross Station to travel in to work each day (See Section 5.3.2, below). At the time of the site visit there were 26 cycle parking spaces at Waltham Cross Station (6 'Sheffield' style stands and 14 spaces in racks within a secure cage), see Figure 4.8. The Sheffield stands were well used, but the secure spaces had no users at the time of the site visit. Improved cycle linkages to Waltham Cross Station from Waltham Abbey on the Essex/Epping Forest District side of the border with Hertfordshire would help to encourage more commuters to cycle to the station, on the Hertfordshire side there is an established shared-use footway/cycleway route running for 0.75 miles between the Lea Valley Walk and Waltham Cross Station.

Figure 4-10: Waltham Cross Train Station current cycle parking provision



4.2.4 Wider District

In terms of barriers to cycling outside of the main populated areas, a key observation has been the building of isolated sections of segregated or shared-use footway/cycleway, which do not cater for cyclists at either end and do not connect with other safer and quieter routes. An example is alongside the northbound A414 from the M11 Junction 7 Gyratory, which is a wide and recent off-road shared footway/cycleway, but whilst it connects to cycle routes heading into Harlow, to the south (towards Epping) and to the east (North Weald Bassett) no further infrastructure is provided. This issue was considered by this Cycling Action Plan, but it is apparent that carriageway width and available footway width alongside the B1393 particularly is not sufficient to provide a scheme similar to that north of M11 Junction 7. Route-Based Strategies for the B1393 and A414 are also considering how to connect both of these roads to the cycle route north of M11 Junction 7 as well. The B1393 Route based strategy proposed a new cycle link from Hastingwood Roundabout parallel to the B1393 to Palmers Hill

A lack of cycling infrastructure on rural roads is another issue raised as part of the preparation of this CAP. Stakeholder consultation (and STRAVA data) confirms that many local rural roads are used by club/experienced leisure cyclists. This can cause annoyance for car drivers on occasion, if cyclists are riding in groups. However, the promotion of awareness of all road users' needs and mutual respect is a more appropriate response to this kind of issue, rather than physical infrastructure measures such as carriageway widening or dedicated lanes.

4.3 Summary of key barriers

The key barriers to cycling in Epping Forest District can be summarised as follows:

- Lack of signed routes

- Lack of existing infrastructure provision generally in main populated areas
- Where infrastructure exists, it is generally isolated and does not cater for cyclists when they reach either end
- High traffic flows and speeds on main roads
- Lack of off-road cycle routes as alternatives to busy and fast roads
- Lack of road width on key routes, preventing fully segregated routes alongside carriageway
- Relatively few crossings that cater for cyclists as well as motorised users over/under the London Underground Central Line, primarily in the South of the District
- Hilly topography (e.g. NW Loughton, NW Epping)
- Lack of cycling infrastructure on rural roads, and poor awareness of all road users' needs in these areas

5 Epping Forest's Cycling Potential

5.1 Introduction

This section provides a summary of existing travel behaviour within Epping Forest District, as well as identifying the potential for cycling and how improvements should be prioritised.

5.2 Commuter Flow Analysis

The 2011 Census records how residents choose to travel to work as well as the location of their workplace. The aim of analysing this information is to establish where the predominant local commuter movements exist that could feasibly be undertaken by bicycle. This data can then be used to assess the commuter cycle potential for an area.

The predominant commuter flows for Epping Forest District have been calculated based on travel between Medium Super Output Areas (MSOAs) from the 2011 Census. It has been assumed that commuters would choose the same route and mode of travel to work (in the AM) as they do to return from work (in the PM). As journeys to work take place to and from all MSOA's within the District, only the top 10 most popular commuter journeys per mode have been highlighted.

5.2.1 Cycling to Work Trips

Figures 5.1-5.3 shows the predominant commuter flows for journey to work by bicycle within Epping Forest, separated into Epping, Loughton/Buckhurst Hill and Waltham Abbey. The number of cycling trips to work are generally low across the District. In Waltham Abbey, the only area in which cycle trips are made as the main mode of transport to work are within the south of the town. All these trips head west, either to industrial estates, the Powdermills Estate or to Waltham Cross. In the Loughton/Buckhurst Hill area, the only cycle trips to work emanate from just north and west of Debden Station and spread out across the north of Loughton in low numbers. In Epping no cycle trips were made as the main mode of transport to work.

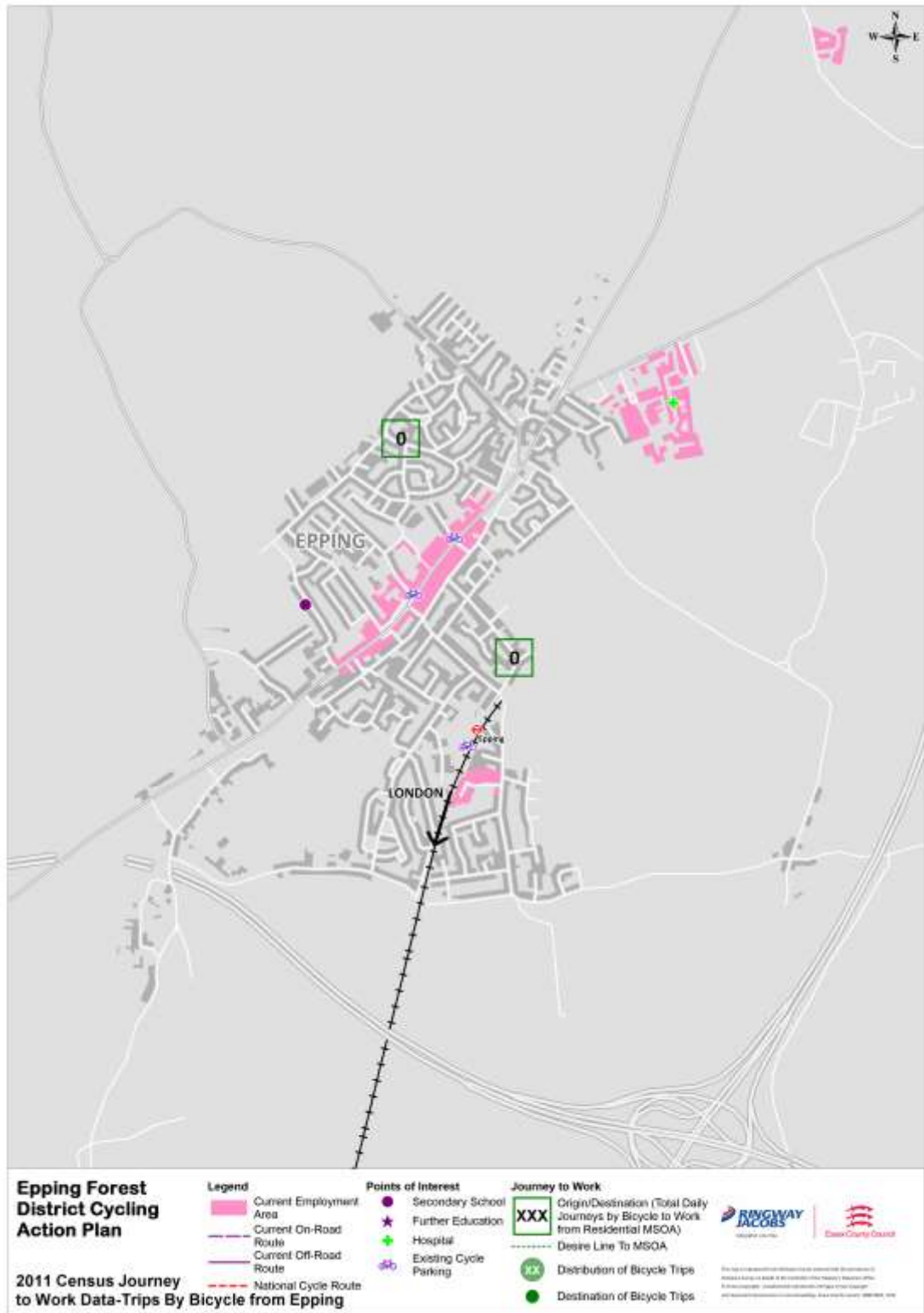


Figure 5-1 Predominant commuter flows for Journeys to Work by Bicycle in Epping

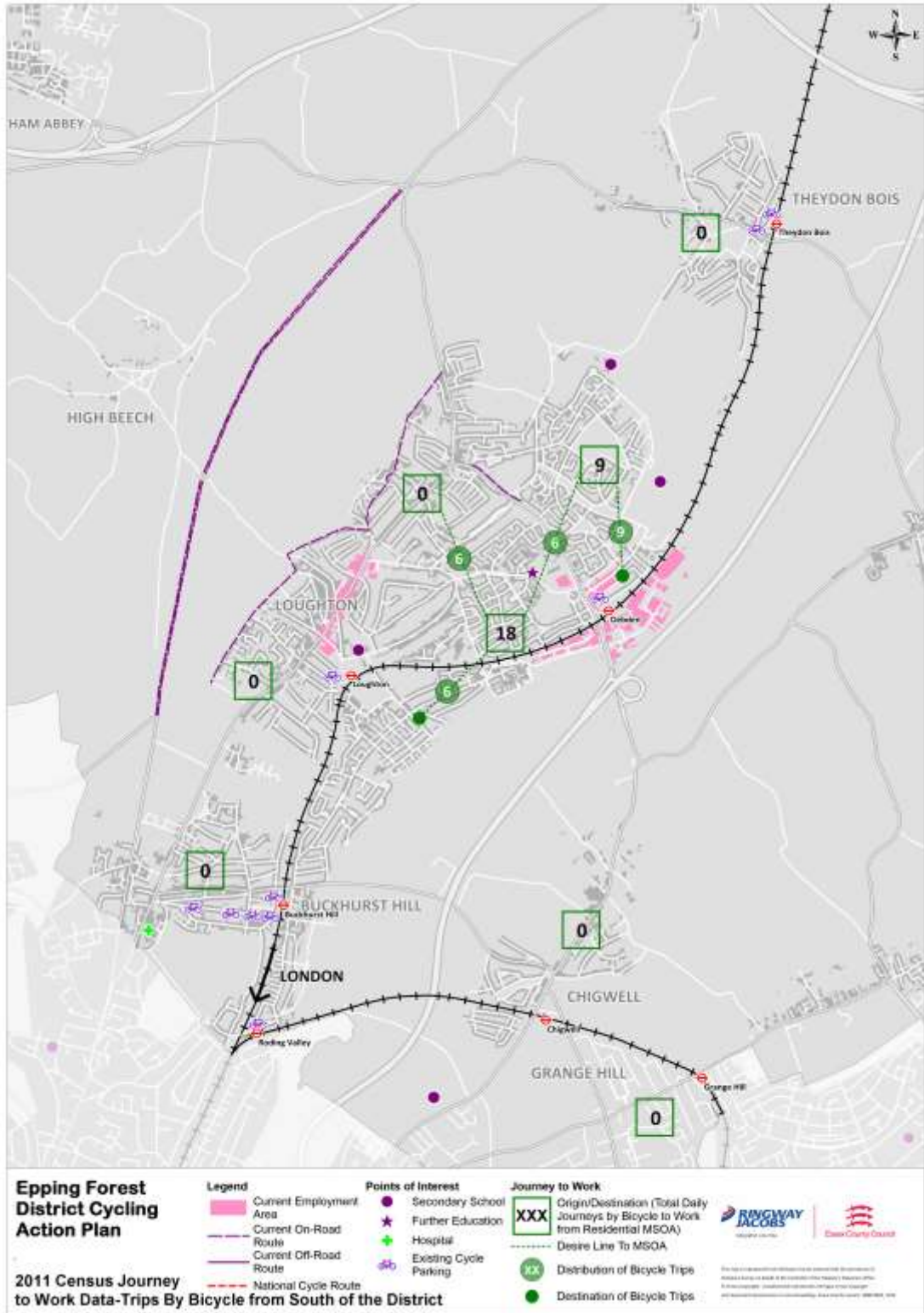


Figure 5-2 Predominant commuter flows for Journeys to Work by Bicycle in Loughton/Buckhurst Hill

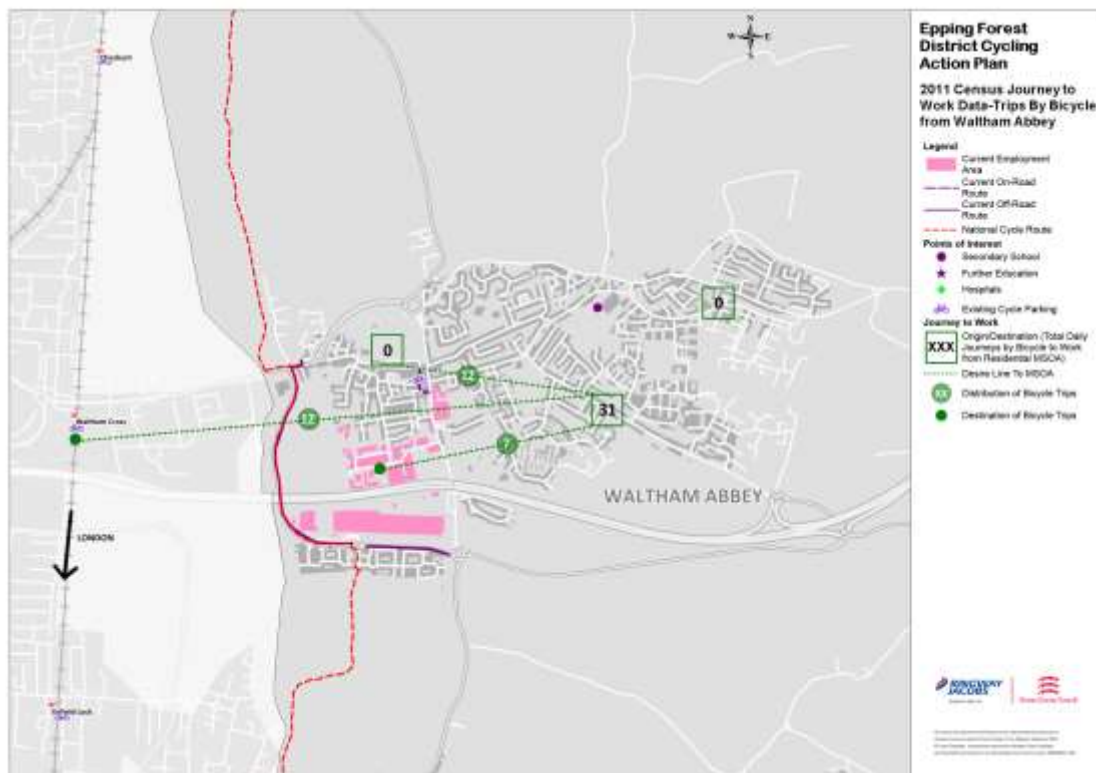


Figure 5-3 Predominant commuter flows for Journeys to Work by Bicycle in Waltham Abbey

5.2.2 Access to Rail Stations

Waltham Abbey is located close to Waltham Cross Train Station, which lies just outside the district and connects commuters to London Liverpool Street Station. All the train trips made to work from Waltham Abbey make use of Waltham Cross Station. Trips in the south of the district were generally made to the nearest tube station in high numbers, however some trips were made from Chigwell to the further away station of Buckhurst Hill, presumably due to the more frequent tube service. In Epping all trips were made to Epping tube station, which is the only close option for tube commuters in areas surrounding Epping.

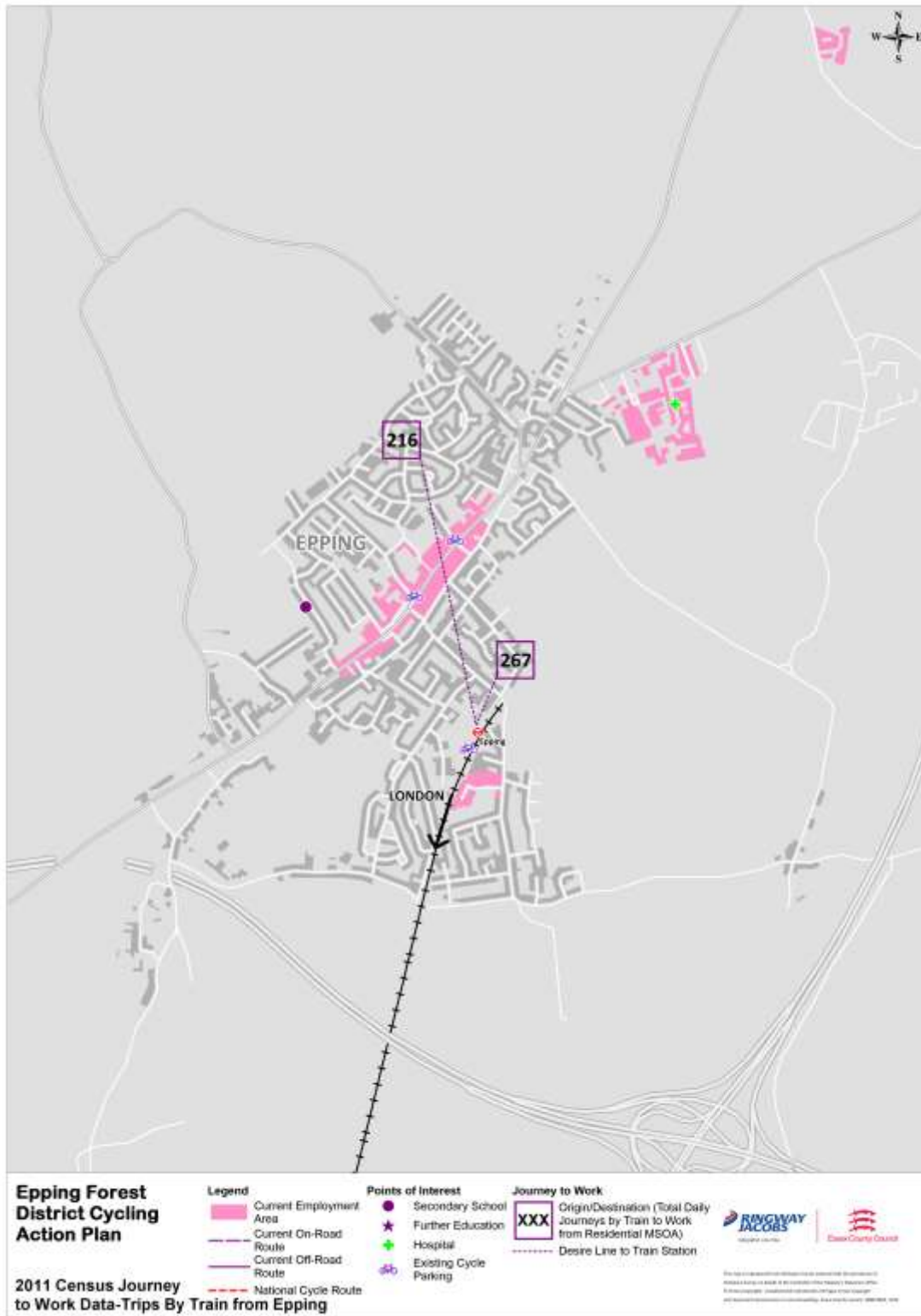


Figure 5-4 Predominant Commuter Flows for Journeys to work by Train in Epping

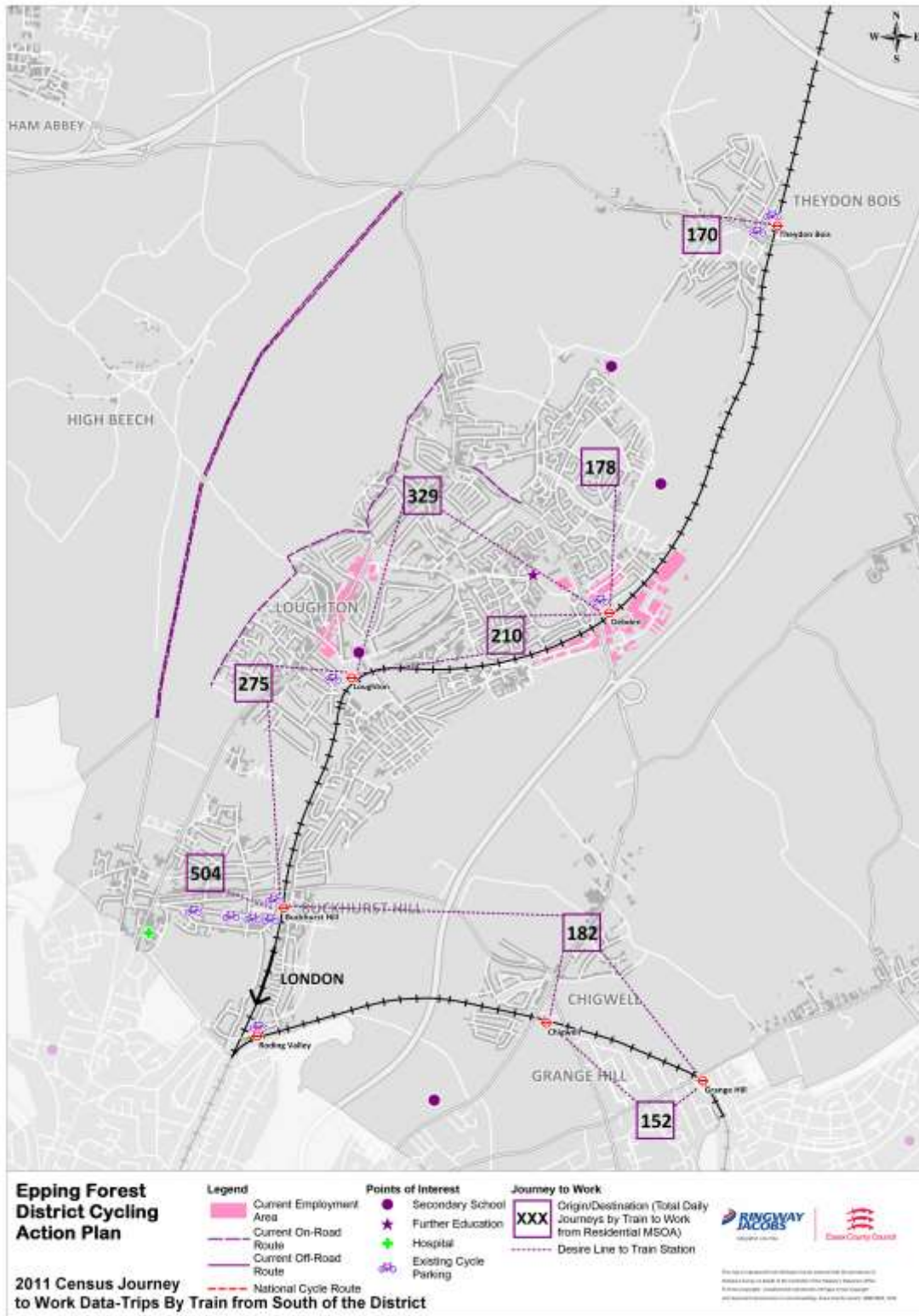


Figure 5-5 Predominant Commuter Flows for Journeys to work by Train in Loughton/Buckhurst Hill

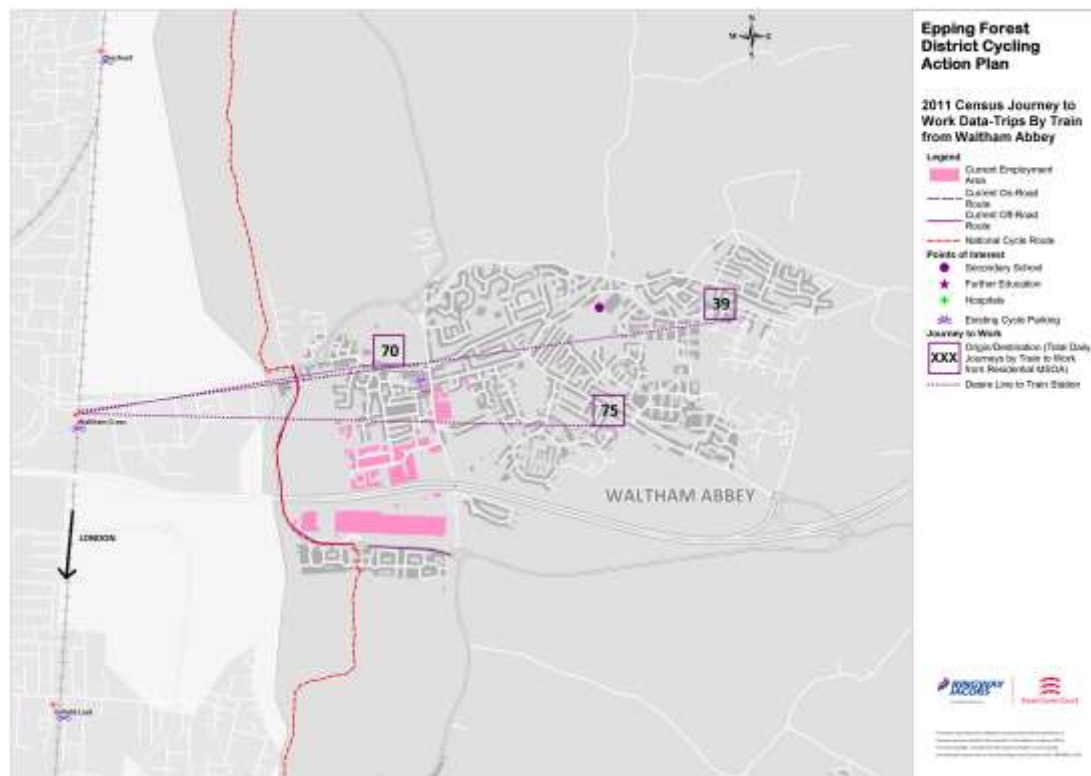


Figure 5-6 Predominant Commuter Flows for Journeys to work by Train in Waltham Abbey

5.2.3 'Rail' Heading

In many cases, cycling can form a key part of commuter rail journeys. The 2011 Census only records main mode by distance, therefore assumptions must be made when analysing journeys that would be multi-modal. Therefore where commuters have stated their main mode of travel to work to be by rail, as certain locations have no rail station it has been assumed that commuters would predominantly choose the closest station to them. As a result, this Cycling Action Plan focuses on cycle routes to stations.

5.2.4 Car trips

In Waltham Abbey car trips to work showed no clear trends with large numbers of trips made between MSOAs across the town and out to Waltham Cross outside the district. Some trips were made into industrial estates to the south of Waltham Abbey but these only reflect a small portion of the total trips. When looking in the south of the district, especially Loughton, it is clear people are using their cars for very short distances to get to work with a considerable number of trips covering less than 2km being made. Connecting these areas through cycling corridors will aid modal shift from cars to cycling for commuters and have therefore been a focus in this Cycling Action Plan. Car journeys are also made into Loughton from neighbouring towns such as Chigwell and Theydon Bois, so connecting these via cycling corridors is also a priority. A considerable number of journeys were made from the south of Loughton to the north, therefore a continuous cycle corridor

running the length of Loughton has also been prioritised. In Epping, car trips are made over short distances across the town, to visit shops and small businesses lining the High Street. Connecting areas of Epping via cycle routes has been considered, especially in the North West and South East of the town.

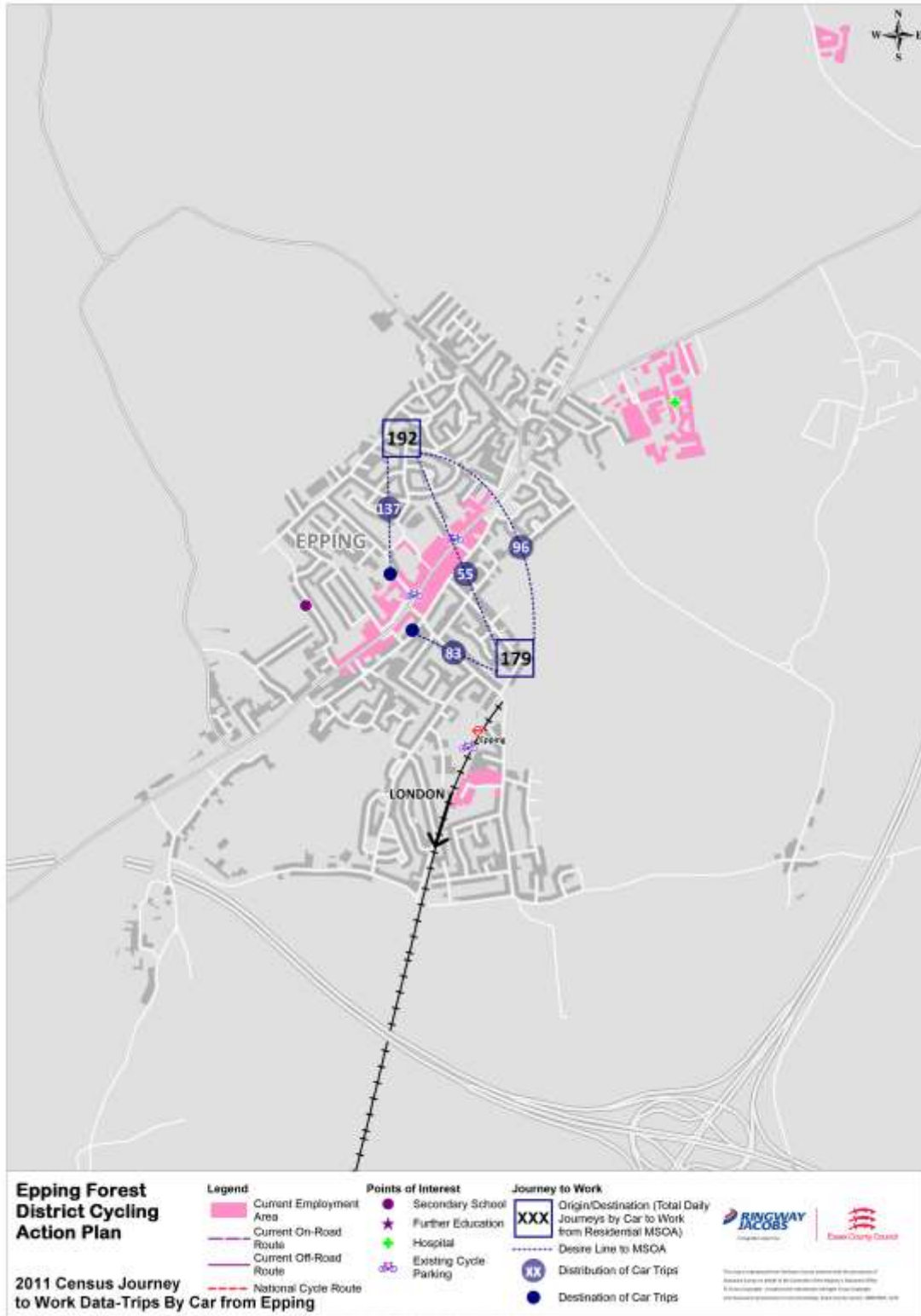


Figure 5-7 Predominant Commuter Flows for Journeys to work by Car in Epping

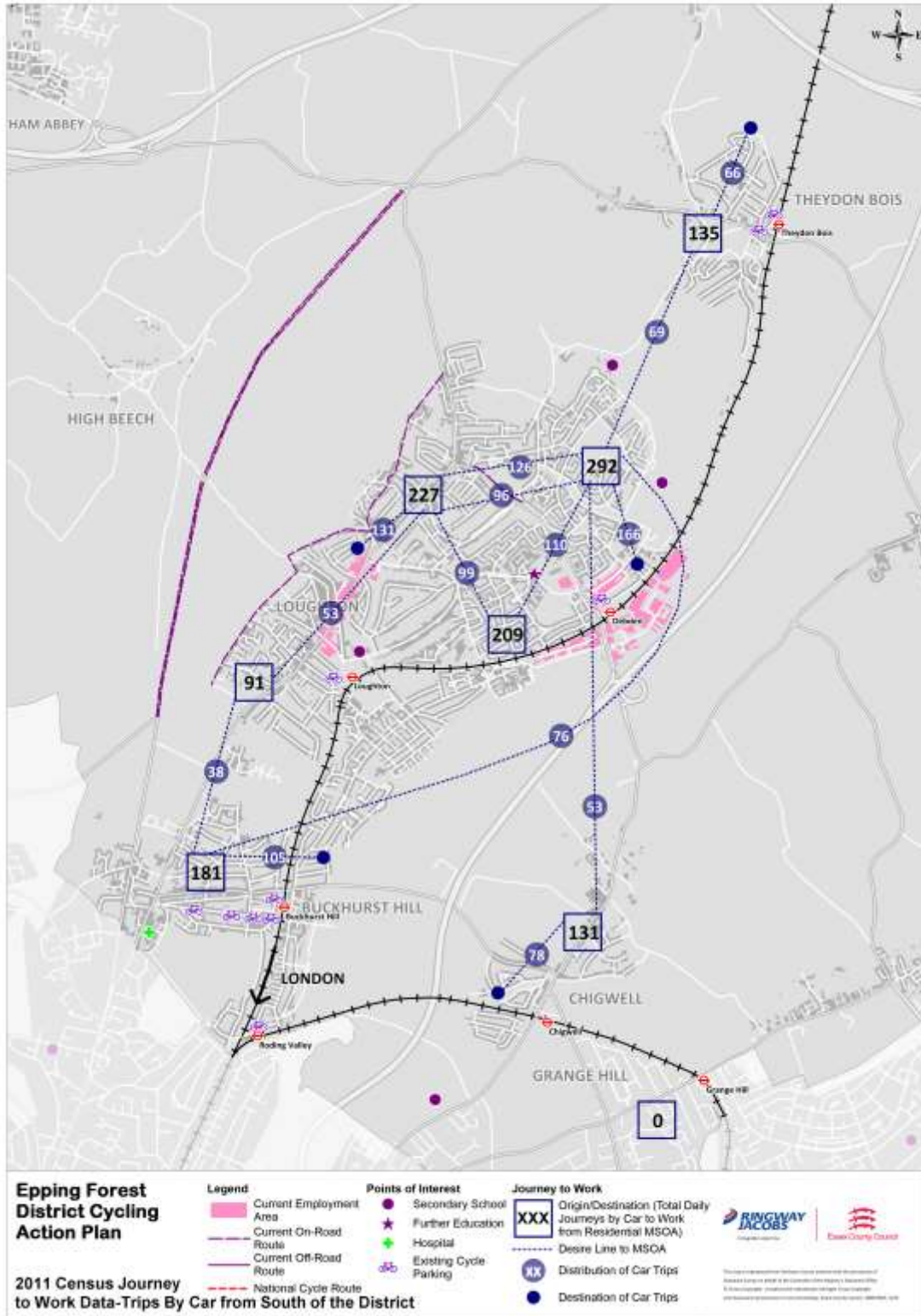


Figure 5-8 Predominant Commuter Flows for Journeys to work by Car in Loughton/Buckhurst Hill

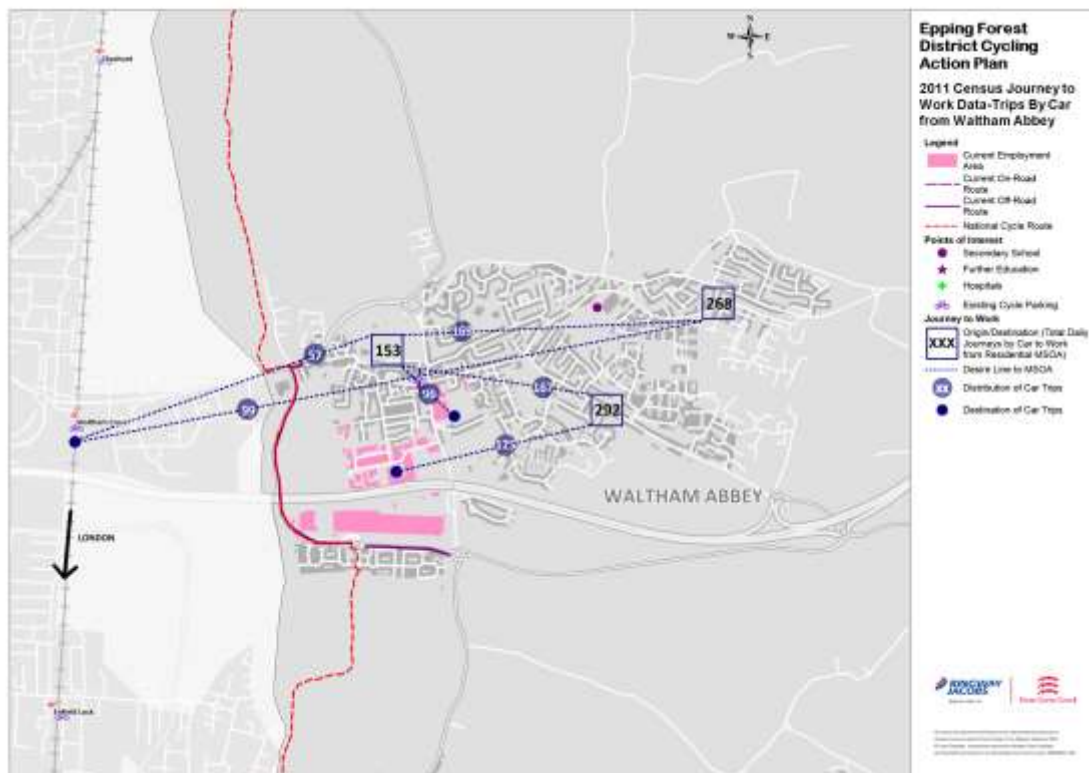


Figure 5-9 Predominant Commuter Flows for Journeys to work by Car in Waltham Abbey

5.3 MOSAIC Propensity to Cycle

Market segmentation is concerned with grouping together a diverse range of people to understand their current behaviour and the likelihood and triggers for maintaining or changing how they act in the future.

The MOSAIC Cycling Segmentation was developed for TfL by Steer Davis Gleave as an aid to cycling policy development, planning, implementation and evaluation. This was required to help target areas of opportunity to best increase mode share and assist in increasing trips. This methodology is equally applicable for Essex.

The MOSAIC Cycling Segmentation classifies the population into seven segments, each with a different propensity to cycle e.g. those in the ‘Urban Living’ segment are 4.6 times more likely to be a cyclist than those in the ‘Comfortable Maturity’ segment. This can then be applied to postcodes and displayed on mapping.

5.3.1 MOSAIC Analysis of Loughton, Chigwell and Buckhurst Hill

The segmentation analysis shows that the propensity to cycle by households in Loughton is moderate to low in the majority of areas. Clusters of higher propensity are located close to Loughton and Debden tube stations as well as alongside High Road, located centrally.

Chigwell, despite its own tube station, has a low propensity to cycle. Buckhurst Hill has some higher propensity residences around the tube station and along roads branching off High Road.

Theydon Bois has a very small number of properties located close to the station whose residents might cycle, with limited propensity otherwise. It should be noted, that from census analysis, it is clear that walking takes a significant mode share in these areas of high propensity due to proximity of the tube station and shops. Walking should also be further encouraged along with cycling. Moderate and low propensity to cycle populates the remaining areas of Loughton, Chigwell and Buckhurst Hill, with lower propensity areas more prevalent in the north east of Loughton. Future infrastructure improvements should take account of the demographic of these areas and be prioritised accordingly.

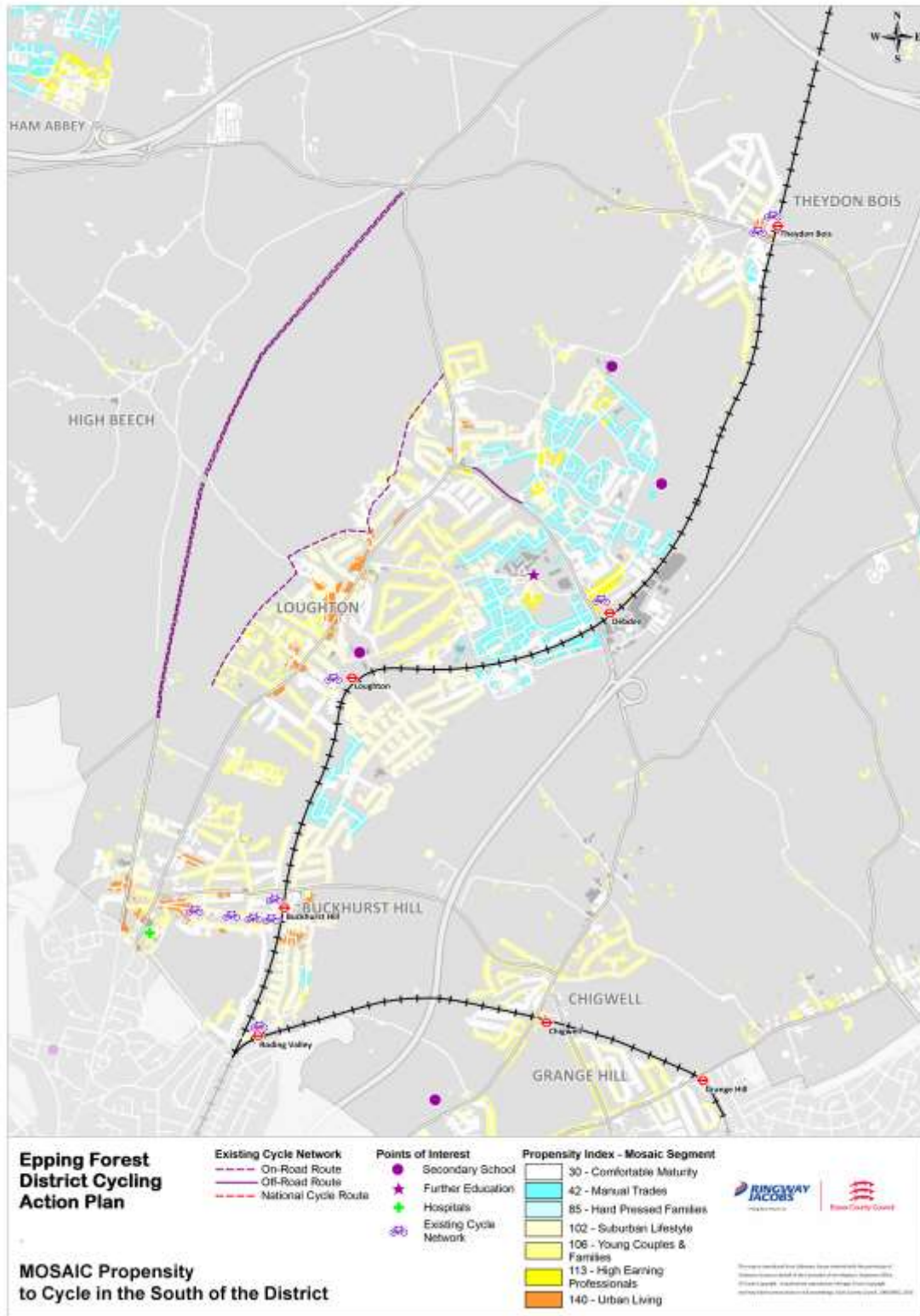


Figure 5-10 MOSAIC Analysis of Loughton / Buckhurst Hill

5.3.2 MOSAIC Analysis of Waltham Abbey

The segmentation analysis shows that Waltham Abbey is predominantly made up of residences with a medium to low propensity to cycle, this mixture being distributed throughout. Clusters of residences with a higher propensity do exist, with the largest being an affluent neighbourhood along sections of roads branching off of and including Farthingale Lane. Howard Close, located more centrally, is another neighbourhood of residences with a good propensity to cycle.

There are also some smaller groups of high propensity residences in a few gated housing communities located towards the north of Beaulieu Drive, along with some houses along Powdermill Lane. It should be noted from census analysis that walking will occupy some of these mode trips, however, with the residents likely to cycle not living near tube stations or close to town centre areas this will likely not be as large a fraction as Loughton.

The business park located to the south west of Waltham Abbey also demonstrates a high propensity to cycle. Future infrastructure improvements should take account of the demographic of these areas, particularly the business park due to its large number of users, and be prioritised accordingly.

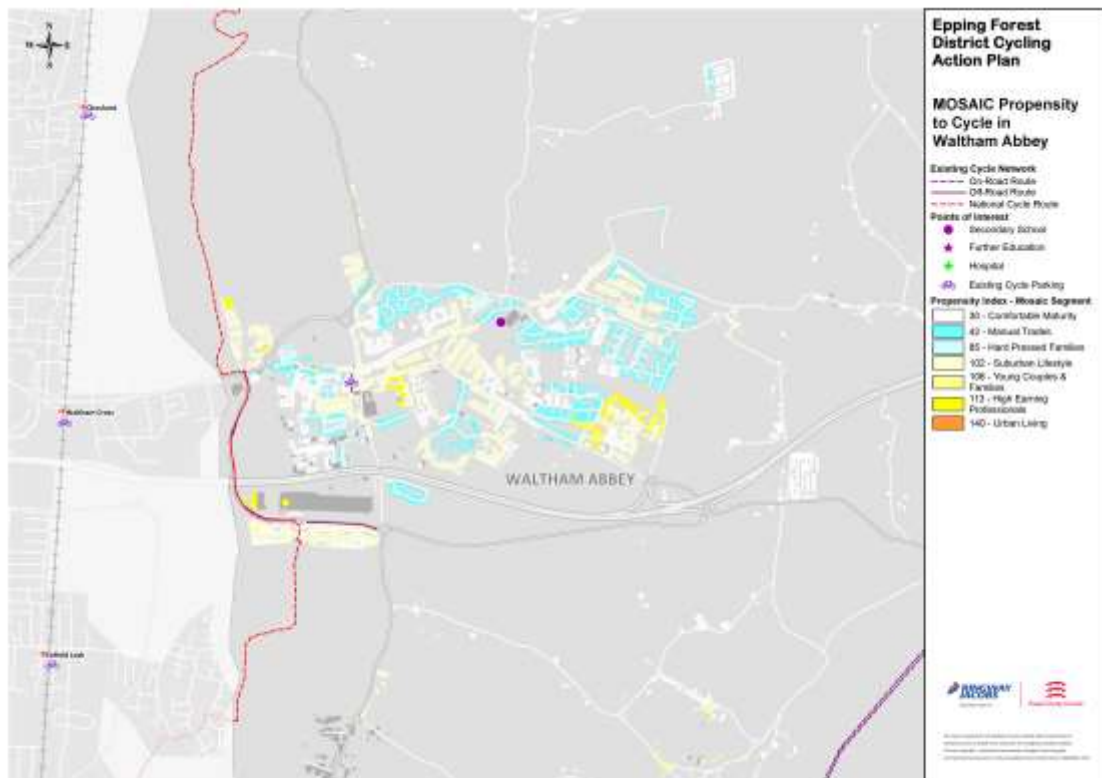


Figure 5-11 MOSAIC Analysis of Waltham Abbey

5.3.3 MOSAIC Analysis of Epping

The segmentation analysis shows that Epping is nearly all made up of houses with a medium to low propensity to cycle. A small section of flats, categorised as urban living, have residents with a high propensity to cycle and are found along an unnamed road off of Crows Road running close and parallel to the High Street. Other residences surrounding Epping tube station also demonstrate a high propensity to cycle. It should be noted, particularly for the residents in houses near the tube station, that a large number of their mode trips will be occupied by walking. Future infrastructure improvements should take account of the demographic of these areas and be prioritised accordingly.



Figure 5-12 MOSAIC Analysis of Epping

5.3.4 Summary of Potential in Loughton, Chigwell and Buckhurst Hill

It is evident from the Census analysis that there are several areas in Loughton where cycling can be encouraged. The number of cycle trips made directly to work are very low and occur over short distances in the north east of Loughton. Outside of this section of Loughton, including Chigwell, Buckhurst Hill and Theydon Bois, there are no cycle trips made as the main mode of transport to work.

The different tube stations around Loughton are all well used to get to work, with trips usually made to the one closest to commuters' homes. Cycling infrastructure connecting to tube stations would likely attract commuters located outside walking distance. Car trips generally occur over short distances to, within and through Loughton. There is therefore potential for a mode switch to cycling for short journeys to shops, services and workplaces if appropriate infrastructure was provided. Some longer trips made from north to south of Loughton or from Chigwell and Theydon Bois into Loughton are less frequent than shorter trips occurring solely with Loughton, so would likely be less of a priority.

5.3.5 Summary of Potential in Waltham Abbey

Census analysis shows that cycling trips to work made in Waltham Abbey all occur heading east to west and all train commuters use Waltham Cross station located to the far west. This opportunity to provide cycling infrastructure connecting up eastern areas of Waltham Abbey and converging on Waltham Cross could be potentially well used for commuters and serve as cycle connectors for trips made within Waltham Abbey. It should be noted that a significant number of car trips are taken in a similar way across Waltham Abbey. Creating cycle routes that avoid or do not increase strain on car commuter journeys may be problematic.

5.3.6 Summary of Potential in Epping

Census analysis shows that no one in Epping used cycling as their main form of transport to work in 2011 and a large number of train commuters head to Epping station to use the train. Cycle infrastructure catering to the station from the surrounding area would likely encourage commuters to make use of cycles to arrive at the station. Car journeys to work generally occur across the centre of the town over short distances. There is potential to provide links across the town for cyclists and encourage car users to switch with the appropriate infrastructure.

6 Potential Infrastructure Improvements

6.1 Introduction

In order to remove barriers to cycling and provide suitable infrastructure, it is essential that all new developments in the District have good quality, cycle friendly routes to key services, railway stations and areas of employment. To this end, all potential developments associated with the Epping Forest District New Local Plan should contribute towards creating a wider cycle network, connecting key cycle corridors and desire lines.

A coordinated approach should be taken whereby development planning in Epping Forest District is linked with highway infrastructure provision, complemented by soft measures that promote cycling as part of a range of alternatives to single-occupancy car travel.

This CAP is identifying a network of strategic cycle routes, as well as, within this, a specific Flagship Route. This Flagship Route for the District of Epping Forest is described later in this report, in Section 8.

6.2 Potential cycle routes

Potential new cycle routes have been identified to help create a step-change in cycling conditions across the District. These might include signed routes (with journey times and surface markings), networks of interconnected cycle routes on quiet residential streets, filtered permeability (e.g. convenient cut-throughs and contraflows) and, where appropriate, 2nd generation cycling infrastructure, such as Dutch, Danish, or light segregation. Infrastructure improvements have been considered for the urban areas of Waltham Abbey, Loughton/ Buckhurst Hill, and Epping.

6.3 Methodology Statement

The potential routes have not, as this stage, been subject to detailed scheme design or feasibility, they are the results of an initial scoping study which is recommending a strategic network. Local knowledge, obtained through Stakeholder Consultation, has been used to inform this process. Where possible, the Sustrans Design Manual has been used to inform provision, particularly with regard to the acceptable provision related to traffic speed and volume conditions in specific locations.

Where traffic volume and speed data is available, the potential schemes have been subjected to Sustrans design principles, which recommend the type of scheme that should be considered under those conditions (Figure 6.1). Traffic volume and speed may influence the decision on the need to segregate cyclists from other traffic. For example, where low speeds and traffic volumes are evident,

there is no need to segregate cycle and other traffic and a shared carriageway is acceptable. As traffic speeds and volumes increase, cycle lanes are found to be more desirable, until the threshold is reached whereby physical segregation is required. Beyond this point, where 85 percentile traffic speeds exceed 40mph, and/or volumes exceed 9500 vehicles / day (or 950 vehicles/hour), conditions become unsuitable for cycling on the carriageway and physical segregation with a verge is necessary. Where traffic volume and speed data are not currently available, it may be necessary to undertake a traffic survey to determine the provision that is required.

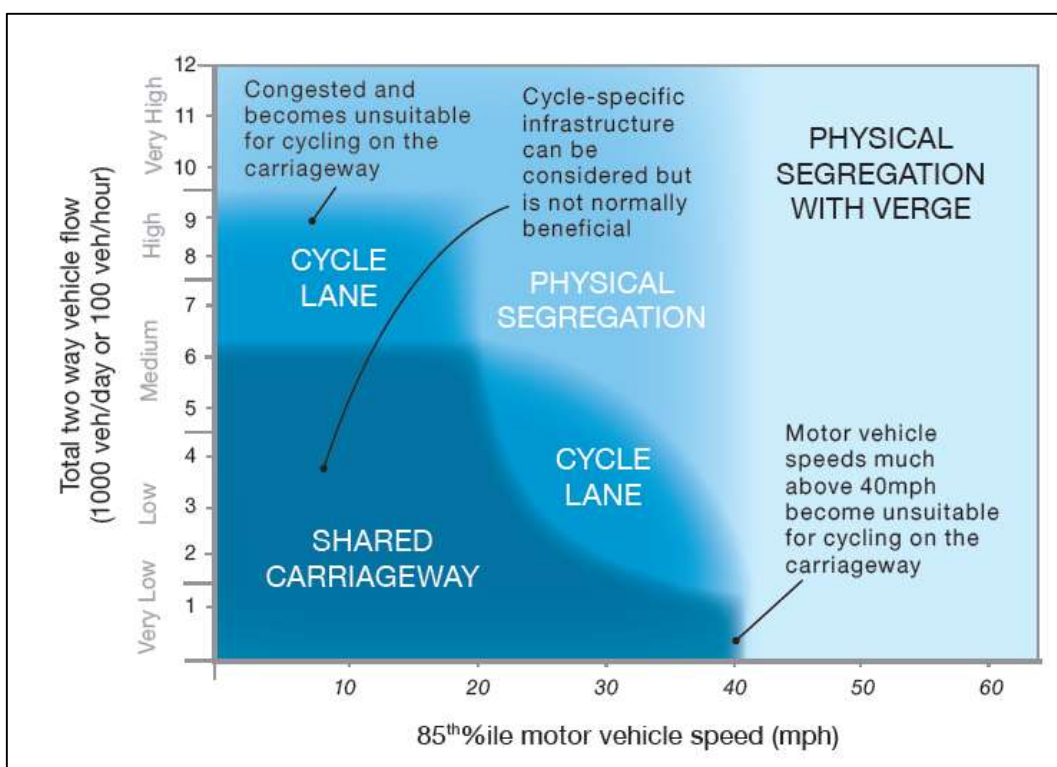


Figure 6-1 Sustrans Segregation and traffic flow⁹

In some locations, it has been noted that cycle-friendly crossings will be required. In most incidences, further work and traffic surveys will be required to enable the exact type of crossing provision to be determined.

*There are some examples where footway/footpath conversions to shared use have been identified. The conversion of footpaths and footways to permit bicycle use is not regarded as a general or area wide remedy, but has been confined to specific links and locations. It is recommended that where footpath conversion and/or footway conversion to shared use is considered then further studies are undertaken to demonstrate that alternative options have been discounted and that clear benefits can be derived. In such situations it is vital that the benefits to

⁹ Sustrans Design Manual. Handbook for cycle-friendly design, Sustrans, April 2014

the cyclist are balanced against the increased risk and inconvenience to pedestrians

ECC aims to limit the use of footway conversion/ shared use paths, and engineers and designers should first consider alternative options.

6.4 Construction Design and Management (CDM)

The potential new cycle routes identified in this CAP all require further feasibility assessment before they can be finalised or confirmed. In some cases, the alignment of the routes may need to be amended to ensure that the safest scheme design, in terms of operation, construction design and management, is identified. In some cases, a route might need to be deleted entirely, if it is determined that CDM risks cannot be reasonably mitigated through early design stages.

Some of the potential routes are alongside or cross features such as high speed roads, water courses or railway lines and may either require a new structure or widening of an existing structure in order to be implemented. It is recognised that these features raise the potential for significant risk (and indeed cost) during construction and operational management and they will need to be given particular consideration during the feasibility assessment.

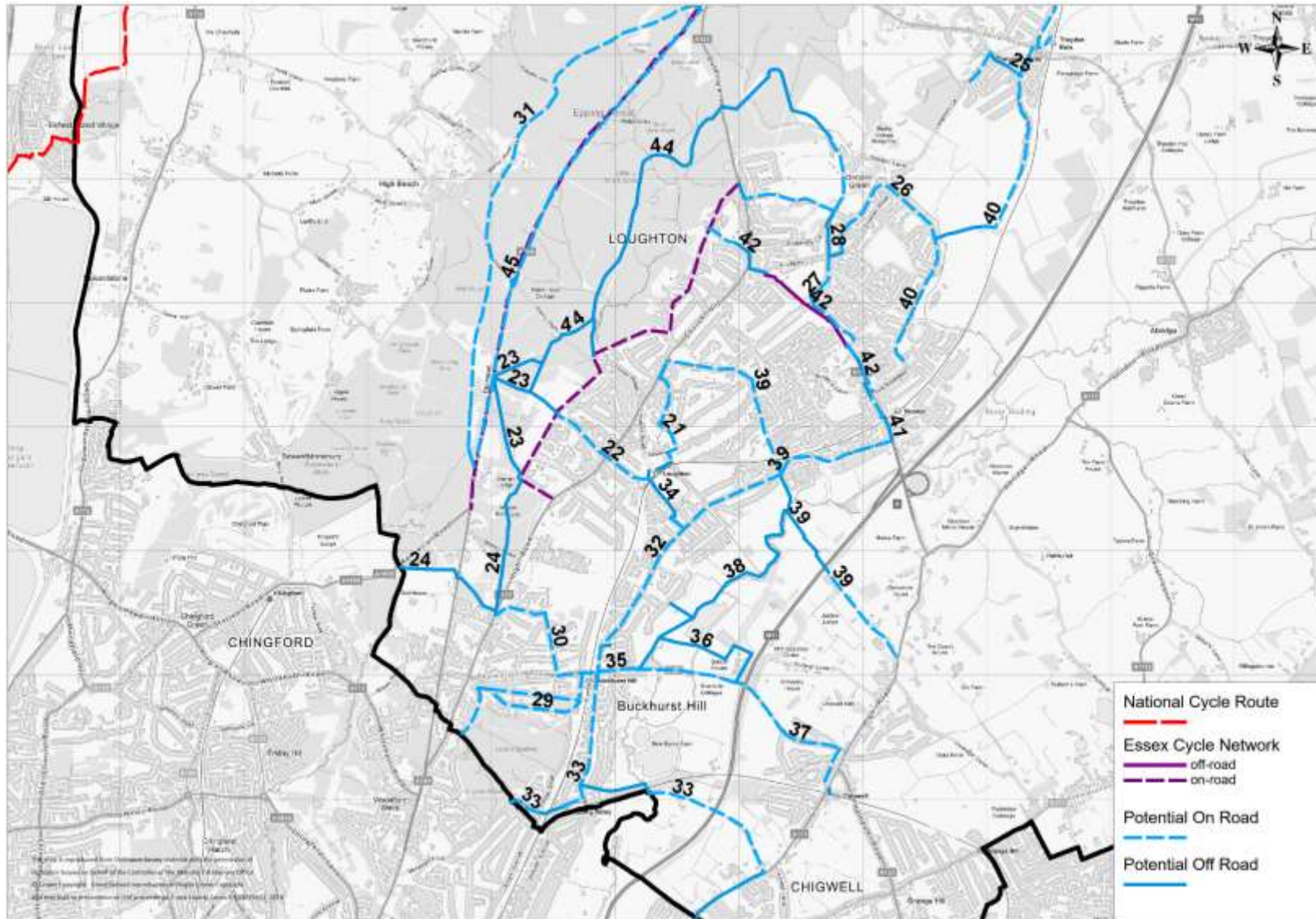


Figure 6-2 Potential Schemes in Loughton/ Buckhurst Hill

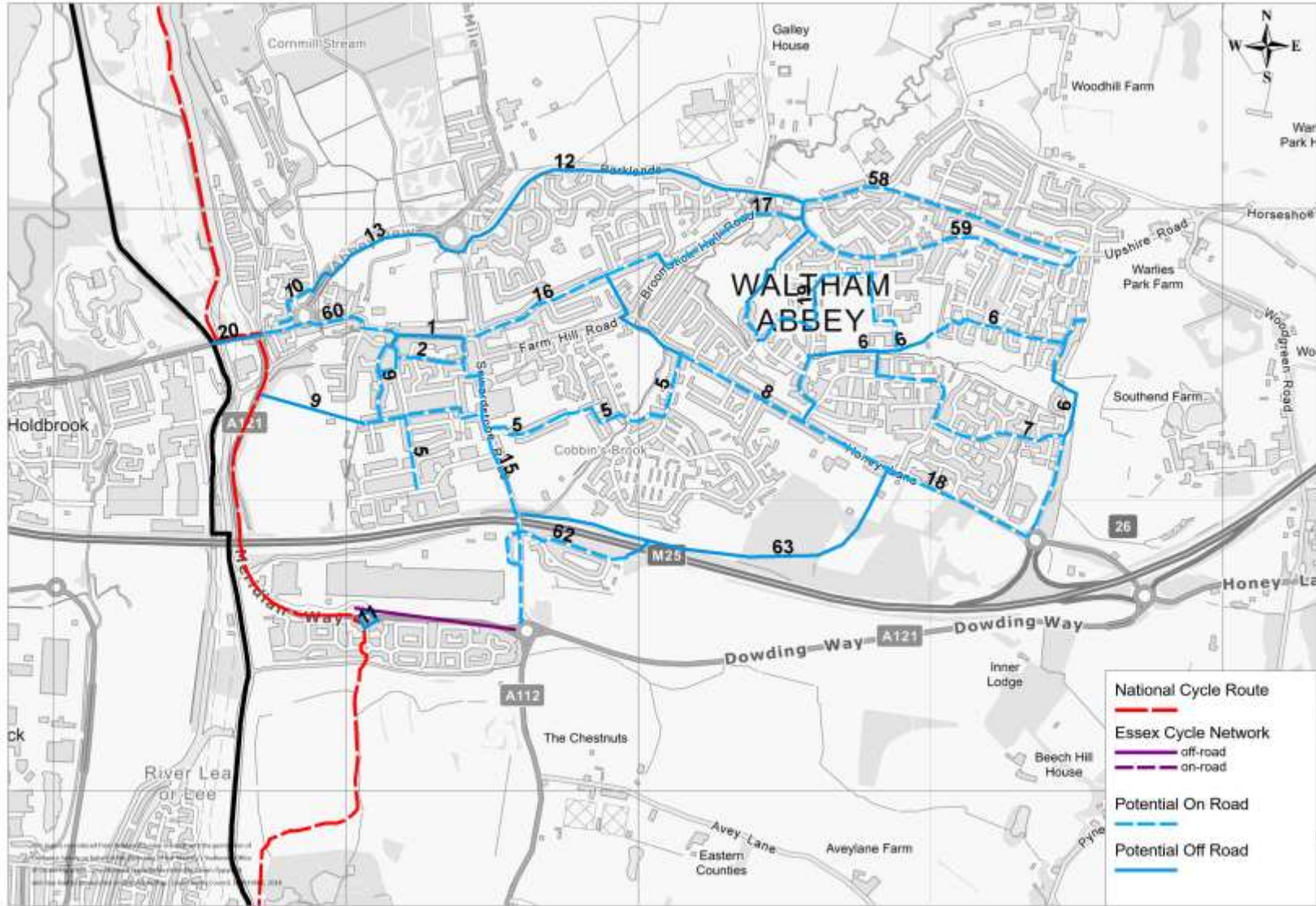


Figure 6-3 Potential Schemes in Waltham Abbey

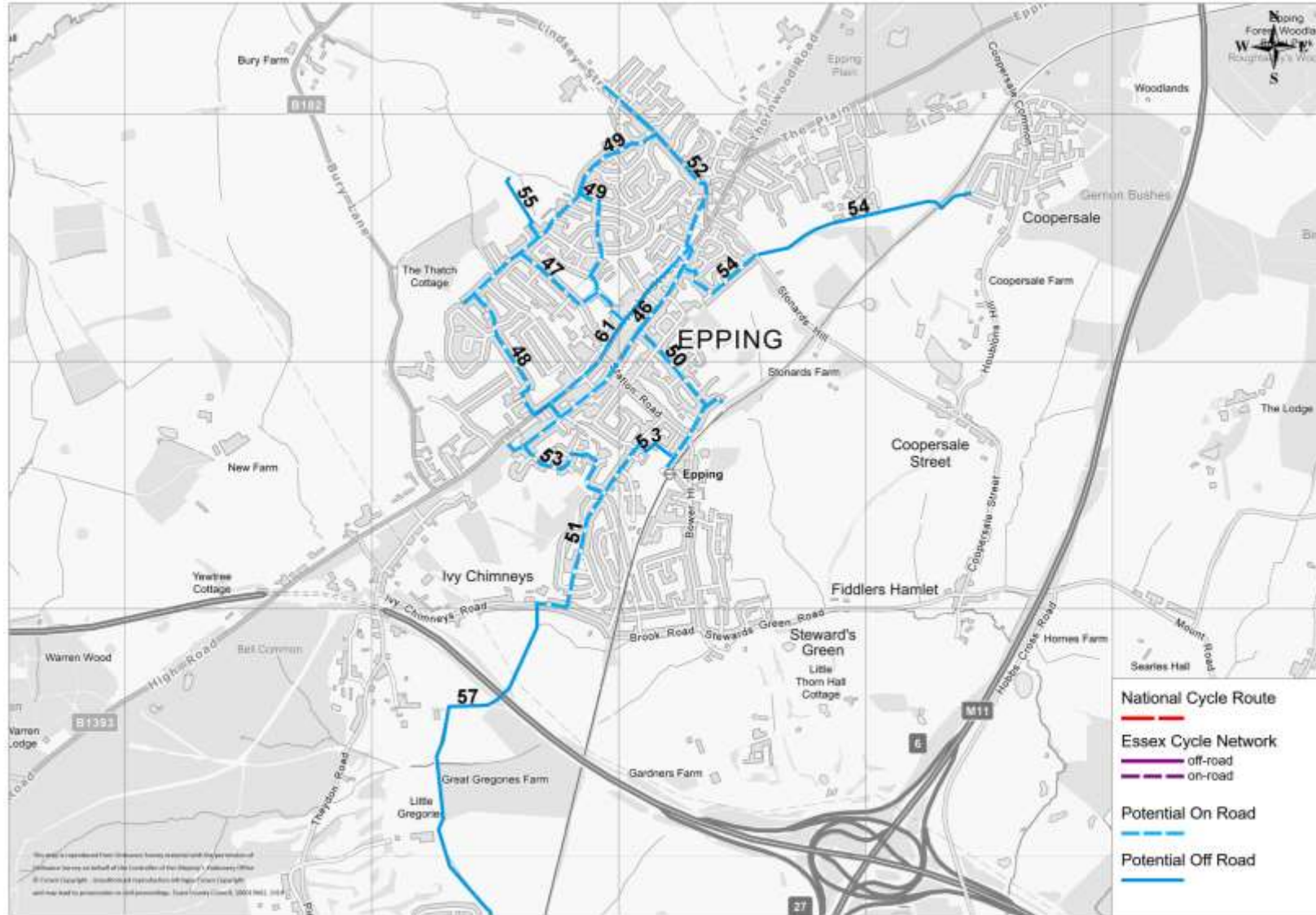


Figure 6-4 Potential Schemes in Epping

7 Prioritisation and Costings of Potential Schemes

7.1 Prioritising Schemes

The potential schemes have been prioritised according to four criteria of their design:

- Deliverability;
- Directness;
- Extension of existing network; and
- Key attractors.

A score of high, medium or low has been given for each potential scheme against each of the prioritisation elements. It was then possible to determine the overall prioritisation score for each scheme (again, scoring each potential scheme as high, medium or low).

7.2 Deliverability

The deliverability of a scheme has been assessed according to land ownership issues, which will determine how easy the scheme will be to deliver:

- H: High being a scheme that lies wholly within the highway boundary, straightforward to deliver, with no land ownership issues.
- M: Medium being any route that requires conversion of Public Rights of Way (PROW); and
- L: Low being any scheme which is likely to encounter private land ownership issues, or requires a singular large expense, such as a bridge.

7.3 Directness

The directness of the route is considered in terms of where it is proposed to provide access to, for instance a town centre or a railway station:

- H: High being a scheme that provides direct access, using as short a distance as reasonably possible, or could provide a real improvement on the corresponding car journey time;
- M: Medium being a link route, providing access to the main radial cycle route(s);
- L: Low being indirect routes, which are routed along relatively longer distances.

7.4 Extension of existing network

The extent to which a potential route extends the existing network is considered against this criteria:

- H: High being a route which extends, or fills a gap in, the existing network;
- L: Low being a route which is isolated and/ or unlinked to the existing network.

It should be noted that in some urban areas, for example Billericay, there is little or no existing network to connect to, so most of the potential schemes will achieve a low score in this case.

7.5 Key attractors

Under this criteria, the number of key attractors that a route connects is considered. Key attractors include town centres, other urban areas, railway stations, secondary schools/ education facilities, employment (including hospitals), and leisure destinations (parks, sports centres, etc.). The scoring is undertaken as follows:

- H: High being a route which connects to three attractors;
- M: Medium being a route which connects to two of these attractors; and
- L: Low being a route which connects to none (or just a leisure destination) of these attractors.

Within this criteria, town centres and railway stations are considered to be the most important attractors, so if a route connects to both it is likely to score high rather than medium. On the converse, leisure destinations are considered to be less important, so may attract a lower score.

7.6 Overall prioritisation

Once a score has been obtained for each of the four criteria (Deliverability, Directness, Extension of Existing Network and Key Attractors), its overall prioritisation can be determined, giving an overall score of low (L), medium (M) or high (H). As a general rule, the most frequent score obtained across the four criteria will be the resulting overall score. Where there are an equal number of different scores, there may be some element of subjective judgement used to decide the overall result.

The resulting prioritisation for each of the potential schemes is shown in table

7.7 Estimated costs of potential schemes

As with the prioritisation, the costs of the potential schemes are rated on a low (L), medium (M), high (H) and exceptionally High (H+) scale. The cost estimates relate to the following broad ranges:

- L: Low being less than £100,000;
- M: Medium being within the range £100,000 to £500,000;
- H: High being within the range £500,000 to £1,000,000; and
- H+: Exceptionally High being more than £1,000,000.

The 2018 outline costs are indicative of a feasibility proposal stage costing, prior to detailed surveys being undertaken for design and construction. Costs exclude the following:

- VAT (costs are exclusive of VAT);
- Inflation or significant changes to markets;
- Land costs, legal fees, Highways consultation;
- Construction on contaminated land;
- Diversion of services;
- Landscaping; and
- Access roads for construction.

Realistic unit costs have been derived for each of the elements that are identified in the potential schemes and they have been applied to a length of route where appropriate and as a series of elements to enable the overall cost of each scheme to be built up. The resulting estimated cost for each scheme is included in Table 7.1.

Table 7-1 Costs and Prioritisation of Potential Epping Forest District Cycle Schemes

Route ID	Route Name	Opportunity	Potential Solution – subject to Feasibility Study	Overall Prioritisation	Est. Cost
Waltham Abbey					
1	Sun Street, Waltham Abbey	Improve accessibility for those who cycle	Sun Street is currently a pedestrian zone in Waltham Abbey town centre. Allowing cycling could improve accessibility. An Experimental TRO may be useful to try allowing cycling only in peak periods as a trial before potentially making access permanent.	H	TBC
2	Quaker Lane, Waltham Abbey	Advisory Cycle Lane	Provide a new advisory cycle lane along Quaker Lane from Leverton Way to Sewardstone Road, connecting potential scheme 1 to potential scheme 15. May require removal of centre-line and signage. In addition, further investigation required to connect existing two way cycle track at eastern end of Quaker Lane with new provision.	H	L
5	Abbey Mead Industrial Park (Brooker Road) and Honey Lane, Waltham Abbey	TfL style on road quietway route	New signed quietway route between Abbey Mead Industrial Park, passing Tesco, to Honey Lane via residential roads. Quietway route follows residential roads of Brooker Road (giving access to Abbey Mead Industrial Park), Greenfield street, King George Road, Sewardstone Road (giving access to supermarket) and Denny Avenue. At its eastern extent, consideration should be given to converting* the existing footpath (PROW 211_109) between Denny Avenue and Elm Close to shared cycle use if possible (as a desk based study potential width issues would need to be addressed, both at Elm Close (land ownership issues) and at Denny Avenue (possibility to route through existing garage if property could be obtained), otherwise for this section, cyclists must dismount and continue on foot. Quietway route then continues along Elm Close, Larsen Drive, Rochford Avenue and Roundhills to Honey Lane. Consideration must be given to providing or upgrading to cycle friendly crossings outside of Tesco at Sewardstone Road.	H	L (Unless Land is Required)
6	Residential permeability: Mason Way and Abbots drive, Waltham Abbey	Off road route improvement and on road TfL style quiet way	New signed quietway network on Abbots Drive/Winters Way/Skarnings Court, linking to an existing surfaced lit route which then runs down along the southern side of the watercourse along to where it Links to potential scheme 9 at Hillhouse.	L	M
7	Residential permeability: Farthingale Lane and Mason Way, Waltham Abbey		New E-W on-road signed quietway along length of Farthingale Lane residential area from Stoney Bridge Drive, and Mason Way (linking to potential route 6)	L	M
8	Linking of central and South East Waltham Abbey	On road advisory lane	New on-road advisory cycle lane (may involve removing centre line and kerbside parking) between Roundhills and Leverton Schools, enabling potential scheme 5 to be connected to potential schemes 6 and 18. As Sustrans recommends physical segregation in this section due to high speeds traffic management will need to be implemented to reduce traffic speeds in order for an advisory lane to be satisfactory. There could be an option to cut the corner of Farm Hill Road and Honey Lane through the current access for the Play Area which would require a new bridge over Cobbin's Brook and a new off-road cycle track alongside the War Memorial.	L	M
9	National Cycle Route 1 to Waltham Abbey town centre via Sun Street		Create a new segregated 5m wide shared use route for pedestrians and cyclists, E-W across Townmead Recreation Area, between Meridian Way (NCR1) and Orchard Gardens. Route continues along new signed quietway along Orchard Gardens, Town Mead Road and Fountain Place. Consider either a two way working of Silver Street for cyclists, with a new northbound cycle contraflow which would enable access to town centre at Leverton Way via an upgrade of the Zebra crossing to a Tiger crossing, or a route along Sewardstone Street, connecting with Quaker Lane. There could be an opportunity for this section of Quaker Lane/Leverton Way to become an improved public realm exercise. Further study required.	H	M
10	Leaview to Powdermill Lane, Waltham Abbey		Extend existing cycle route that currently terminates at Leaview with a new on-road signed quietway along Leaview and Powdermill Lane. Continue route with a new off-road cycle track parallel with and to the north of Abbeyview. New toucan crossing of Abbeyview to be provided to enable link to potential scheme 13.	M	M
11	Meridian Way roundabout toucan crossing, Waltham Abbey	Crossing	Install a new toucan crossing across western arm of Meridian Way at the junction to improve safety for cyclists using NCR1.	M	L

12	Parklands Route , Waltham Abbey	Off road segregation	New off road segregated cycle track to meet minimum width requirements for pedestrians and cyclists along either side of Parklands, replacing the existing remote footway between Parklands roundabout and Ninefields. In the Epping Forest District Local Plan there is an area allocated for development called "Waltham Abbey North Masterplan Area" which could be a primarily residential development with an element of employment north of Parklands. Therefore a potential route along this road would be beneficial to any future development.	L	H
13	Abbeyview shared use path, Waltham Abbey		New off-road route for pedestrians and cyclists, replacing the existing footway, between Parklands roundabout and Highbridge Street roundabout. Due to a cluster of collisions at this roundabout, consider provision of a toucan crossing for cyclists across Crooked Mile to enable safe continuity of paths and effective linking with potential scheme 12.	H	M
15	Sewardstone Road, Waltham Abbey	On road advisory lanes providing key N-S link to town centre	Provide new on-road advisory cycle lanes, from Meridian Way/ Dowding Way roundabout along Sewardstone Road to The Market Square Surgery/ Health Centre by removing central hatching/ centrelines and reallocating roadspace. Route continues along Rue de St. Lawrence, and along existing two way cycle track on Quaker Lane until Sun Street. The existing width restriction provided by the guard railing at Sewardstone Road/ Rue de St. Lawrence is a barrier to cycle movement and should be removed replaced with a flush kerb and bollards. This existing cycle track would benefit from widening. Route connects with potential route 1 (the Flagship route) along Sun Street and potential scheme 2 along Quaker Lane.	L	L
16	Monkswood Avenue quietway, Waltham Abbey	TfL style on road quietway, providing access to King Harold Academy and linking eastern areas of Waltham Abbey to town centre	New signed on-road quietway along Monkswood Avenue, between Crooked Mile and Windsor Wood. Create a new off-road link between Monkswood Avenue and Broomstick Hall Road, possibly utilising existing footpath* (PROW 211_104) and Windsor Wood. Note change of level here makes a new link difficult. Alternatively, could consider implementation of cycle wheeling ramps along edge of existing staircase. Feasibility study required to determine provision. The junction at Monkswood Avenue/Sewardstone Road is large and problematic in terms of previous collisions, a workshop will be required with relevant teams (including Network Assurance, and Traffic Signals Team) to identify potential improvements. Provision of ASLs and advance pre-green for cyclists would be beneficial, although width of Monkswood Avenue carriageway is problematic for cyclists at this junction).	H	L
17	Broomstick Hall Road quietway, Waltham Abbey		New signed on-road quietway along Broomstick Hall Road, between Windsor Wood (to connect with potential scheme 16) and Ninefields.	H	L
18	Honey Lane, Waltham Abbey		Creation of new mandatory cycle lanes in both directions along Honey Lane, from Old Shire Lane to Shernbrook Road (North). Existing carriage way is 9m width in places but not for whole extent, reducing to 5.5m in other locations, so potential width issues. Some potential to increase width at eastern end of Honey Lane, although this will create lane ownership issues. Extends potential scheme 8 (advisory cycle lanes) and links to potential scheme 7.	L	L
19	Hillhouse to Amwell Court, Waltham Abbey		Quietway network providing a direct link between potential scheme 6, residential areas, King Harold Business and Enterprise Academy school and scheme 59.	L	L
20	Waltham Cross Station access from Waltham Abbey		Existing shared use footway/ cycle way along northern side of A121 (connecting Waltham Cross station and the Lea Valley White Water Centre), which finishes at Epping Forest District boundary, where cyclists are instructed to dismount. Continue shared use footway conversion* along northern side of carriageway, providing a continuous link to the River Lea Country Park, the Royal Gunpowder Mills and potential scheme 10, linking to the Waltham Abbey potential cycle network. Upgrade existing pelican crossings to toucans at A121/ Beaulieu Drive junction and upgrade existing zebra crossing to a tiger crossing west of Abbeyview Roundabout. Network Assurance have identified possible width issues at locations along the route, which would require some localised widening of the footway, or else short sections of substandard width for shared use. Existing footway width is between 1.7m (at some points) to over 3m.	H	M
58	Parklands to Paternoster Hill/Upshire Road		An extension of scheme 12 on Parklands onto advisory cycle lanes on Paternoster Hill and Upshire road in order to give a connection to residential areas to the North of Waltham Abbey. Also links with potential scheme 59 in order to gain access to Scheme 17 which will form part of the Flagship route for the CAP.	L	L

59	Ninefields		An extension of Scheme 17 a flagship route onto Ninefields linking again to the Roundabout on Upshire Road. Parking regulation and traffic management would allow cycle lanes to be implemented along the road, providing an east to west route for Waltham Abbey . A couple of collisions have occurred on the junction of Ninefields and Broomstick Hall Road, primarily due to visibility issues, formalising cycle lanes would encourage motorists to be mindful of potential cyclists along this road.	H	L
60	Church Street/ Highbridge Street/ Abbeyview Roundabout		Need to link Scheme 1 to scheme 20 with an on-or off-road route in order to complete a flagship route from Eastern Waltham Abbey to join with Hertfordshire's existing network in order to provide a cycling route to Waltham Cross station. A full feasibility study would need to be undertaken to determine detailed design, but improvements will be required at Abbeyview Roundabout, to enable E-W cycle movements around the southern extreme of the roundabout, enabling access to/ from Highbridge Street. Alternatively, the footway could be widened and parking rationalised in this location to provide an off road footway conversion*, linking to the upgraded tiger crossing identified in potential scheme 20. Note that three accidents (each with a severity of slight) have occurred at the roundabout, due to motorists not looking. These issues will be addressed in any new design.	H	TBC
62	Beechfield Walk, Waltham Abbey	Useful link away from the main road, connecting proposed employment zone between M25 and Dowding Way with residential	New on-road advisory cycle lane in both directions along Beechfield Walk, between Sewardstone Road and Lodge Lane. Route continues along Beechfield Walk as a new signed on-road quietway, providing access to the existing footbridge across the M25. Improvements/ upgrade may be required to the footbridge and/ or its access points to facilitate good cycle access. The width needs to be 3.5m for an unsegregated path for cycling and walking over the bridge, and the minimum height of the parapet is 1.4m. This bridge is not owned by Essex County Council. (currently stepped access on the northern side ?) – Feasibility study required. Route connects with potential scheme 63.	M	L
63	New off road cycle route connecting Honey Lane and Round Hills, Waltham Abbey		Potential future off-road cycle track between Honey Lane and Round Hills, connecting potential schemes 8, 18 and 62 with Round Hills at Waltham Abbey swimming pool. Would need land owner consultation. This route would require a feasibility study to identify access points	L	-

Loughton/ Buckhurst Hill					
21	Loughton Tube station to Loughton High Road Parade and Traps Hill	TfL style quietway connecting to advisory cycle lanes	New signed on-road advisory cycle lanes from Loughton tube station access, along Roding Road and Alderton Hill. Route continues as signed on-road quietway along Brook Road and Brooklyn Avenue to Loughton High Road. Scheme connects Loughton tube station, shops and services in Loughton High Road. Potential width issues along station access track – feasibility study required to determine provision. Provides access to Roding Valley High School Potentially, with some carriageway widening, it might be possible to provide mandatory cycle lanes along Roding Road.	H	L
22	Loughton tube station to Nursery Road and Epping Forest	TfL style quietway	New on-road signed quietway from the existing footpath (PROW 304_25) providing access to Loughton tube station, along Algers Road, Lower Park Road, Upper Park to the existing Nursery Road cycle route and potential scheme 23. Consideration should be given to provide safe and convenient cycle crossing of High Road and to the conversion* of the footpath providing access to the station, to shared use, although there may be potential width issues.	H	L
23	Loughton Nursey Road to Epping Forest		Sign existing off-road cycle tracks from Nursery Road into Epping Forest, utilising existing Epping Forest/ City of London paths through The Warren and The Stubbles (opposite Upper Park and Warren Hill). Low priority scheme.	L	L
24	Nursery Road/Warren Hill to Manor Road and Roebuck Green, Loughton		Improve route navigation/ legibility by improving signage and surfacing along this existing off-road route through Epping Forest	H	L
25	Piercing Hill/ Coppice Row/ The Green crossroads, Loughton		New signed on-road quietway extending SW from crossroads along The Green and a section of Loughton Lane. Then a section of off road cycle track along Theydon Green, then a quietway along The Green, then connecting to Potential scheme 40.	L	M
26	Willingale Road, Grosvenor Drive, Chester Road, Loughton	TfL style quietway	New signed on-road quietway along Willingale Rd, Grosvenor Drive Chester Road, as far as Pyrles Lane junction. Will provide a link to potential scheme 40, and so link Theydon Bois tube station with North Loughton, including Davenant Foundation School. Scheme also links to potential scheme s 27 and 28. Traffic management measures along the route will be required to reduce traffic speeds and adhere to Sustrans principles. It is necessary to reduce speeds to 20mph, otherwise it will be necessary to provide a cycle lane, which will be difficult owing to the levels of on street parking	M	L
27	Pyrles Lane, Lawton Road Rectory Lane, Loughton		From the south new signage and road markings along Rectory Lane side road and where cyclists enter carriageway from cycle route alongside Rectory Lane, would be beneficial until route connects with existing off-road shared use footway/ cycleway alongside northbound carriageway. Consider a convenient and safe uncontrolled tiger crossing point to enable a connection with the existing shared use foot/ cycle way alongside the northbound carriageway and Lawton Road. North of Conyers Way, the scheme could comprise signage and road markings along Lawton Road for approximately 160m to the start of the existing segregated footway/ cycleway to Hillyfields. Footway conversion* to shared pedestrian/ cycle use along the upgraded path between Chester Road and Rectory Lane. However Network Assurance have identified possible parking issues on Rectory lane side road. It would not be practical to move these vehicles into the main carriageway therefore a review of this short section is required to ensure free cycle movement e.g. formalise parking.	H	M
28	Cross Roads at Pyrles Lane, Hillyfields and Chester Road		Create an improved public space at crossroads of Hillyfields, Chester Road and Pyrles Lane, current speed table needs maintenance. Provide a new dedicated space for cyclists on approach to the junction. Footways are wide here, so reallocation of footway space to enable mandatory cycle lanes to be provided would be beneficial for cyclists. Alternatively, reallocate footway space to provide a wide, flush central reserve, which would optically reduce the available road width for vehicles and help to slow traffic, whilst allowing space for cyclists to turn right into Pyrles Lane (N or S).	M	M
29	Buckhurst Hill Underground		New signed on-road advisory cycle lanes between Buckhurst Hill underground station and Knighton Lane. New advisory cycle lanes		

	Station to Monkham's Lane (linking with LB Redbridge existing routes)		(N-S) along Victoria Road, from Buckhurst Hill tube station to Princes Road. New westbound advisory cycle lane along Princes Road, Queens Road and new signed quietway along Knighton Lane (approx 1 mile length). New eastbound advisory cycle lane along Queens Road, from Knighton Lane to Victoria Road, providing access to shopping area (approx 900m)	H	L
30	Buckhurst Hill Underground station to North End and Epping Forest		New signed on-road quietway along Palmerston Road and Roebuck Lane between Buckhurst Hill Underground Station and Roebuck Green. Provides links to potential scheme 24, with onward links to Epping Forest. Wide footways adjacent to the eastbound carriageway of Palmerston Road could be reallocated to provide an off road cycle route between Victoria Road and Roebuck Lane utilising a footway conversion*.	H	L
31	The Warren to Wake Arms roundabout		Provide a new off-road N-S cycle route between The Warren and Wake Arms Roundabout. Utilising the existing off-road cycle route outside The Warren and a new signed shared use cycle track/quietway N-S along Fairmead Road towards High Beech and Claypit Hill. The on road quietway route will then continue along Pauls Nursery Road (High Beech) and Wake Road towards the Wake Arms roundabout. Potential to create a new section of off-road segregated cycle way or shared use footway/ cycleway, adjacent to the westbound carriageway of the A121 (feasibility study required) at the junction of Wake Road and the A121 back towards the Wake Arms Roundabout.	M	M
32	Roding cycle hub route- Loughton Way, Valley Hill and Oakwood Hill		Provide new signed on road advisory cycle lane N-S along Loughton Way, Valley Hill and Oakwood Hill, between Chigwell Lane and Palmerston Road (connecting to potential routes 35, 33 and 39. Potential to remove centre hatching and reallocate roadspace to cyclists. The only fatal collision involving a cyclist in Epping Forest District happened along Loughton Way, therefore formalising cycle lanes and visually increasing the roadspace given to cyclists increases the likelihood that motorists will be mindful of potential cyclists. Consider how to deal with parking along the route. Footways are wide and could accommodate some car parking but formalising this would require a TRO.	M	L
33	Roding Valley Tube station to LB Redbridge border at Monkham's Lane and Chigwell Rd		Existing bridleway (Walnut Way PROW 32_64) footway conversion* to allow off-road shared use cycle track between Buckhurst Way and Hornbeam Road. Potential width issues between Chestnut Avenue and Hornbeam Road. Shared use cycle track continues E-W along route of bridleway, crossing under the Central Line, over the River Roding and onto Luxborough Lane (existing bridleway PROW 302_126) as far as High Road. Potential for route to continue on road, SW along Chigwell High road to LB Redbridge border. Additional potential for route to extend westwards of Roding Valley underground station as on-road advisory cycle lanes along Station Road, Farm Way and part off-road to forest edge, providing a link to North Woodford. Suitability of the bridge e.g. width, parapet heights, access ramps etc needs to be checked.	H	H
34	Roding Cycle hub route - Highland Avenue and Roding Gardens route		Create a new signed quietway route from Valley Hill, NW-SE along Highland Avenue to the existing footpath (PROW 304_29). Conversion* to shared use required along PROW_29 and PROW 304_27, providing access to Loughton Underground station. PROW 304_27 has potential width and visibility issues which would need to be resolved for the scheme to be suitable. Improve existing footpath (PROW 304_27) adjacent to playing fields, to enable a conversion* to shared use cycle track, allowing access to the station.	H	M
35	Roding Lane between David Lloyd, Guru Gobind Singh Khalsa College and Buckhurst Hill station		New signed on-road route along Palmerston Road and Roding Lane between Roebuck Lane and David Lloyd access road. New signed on-road quietway along access road to David Lloyd Centre. Potential road width issues. Providing access to Guru Gobind Singh Khalsa College and David Lloyd Centre and Buckhurst Hill Station	H	L
36	Off road route to David Lloyd Centre and GGSK College		From Roding Lane, conversion* of existing footpath (PROW 305_51) to shared use foot/cycleway. New off-road shared use footpath/cycleway within park, linking existing PROW 305_51 and PROW 303_68. Route continues along new conversion* of PROW 303_68 to shared use to provide access to the David Lloyd Centre and GGSK College	M	H
37	Chigwell Rise cycle route and access to		New advisory cycle lanes E-W along Roding Lane and Chigwell Rise, between David Lloyd Centre access road and Lee Grove. There may be sufficient width to provide mandatory cycle lanes in		

	Chigwell Parade and tube station		both directions. New signed quietway along Brook Way and Brook Mews enables the route to continue (although there is much car parking along this road) whilst avoiding Chigwell High Road. TRO required to return Brook Mews- Northern extent to two way. Close Brook Mews to traffic at its southern extent, using bollards or similar, to allow cycle access in both directions to/ from Chigwell High Road. Then implement a turning table at the end of the Northern extent to allow cars to turn around. Public realm improvement exercise required on Chigwell High Road, between Brook Mews and Chigwell Station, to enable cycle friendly access to the station, across the Station Road junction, crossings of the High Road and provide an improved environment for all users.	L	H
38	Nature Reserve Trail Path		Work in partnership with the Essex Wildlife Trust to establish a cycle way through the nature reserve. In this way may not need to convert existing Public Rights of Way.	L	H+
39	Roding cycle hub route - Loughton and Chigwell Greenway and Quietway		Section 1: New signed quietway along Grange Farm Lane (potential land ownership issues here) from High Road, Chigwell, linking to new off road cycle track, following alignment of existing footpath (NOTE, this is not shown as a PROW on Essex iShare map. The SE extent of Grange Farm Lane is shown as a remote footway, otherwise not defined), crossing River Roding via existing footbridge. Footbridge should be considered for upgrade to enable cycle crossing. Route continues to Highwood Lane Section 2: Provision of new on-road advisory cycle lanes in both directions along Oakwood Hill, between Chigwell Lane and Roding Road, where a connection with Section 1 and potential routes 32, 34 and 41 can be made. Removal of central hatching will provide additional road width to enable comfortable advisory cycle lanes to be implemented. This will need Highway Record Investigation due to potential land ownership issues. Section 3: New on road advisory cycle lanes along Traps Hill and Alderton Hall Lane, linking to Sections 1 and 2 and potential route 21 Consideration to be given to parking along Traps Hill and whether this needs to be adjusted to enable safe cycling provision Providing access to Alderton Junior School.	H	H
40	Theydon Bois to Loughton		New signed quietway route linking Theydon Bois Underground station and town centre to Debden and Loughton Underground stations. Route follows Forest Drive, Poplar Row, Theydon Park Road Willingale Road, between Dukes Avenue and The Broadway. A new section of route, connecting Theydon Park Road and Willingale Road will be required to be constructed across the potential development site, could be land ownership issues. Provides access to Debden Park High School and St John Fisher Catholic Primary School.	L	L
41	Connect existing network to Debden Underground Station		Route continues along Chigwell Lane from Oakwood Hill to The tube station, Sustrans recommends physical segregation, further investigations required. Wide footways mean this could be possible. Potential to convert existing crossing to a Toucan across Chigwell Lane. Connects to potential route 39 to potential route 42	H	-
42	Hillyfields, Golding's Hill and Stony path		Shared use foot/cycle way already implemented on Rectory Lane between Westall Road and Newmans Lane (adjacent to westbound carriageway), and from north of Conyers Way to Church Hill on opposite carriageway (adjacent to eastbound carriageway). Need crossing improvements on Rectory Lane and a link between these two sections, to provide a continuous cycle route. Crossing improvements also required to enable cyclists to reach the western side of Church Hill. Segregated 150 metre long route along the existing footway, will need widening. On the western side of Church Hill and Golding's Lane, improvement for signage to the PROW 304_7 (Stony Path) Network Assurance have identified that these are likely to require widening, and implement road markings along the lane to Baldwins Hill. Provides access to Epping Forest College.	H	M
44	Epping Forest, West Loughton Hillyfields and Debden		Off road route alternative to the on road A104 Epping New Road, from Debden Green to Fairmead Bottom. The off road route follows existing routes through Epping Forest. It should be signed and will go through Debden Slade, Clay Ride, Great Monk Wood, Copley Plain, and Ditches Ride. And then link to potential schemes 41, 42, 39 and 32.	L	H+
45	A104 from The Warren to Wake Arm Roundabout		Section of road between the Wake Arms roundabout and just north of the junction with Rangers Road, currently has a mixture of advisory cycle lane or off road shared use provision. Clear vegetation in order to make the current off road cycleway/footway	M	H+

			<p>near Epping Forest parking provision clearer and wider. Carriageway is approximately 7m wide, so on road advisory cycle lanes will be required to be implemented. Updating the current on road cycle lanes with Diagram 1057 markings and look to achieve the ideal width of 2 metres. There is the potential to create an off-road section of shared-use footway/cycleway in the area between the A104 Epping New Road, the Wake Arms Roundabout and the A121 Wake Road. May need to look at traffic management to reduce speeds.</p>		
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Epping					
46	Hemnall Street Quietway and contra-flow		Signage and road markings along 0.7 mile on road quietway on Hemnall Street, between B1393 to High Road. The southern section of Hemnall Street (between Kendal Avenue and Station Road) to permit cyclists contra-flow access along the currently one-way road. Consideration to be given to providing a safe right turn for cyclists at Kendal Avenue travelling westbound along Hemnall Street. Additional contra-flow working for eastbound cyclists along Hemnall Street between Station Road and Clarks Lane. Traffic management measures required to reduce traffic speeds to 20mph to enable shared carriageway. Provides a quieter alternative to the High Street where there have been a cluster of collisions involving cyclists.	H	L
47	Roding Valley Way cycle extension		New NE-SW signed and marked on road quietway along St. John's Road, Bakers Lane and Cottis Lane, linking Coronation Hill (and Epping Primary School) to the town centre (High Street) and potential scheme 46.	L	L
48	Schools Quietway		New NE-SW signed and marked on-road quietway along Shaftesbury Rd, Coronation Hill and Lower Swaines, between Lindsey Street and Tower Road, connecting to potential schemes 46, 52 and 55, as well as Epping Primary School and Lower Swaines Recreation Ground. New signed and marked quietway route then continues NW-SE along Tower Road until High Street, providing access to the town centre. Consideration to be given to the car parking on verges along Tower Road as this may create unsafe conditions for people who cycle.	L	L
49	Bakers Lane / Ingels Mead / Beaconfield Road quietway		New on road NE-S signed and marked quietway along Beaconsfield Road, Ingels Mead and Bakers Lane, connecting to Cottis Lane quietway (potential scheme 47), providing link to town centre.	H	L
50	Kendal Avenue quietway		New signed, on road advisory cycle lanes to Epping Tube Station from the Hemnall Street quietway (potential scheme 32) via Kendal Avenue and Epping Station access road. There may be sufficient road width of Kendall Avenue to provide mandatory cycle lanes, which would assist cyclists, particularly those cycling uphill (north-westbound). Consideration to be given to provide a safe crossing of Station Road for cyclists, as well as on-road parking along Kendal Avenue.	H	L
51	Ivy Chimneys to Centre Drive		New signed and marked quietway along Centre Drive, between Broadoaks and Bridge Hill. Route continues alongside Ivy Chimneys as an off road segregated footway/cycleway footway conversion*, adjacent to the westbound carriageway up to Ivy Chimneys Primary School, where existing footpath (PROW 189_22), which allows access over the M25, joins Ivy Chimneys Road although has width issues. (feasibility study required).	H	L
52	Lindsey Street and Church Hill		New on road advisory cycle lane in both directions on Lindsey Street between James Street and Church Hill with a new 20mph speed limit in place. Aligns with Sustrans principles. Road narrow in some places, but potential to widen in the southern section of the route towards Church Hill, as there are several verged islands. Quietway continues along Church Hill and Church Field. Provide a safe crossing of High Street at Church Field, to allow cyclists to safely negotiate the road and enable a connection with potential schemes 46 and 54.	H	L
53	NMU improvements to and from Epping Tube Station		New on road advisory cycle lanes along the B1393 between Tower Rd and Half Moon lane. Then route continues as new signed and marked quietway along Half Moon Lane to Hemnall Street. Route utilises Hemnall Street quietway (potential scheme 46), then follows Theydon Place N-S, and Madells. There is a footpath which currently connects Madells and Broadoaks which could be converted* (width issues, study required) to provide an off road section of cycle route. Parking restrictions should also be considered to prohibit waiting vehicles to ensure clear access. Then an on road signed quietway route onto Centre Drive (connecting with potential scheme 51) as far as Station Road (linking to potential scheme 50 and access to Epping Station).	M	M
54	Epping via Stonards Hill to Coopersale		New on and off road route in two sections between Hemnall Street and Coopersale. The first section is a new signed and marked on road quietway (0.3 miles) from Hemnall Street via Theydon Grove to Stonards Hill. The next section is a footway conversion* of PROW 189_18 to allow shared foot/ cycle use between Stonards Hill and Vicarage Road/ Laburnum Road in Coopersale.	L	M

			Necessary improvements include: improvement of the entry point into the recreation ground from Stonards Hill to allow easier and safer cycle access, via a widened and ramped entry point; improved signage and surface, improve the path from the railway bridge to Vicarage Rd/ Laburnam Rd in Coopersale. There are significant width issues when entering into Vicarage Rd/Laburnam Road, a study will need to be conducted in order to assess whether a route will be feasible.		
55	North Epping to Lower Swaines Footway/ Cycleway		Conversion* of existing footpath PROW 189_2 to shared foot/cycle way, from Coronation Hill through the recreation ground to a potential development site east of B182. Currently grass path	L	M
57	Ivy Chimneys to Theydon Bois		Resurfacing of existing footway alongside eastbound carriageway of Bridge Hill Road between Centre Drive and the footpath opposite Ivy Chimneys School. Implementation of an unsegregated shared use footway/cycleway by conversion* of existing footpaths (PROW 189_32, PROW 208_1), may be width issues in between the houses on Ivy Chimneys. Then N-S along conversion* of PROW 208_3 onto Forest Drive, also has width issues (less than 1 metre) coming back onto Forest Drive, where there is potential for an on road route into Theydon Bois.	L	H
61	High Street, Epping	To provide access to shops and services along the High Street	Town centre public realm feasibility study to be undertaken. Study will aim to rationalise car parking and provide an improved public realm for all users, including infrastructure to potentially provide shared pedestrian and cycle space along the length of the High Street, between its junctions with Grove Lane and St Johns Road. New on-road advisory cycle lanes continue at either end of High Street to connect with Hemnall Street (S) and potential cycle schemes 46, 48, 52, 53, and 54. The study will create a safer environment for both cyclists and pedestrians as currently it is a collision hotspot. Accident reports identify that cars are pulling out in front of cyclists as they are not easily visible.	H	-
	One Way Systems		A review of all one way streets in each town to identify whether there is scope for area wide contra-flows.		

8 Flagship Routes

8.1 Introduction

A Flagship Cycle Route is a key corridor providing safer, faster and more direct access to one or more key attractors (town centres, employment sites, education establishments, transport hubs, visitor attractions and existing/proposed developments). The routes will be on high demand corridors, be able to meet demand (both existing and potential), encourage a focus on innovation/design best practice and will include continental standard facilities, where appropriate.

It is hoped that a county-wide suite of Flagship Routes will be a focus for future funding, high quality infrastructure, design best practice and innovation.

8.2 Potential Flagship Route in Epping Forest

There is potential for a Flagship route for Epping Forest District to be created in Waltham Abbey. An East/ West Flagship Route, linking residential areas to the east of the town with Waltham Abbey town centre and providing access towards Waltham Cross station in the west, would also enable access to the Lee Valley White Water Centre, the River Lee Country Park and the Royal Gunpowder Mills along this route. The potential Flagship Route is shown in Figure 8.1.

8.3 East/ West Flagship Route (FR1)

Waltham Cross station is located in the neighbouring borough of Broxbourne who have implemented off road shared foot/ cycle ways adjacent to the eastbound carriageway of the A121, so this Flagship Route will connect with that route, providing continuity into Waltham Abbey.

An East/ West Flagship Route can be delivered by continuing the existing Broxbourne cycle routes, requiring footway conversions* adjacent to the eastbound carriageway of the A121 Station Road, as far as the Abbeyview roundabout, where connections with some existing network can be made. Upgrading the existing pelican crossing of the B194 at Beaulieu Drive to a toucan would enable cyclists to safely cross the busy carriageway. Additionally, upgrading of the existing signal controlled crossings to toucans at Meridian Way/ B194 would assist cyclists accessing the National Cycle Route 1 from the Flagship Route.

A feasibility study will need to be undertaken to determine the preferred option in terms of crossing the Abbeyview Roundabout. If junction redesign is considered as part of Highway Improvements then cycling provision must be included. Alternative options for the Abbeyview Roundabout, include rationalising existing car parking along the southern side of the roundabout to enable an off-road two way cycle lane/ track to be implemented, providing access to Highbridge Street

for people who cycle. A feasibility study in this location would be beneficial to determine the preferred options and identify any issues.

The route continues along new on road mandatory cycle lanes on through Highbridge Street (potentially implementing a bus gate between Abbeyview roundabout and North Place, permitting access only to buses, cycles and businesses in that section of Highbridge Street), Church Street and Sun Street (would require a TRO to enable cycle access at all times). Sun Street is currently a pedestrianised zone. Permitting cycle access would be hugely beneficial in improving access to the town centre

The route continues eastwards, exiting the pedestrianised Sun Street, on road utilising new eastbound mandatory cycle lanes up to the junction with Sewardstone Road. In the westbound direction, new advisory cycle lanes will be implemented, with a right turn pocket for cyclists to enter Sun Street. The new on-street arrangements may require carriageway reallocation in this section of Sun Street.

The junction of Sewardstone Road/ Monkswood Avenue/ Sun Street is potentially problematic for cyclists, owing to it being a large junction for cyclists to cross with narrow access points in some locations (notably Monkswood Avenue). Implementation of pre-green signals for cyclists at the junction would assist, along with Advanced Stop Lines (ASLs) but access to them may be hampered by the narrow carriageway in conjunction with its use by large vehicles, which is not ideal. Upgrading road crossings across the junction would benefit those cyclists who prefer to travel separately from the main traffic flow into and out of Monkswood Avenue. Owing to the potential difficulties, consultation will be required to determine the best options for this location.

The route will continue along Monkswood Avenue in the form of an on-road quietway, and then via considering implementation of cycle wheeling ramps along edge of existing staircase onto Broomstick Hall Road, the quietway route will continue until the T junction with Ninefields. The Flagship route will then continue down Ninefields until the roundabout with Upshire Road in the form of cycle lanes with parking regulation and traffic management implemented.

8.4 Prioritisation of Flagship Routes

Flagship Routes are considered against the four prioritisation criteria, as per the other potential schemes:

- Deliverability;
- Directness;
- Extension of Existing Network; and
- Key attractors.

For the Flagship route proposed it was found that it would be relatively easy to achieve in terms of landownership , is relatively direct in terms of that it will provide an East-West link across Waltham Abbey to the town centre, and providing a connecting link to existing cycling provision in Waltham Cross, which provides access to Waltham Cross Station. Furthermore, it will link to National Cycle Route 1, and Lee Valley routes. As well as the station and the town centre it also provides access to King Harold Business and Enterprise Academy. As such this route (FR1) would achieve overall a high prioritisation.

The inference from the prioritisation exercise is that it supports the basis for identifying the Flagship Route in the first instance, in that it is a key corridor, providing important benefits for cycling in Epping Forest and should therefore be considered a high priority going forward.

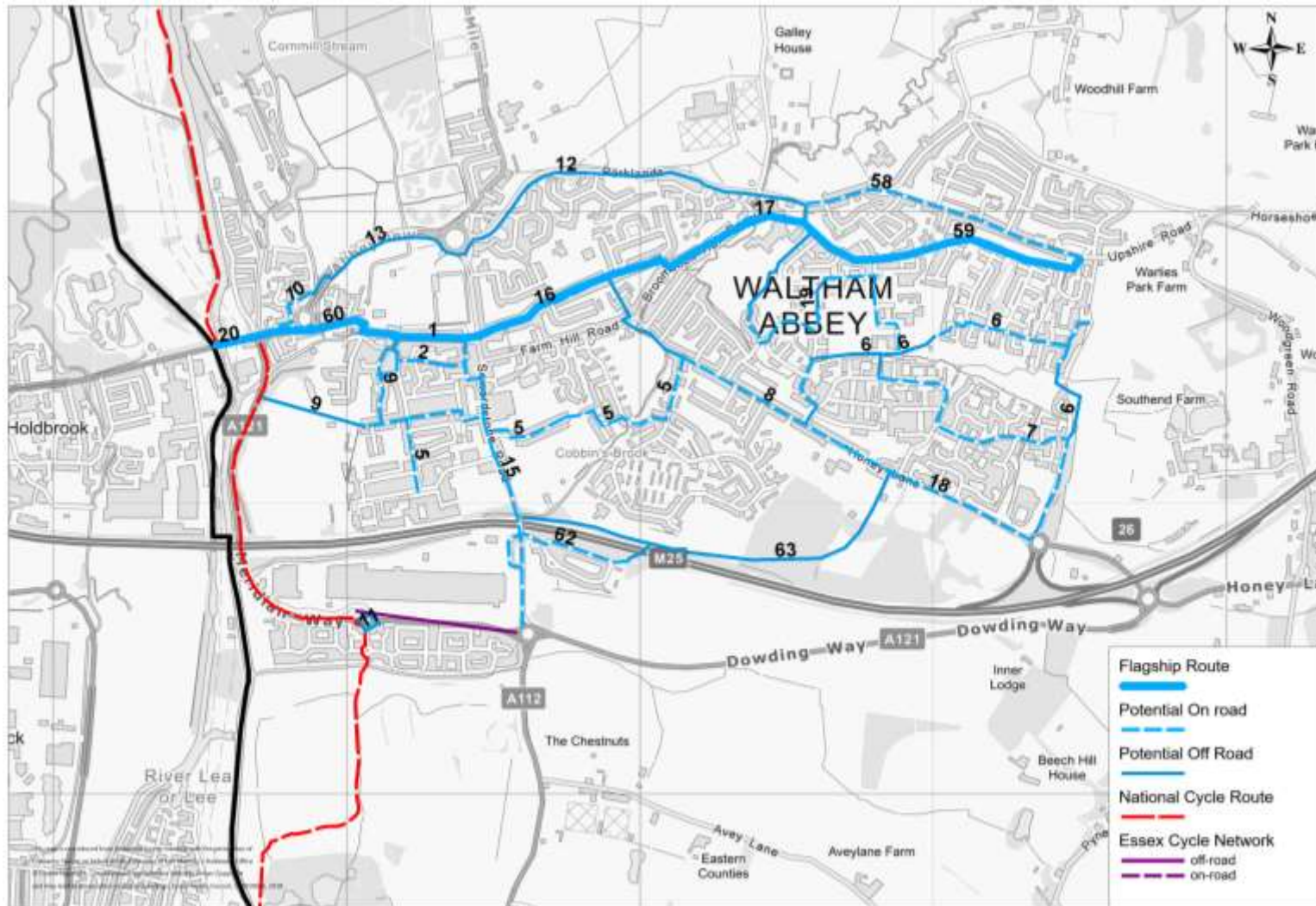


Figure 8-1 Potential Flagship Route for Epping Forest District

9 Smarter Travel Measures

9.1 Introduction

To ensure the potential for cycling is fully realised, new infrastructure must be accompanied by targeted promotion and events.

Local promotion of cycling should be increased to convince residents that cycling is a normal and accessible activity for all as well as highlighting the health benefits of cycling.

In addition, cycling has the potential to alleviate congestion and persuading people to replace a local car journey by cycling. This could include workplace travel planning in the town centres within the District.

9.2 Marketing and promotion

The Essex Cycling Strategy sets out a number of overarching themes for marketing and promoting cycling which are as follows:

9.2.1 Cycle Essex

ECC are committed to running high profile campaigns under the “Cycle Essex” umbrella which aim to change the image of cycling in Essex, break down perceptual barriers, communicate a safety message and tie in with existing organisations such as Active Essex.

9.2.2 High profile events

Essex has been successful in attracting high profile cycling events to the County that have been well attended by the public, such as hosting Stage 3 of the 2014 Tour de France, which passed through Epping. ECC would like people to continue to support these events but also give cycling a try through further mass event, car free days in town centres and bike festivals.

9.2.3 Support for local initiatives

ECC recognise that Local initiatives are particularly effective at engaging with people on a personal level. Therefore they aim to empower Boroughs / Districts to promote cycling locally, support community providers / charities, support cycling clubs and ensuring that secondary schools, large employers, large council offices and major hospitals have up to date travel plans.

District marketing agencies, such as Visit Essex and Epping Tourist Information Centres should promote cycling for leisure and commuting in the District, while also making information about these routes available online and in print.

9.2.4 Cycling Maps

Cycling maps (digital and on paper) are an effective marketing tool for raising the profile of cycling. Once a more established cycle network is in place, a cycle map should be produced of the Epping Forest District, including the urban areas and access to leisure routes. If the maps are legible, well designed and effectively disseminated, they can be the nudge that is needed to motivate the 'near market' to start making some trips by bike.

In addition, in order to maximise the benefits of cycling maps, future cycling maps for Epping Forest should be redesigned with the following principles in mind.

- The maps should be prepared under the same design guidelines as the promotion of 'Cycle Essex'. This will help to raise their profile and visibility;
- Information included in the maps should correspond with the signage by the roadside;
- Include more information about local points of interest. This might encourage leisure cycling, local tourism and increase patronage to local attractions; and
- Widely distribute the maps (if more than one) in a bundle and on as many online and physical outlets as possible.

Furthermore, official and unofficial routes are also available through mobile phone apps, social media and specialised websites such as *mapmyride.com* and *strava.com*, which allows people to track their routes whilst cycling and share them on various platforms.

For example, there is considerable interest in cycling at a community level in the District, with more than 2,000 routes recommended in the Epping/Buckhurst Hill/Waltham Abbey area, by users of *mapmyride.com*.

9.3 Potential Local Considerations

Local considerations, improvements and factors that may have an effect on encouraging cycling in Epping Forest District include:

- Updating the existing cycle map of Epping Forest to include isochrones and mode switch motivational information;
- Cycle access – promoting access to bicycles through the cycle to work scheme, cycle hire, provision of subsidised bikes; and
- Promote National bike week events to raise awareness of and to encourage cycling in the District.
- Crest Cycling Club and Essex Herts MTB are active cycling clubs in the area. <http://crestcyclingclub.org.uk/> and <http://www.essexhertsmtb.co.uk/index.php> and the District should capitalise on this to kickstart other cycling initiatives.

10 Delivery and Funding

10.1 Delivery

The recent Infrastructure Act (February 2015) places a commitment on the Government to produce a Cycling and Walking Investment Strategy. The strategy would specify the objectives to be achieved and the financial resources available. This new bill shows a change in the government's thinking and a clear commitment to providing for cycling as well as accepting responsibility for targets and funding.

The Department for Transport's Cycling Delivery Plan (October 2014) refers to a new national cycling target, to double the number of cycling stages (trips) nationally over a 10 year period. This new target will be adopted by Essex as part of this strategy.

The Government has also set a target of achieving an annual cycling spend of £10 to £20 per head of the population. In Essex this would equate to approximately £17million to £34million per year spent on cycling.

A step change in the provision of cycling infrastructure and promotion will require an increase in funding over and above the current level of funding for cycling in Essex. Essex County has committed to:

- Ensuring a consistent level of revenue and capital funding to support the delivery of this strategy;
- Increasing the level of funding in Essex from its current level of £2 - £3 per head of population to £10 per head of population by 2025;
- Increasing the utilisation and prioritisation of other funding sources such as developer contributions and central Government grants/allocations; and
- Developing a clear and cohesive methodology for the allocation of cycle funding across Essex Districts.

This will ensure that new proposals are not frustrated by a lack of funding and designers and promoters are set free to develop measures that will lead to a consistent growth in cycling numbers, frequency and safety.

10.2 Funding Options

There are a range of funding sources available for the schemes suggested in the Cycling Action Plans which are as follows:

- Local Highways Panels (LHPs)
- DfT Access Fund for Sustainable Travel (from 2017/18 through 2019/20)
- Local Growth Funds (via SELEP)
- Section 106 (S106) Developer Contribution monies
- Community Infrastructure Levy (CIL)
- Highways England Cycling, Safety and Integration Designated Fund (CSIDF)

10.3 Funding for the Epping Forest District

ECC Local Highway Panels (LHPs) are a source of capital funding for local highway schemes, and are an appropriate way for new cycle infrastructure to be funded. Cycle improvements should be considered as part of the above funding with other significant LHP schemes and synergies sought wherever possible. However it is unlikely that many will achieve funding in the immediate future.

Planning contributions from new developments is an important source of finance and can either provide funding towards new or improved cycle infrastructure in the Epping Forest District, or if in the vicinity, actually construct schemes as part of the development.

Current UK Government spending is £2.50 per person per year; the aim is to increase this to at least £10 per person per year by 2020/2021. Essex will also aim to spend £10 per person per year, with an initial increase to £5 by 2017.

The Government has a £6 billion Local Growth Fund for cycling and walking and wishes to reduce the administrative budget Local Authorities have to use in bidding for funding.

Other sources of funding also become available from time to time such as from the DfT, such as the recent announcement of the Access Fund for Sustainable Travel. Therefore it is important that there are schemes readily available to be put forward for funding, should such opportunities arise.

In addition to the above, other possible funding options include:

- As part of road safety schemes;
- Sustrans and Cycling UK;
- Network Rail and/or rail operating companies;
- Active Essex / Essex Health;
- European Union funding (e.g. European Regional Development Fund and Rural Development Programme); and
- Acquire and investigate corporate sponsorship opportunities for any high profile public schemes/events.

11 Key Recommendations

In order to create an environment where cycling is normal for the residents of Epping Forest District, existing barriers to cycling should be removed and a series of cycle routes provided with the aim of creating a connected cycle network over time. Cycling infrastructure should provide for both key utility journeys and encourage leisure cycling.

Analysis was undertaken to assess existing travel patterns, not only for cyclists but rail and car commuters as well. Alongside this, the propensity to cycle was also analysed to assess whether there were similarities between those that commute by other methods of travel and the areas where there is a high propensity to cycle.

To ensure the potential for cycling is fully realised, new infrastructure must be accompanied by high profile and targeted promotion of cycling to ensure the full cycling potential is realised in Epping Forest, particularly in urban areas. The following key recommendations can be made for cycle enhancements:

- Review existing route signage and lighting;
- Improve maintenance of existing routes (it is an aim of the Essex Cycle Strategy to prioritise more frequent and improved maintenance of the cycle network but as yet, responsibility for this has yet to be identified);
- Prioritise access to the town centres and railway stations;
- Increase provision of useful cycle routes in Waltham Abbey, Loughton/Buckhurst Hill and Epping, in particular;
- Provide new and improved cycle routes with a focus on satiating the considerable demand for commuter trips at railway stations;
- Fill obvious gaps in the existing cycle-route network (on alignments with cycle-friendly topography);
- Provide new infrastructure on key roads with cycle-friendly topography but no existing facilities;
- Update the existing cycle map every two years taking on board new innovation in cycle-map design, and promote it and disseminate it widely through a range of channels and outlet.
- Implement the recommended Flagship Route located in Waltham Abbey, which provides an E-W route linking residential areas to the town centre, as well as Waltham Abbey to existing provision in Hertfordshire, providing a route to Waltham Cross train station.