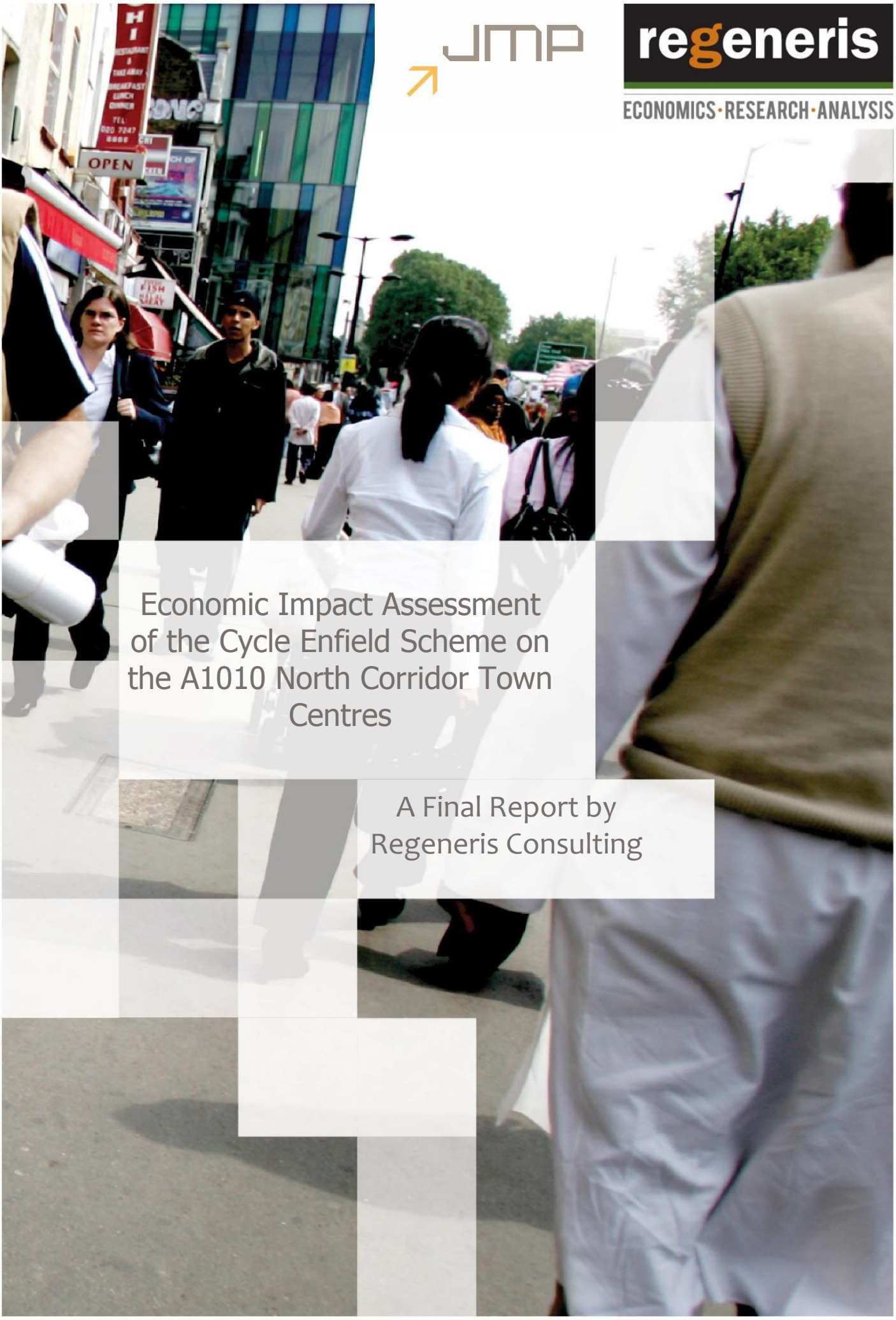

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Economic Impact Assessment of the Cycle Enfield Scheme on the A1010 North Corridor Town Centres

A Final Report by
Regeneris Consulting

Enfield Council

Economic Impact Assessment of the Cycle Enfield Scheme on the A1010 North Corridor Town Centres

August 2016

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Contents Page

1.	Introduction	1
2.	Economic Impact Assessment Framework	5
3.	Consultation Feedback on the A1010 North Scheme	13
4.	Enfield Highway Assessment	15
5.	Enfield Wash Assessment	41
6.	Mitigation Measures, Support for Town Centre Prosperity and Performance Monitoring	65

1. Introduction

1.1 Regeneris Consulting and JMP were appointed by Enfield Council to undertake an economic impact assessment of the Cycle Enfield scheme on the economic vitality of nine town and local centres across the London Borough of Enfield.

1.2 The Cycle Enfield scheme aims to encourage more people to use bicycles instead of cars in Enfield. At the heart of the plans are proposals for segregated cycle lanes along three main road corridors through the borough – the A1010, A105 and A110. These routes pass through nine key centres in the borough: Enfield town, the district centres of Palmers Green, Edmonton Green and Angel Edmonton, and the local centres of Winchmore Hill Broadway, Winchmore Hill Green Dragon, Ponders End, Enfield Wash and Enfield Highway.

1.3 Retail and other businesses in these centres rely on the spend of visitors to the centres who travel in by a range of transport modes, including walking, cycling, public transport and private car. The design changes to town centres proposed under Cycle Enfield may affect the extent to which visitors by different modes of transport use the centre in the future. This report provides an assessment of the extent of these effects and their overall impact on the economic vitality of each centre.

1.4 The Cycle Enfield scheme is being developed in several phases. This report relates to the A1010 North Corridor covering Enfield Wash and Enfield Highway Town Centre.

Town Centres Context

The Economic Role of Town Centres

1.5 Town centres play an integral role in the functioning of local economies. As well as providing the focal point for convenience and comparison retail spending, they are leisure and recreation destinations, community hubs and places to work and live.

1.6 In recent years, there has been an increasing policy emphasis on town centres at both the national and local level. Much of this policy emphasis reflects the recognition that town centres are facing multiple economic challenges. Understanding High Street Performance (BIS, 2011) notes, for example, that recent years have witnessed a decline in the economic performance of high streets and town centres throughout the UK. Challenges faced by town centres are multi-faceted and include:

- **A struggling economy** – UK consumers are still struggling after the previous recession, with higher taxes, tighter lending restrictions and high house prices, all of which have reduced their disposable incomes.
- **An ageing society** – the number of older people wanting to access town centres will increase and may have differing needs and purposes, creating changing demands that town centres will need to respond to eg increasing demand for health facilities, need for enhanced accessibility.
- **A technologically driven consumer and economy** – the rise of the UK online retail sector, the largest and most mature in Europe, has experienced significant growth over the last decade. The Internet is increasingly used for bargain hunting and discount dealing, a trend expected to continue for the foreseeable future. The greatest threat for traditional retail, and not just town centres, is the trend for using the Internet to search for the best deals. Small independent stores on the high street are unable to compete with larger businesses

specialising in the sector, with large warehouses. The rise of m-commerce (mobile phone shopping) also increases the accessibility of shopping for people, which reduces their need to shop at local town centres.

- **Rising transport costs** – longer term trends of higher fuel and transport costs discourage people from visiting their town centres. Rising public transport costs and relatively high fuel costs (relative to other goods and services) discourage people from driving their own car, or taking public transport, which limits the distance they are able to travel to shop.
- **The rise of out-of-town shopping centres** – out-of-town shopping centres and retail parks are a real challenge to town centres, as these provide large amounts of free parking and a wide range of shops all on one premises. Examples near to Enfield include Brent Cross, Westfield Stratford and the A10 Retail Park.

1.7 These challenges are recognised at national and local levels, and a raft of work has been done to analyse how town centres can be supported and how they might need to change eg the Portas Review (Portas, 2011), Understanding High Street Performance (BIS, 2011) and Reimagining the High Street (New Economics Foundation, 2012).

1.8 Within London:

- The Greater London Authority set out the need for town centres to "fundamentally rethink themselves: they must move away from being strictly retail focussed and become dynamic centres that can serve local communities with a unique and diverse offering of retail, public and community services, leisure, and housing" (*Future of London's Town Centres,* 2013)"
- The Outer London Commission highlight the important role that vibrant high streets play in supporting Outer London's town centres and the need for partnership working and imaginative measures to enhance the quality of town centres and their offers ('Mayor's Outer London Commission Report', 2010).

The Enfield Town Centres Context

1.9 LB Enfield has a relatively large network of town and local centres, including one major centre (Enfield Town), four district centres (of which three are covered in this study: Edmonton Green, Palmers Green, and Angel Edmonton) and numerous local centres and smaller local parades (including Winchmore Hill Broadway, Winchmore Hill Green Dragon, Enfield Wash and Enfield Highway covered in this study).

1.10 Reflecting national and London-wide policy, LB Enfield places a high value on supporting the vitality and viability of these centres, particularly through the policies set out in its Core Strategy (LB Enfield, 2010).

1.11 To further improve the resilience of Enfield's town centres, the Council has established a 'Framework for the Management of Town Centres' (LB Enfield, 2014) which seeks to build on the strength of existing relationships with businesses, service providers and communities, and review how Enfield's town centres could be managed in the future. The council's objectives are to:

- Harness and empower the local community, voluntary, public and private sectors to further develop town centres.
- Embrace partnership in all its forms for the benefit of centres and for those who live, work, play and visit them.
- Innovate and be creative with the future direction of centres.
- Promote inclusive models of governance, enabling all stakeholders to shape town centres.

The Cycle Enfield Scheme

1.12 In March 2014, LB Enfield was chosen as one of three outer London boroughs to be awarded £30m of new funding from the Mayor of London's Mini-Holland fund.

1.13 The Mini-Holland scheme aims to encourage more people to cycle, more safely and more often while providing better streets and places for everyone, by creating places dominated by people, not motor traffic. The programme specifically focuses on areas where people make short car journeys in outer London that could be cycled easily instead.

1.14 The Cycle Enfield proposals comprise a programme of physical changes to nine town and local centres across Enfield, targeted at improving conditions for cycling. The main proposals in the Cycle Enfield programme include:

- Creating a pedestrian friendly environment on Church Street, Enfield by removing through traffic and installing separate bus and cycle lanes.
- Introducing segregated cycle lanes along the A1010, A105 and A110.
- Developing a network of Quietway and Greenway routes across the whole Borough.
- Developing Cycle Hubs at Enfield Town and Edmonton Green Train Stations.
- Introducing Quieter Neighbourhoods to deter rat running and speeding and enable people to get from their homes to the start of a cycle route.
- Providing support for residents who want to take up cycling with free bike loans and residential cycle parking.
- Involving the local community in the design of all schemes, particularly those in residential streets.

1.15 The development of the scheme has involved the following steps to date:

- Submission of Cycle Enfield Bid Document: December 2013
- Award of Funding: March 2014
- Production of designs for A105: Completed July 2015
- Public Consultation on Stage 1, covering Palmers Green and Winchmore Hill: July to October 2015.
- Production of designs for A1010 South Scheme: Completed November 2015
- Public Consultation on A1010 South Scheme: November 2015 to March 2016
- Production of designs for A1010 North Scheme: Completed June 2016
- Public Consultation on the A1010 North Scheme: July 2016 to September 2016.

Economic Impact Assessment Study

1.16 An economic impact assessment was commissioned at this stage of the process to understand the impact that Cycle Enfield will have on the economic vitality of the nine town and local centres through which the scheme will pass. By undertaking the assessment at this stage, it has enabled a detailed analysis of impacts, based on review of the scheme designs, and an appreciation of the concerns raised through consultation with local business owners and residents.

1.17 The primary focus of the study is on the overall economic vitality of town centre businesses. It does not assess the economic impact on individual businesses.

1.18 The study is particularly designed to assess the risk of any unintended negative impacts of the scheme on the economic vitality of these centres. However, the aim of scheme planners is that in the longer term the scheme will have a positive effect on economic vitality, enhancing the attractiveness and character of the centres, making them less car dominated, and increasing footfall and spend in each centre.

1.19 The study has involved:

- Analysis of the design plans for the Cycle Enfield Scheme and site visits to the town and local centres with the design team to talk through the plans
- Analysis of a wide range of study reports undertaken, including modelled traffic flows, data on car parking, visitor survey evidence and town centre healthchecks
- Gathering and analysis of data relevant to economic performance and the factors affecting economic vitality, to be assessed in this study
- Analysis of evidence from other town centres, where available, to understand the impacts on town centre vitality of similar interventions
- Consultation with local authority officers and a selection of local businesses and other stakeholders closely involved with or interested in the proposals (both supportive and opposing the scheme)
- Development of assessment framework, and undertaking assessments, based on the full evidence gathered and analysed.
- Production of the assessment report.

2. Economic Impact Assessment Framework

2.1 This section sets out the methodology and framework developed for making the assessment of impact on economic vitality. The approach used is consistent across all of the town and local centres. This section sets out:

- How we define and measure impact on economic vitality
- The key factors that could affect this
- The methodology used to assess these factors
- How we define the magnitude of impacts
- Limitations of the analysis.

Defining and Measuring Economic Vitality of the Town Centres

2.2 There are numerous measures that help to capture aspects of town centre vitality, including vacancy rates, footfall counts, range of shops or business perceptions.

2.3 Ultimately however, there are two headline indicators which provide an overview of town centre economic performance, and are a function of all of the indicators above. These are:

- **Rental values of premises** – ultimately all of the factors reflecting quality of place, quality of premises, success of businesses and levels of demand for premises will be reflected in the rental value of premises in each town centre. This is increasingly the economic measure advocated by HM Treasury upon which economic impact can best be assessed and **is a long term indicator that Enfield Council can use to monitor economic vitality in each of their centres**. However, accessing up-to-date data and predicting change in this indicator is very challenging for this type of assessment, and so a second headline indicator is more useful:
- **Total turnover across town centre businesses –** this captures the sum of revenues generated across all town centre businesses, and can be estimated at a local level using a range of datasets which are updated at least annually. Predicting change in this indicator is also more feasible, as it is a direct product of footfall and spend in the centre. As such, **this is the primary indicator used for the purposes of the economic impact assessment.**

Factors Affecting Economic Vitality and the Theory of Change

2.4 The factors affecting economic vitality of the town and local centres have been identified by analysing the detailed plans for each centre, reviewing consultation feedback and analysing case study evidence from other areas (set out in more detail in the individual assessment sections).

2.5 There are clearly many issues arising from the consultations which were considered in developing this framework, but not included. These were mainly:

- **Factors that did not relate to town centre economic vitality**
- **Factors that would not be significantly affected** eg while the assessment analyses change in visitors arriving by cycle, car and bus (all of which might be affected by the scheme) it

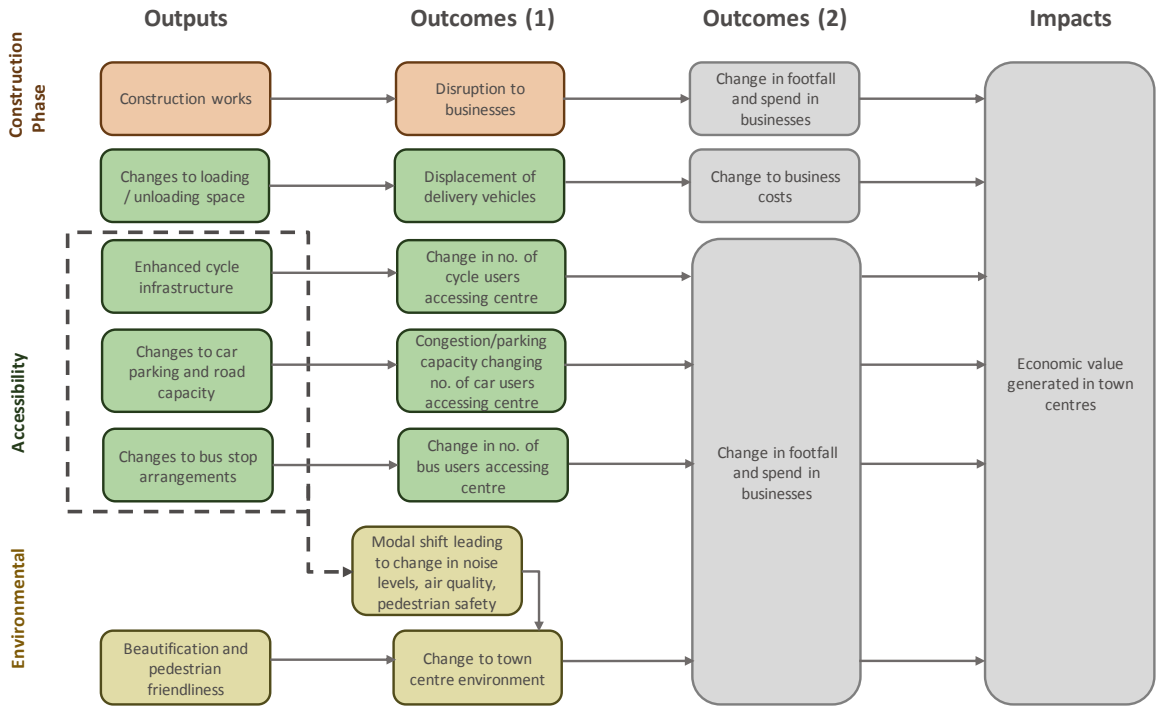
does not directly assess visitors arriving on foot, as there is little evidence that visitors arriving by this mode would be specifically affected by the scheme proposals (note however the effects on town centre environment describe impact across all visitors so would also incorporate visitors arrive on foot).

2.6 In each case, we have identified a clear logical link (a 'theory of change') between the output that would occur as a result of the Cycle Enfield scheme, and the way in which this transmits through to impact on economic vitality.

2.7 The chart below sets out these theories of change, connecting from outputs (the physical changes to the town centres), to outcomes (the effects of these outputs relevant to the economic impact assessment), to impacts (the changes we are ultimately interested in assessing).

2.8 Given the relative complexity, we have broken the outcomes stage into two linking sections.

Figure 2.1 Theories of Change



Source: Regeneris Consulting

Methodology for the Economic Impact Assessment

2.9 The same methodology has been used in making the impact assessment for each town centre, following the steps below:

1. Developing a Baseline of Total Annual Town Centre Business Turnover

2.10 To understand the impacts of the Cycle Enfield scheme on town centre business turnover, it is necessary to develop a baseline of the number of trips and total spending of visitors to the town centre.

2.11 This poses a fundamental challenge, as there is no directly available data to measure the total number of customer trips to the town centre or how much is spent in local businesses. It has therefore been necessary to draw from the information and data that is available to estimate total trips and spending. There are three key sources that it is possible to bring together to produce these estimates.

1) The Cycle Enfield Town Centre Surveys[1]

2) Estates Gazette

3) ONS Annual Business Survey.

The Cycle Enfield Town Centre Surveys.

2.12 The Town Centre Surveys provide us with important information on the proportion of town centre visitors by transport modes used to reach the centre; the frequency of trips of visitors by each transport mode; and the average spending per trip by each transport mode.

2.13 As an example, the results from the town centre survey for Palmers Green are presented below.

Table 2.1 Results from Palmers Green Town Centre Survey

	Car-driver	Car pass.	Bus	Rail	Cycle	Motor-cycle	Walk	Taxi
Percent share of visitors	25.1	1.3	30.4	5.2	1.1	0.3	36.2	0.3
Average trips per year	161	202	166	172	134	52	189	156
Average spend £s per trip	£27.54	£9.63	£19.34	£22.05	£23.00	£5.00	£15.84	£5.00
Average spend £s per year	£4,425	£1,939	£3,204	£3,799	£3,075	£260	£2,992	£780
Percent share of spending	34.4	0.6	29.2	5.8	1.3	0.1	28.6	0.1

The Estates Gazette estimates of employment numbers in local businesses.

2.14 The Estates Gazette database provides a directory of local business units by activity. This includes estimates of the number of employees in those business units.

2.15 The demand for employment in local business is derived from the demand for the goods and services sold by those local businesses ie the number of jobs in food & drink retail is determined by customers' spending on food and drink. This means that the employment numbers provide a means to estimate local spending.

2.16 To correspond with the spending information in the town centre surveys, the approach has identified employment in retail (ie all shops), and in high frequency consumer services such as restaurants, bars, hairdressers, gyms etc. in which people are likely to spend on a daily / weekly / monthly basis, and hence which are more directly affected by levels of footfall in the town centre.

[1] A representative survey of town centre visitors and spend was undertaken in 2015, in development of the Cycle Enfield scheme.

The analysis therefore does not include employment in town centres activities such as estate agents, funeral services, solicitors, dentists etc. in which the frequency of visits is low.

2.17 The results demonstrate almost 450 relevant jobs in the identified Palmers Green area. Over 250 of these are attributed to local supermarkets, some 130 jobs to smaller retail outlets, and almost 70 in restaurants and bars.

The ONS Annual Business Survey statistics on turnover per employee.

2.18 The ONS Annual Business Survey 2014 provides UK-wide estimates of turnover and annual employment for retail sectors, restaurants, bars, and other local town centre services, and this enables calculations of the average turnover generated per job for each sector. This ranges from relatively low turnover per job activities such as hairdressing and bars, to much higher turnover per job in supermarkets, chemists, and retail of electrical equipment.

2.19 Combining the ONS results for turnover per job with the Estates Gazette estimate of employment means it is possible to provide estimates of total turnover generated for each activity.

2.20 Again, taking Palmers Green as an example, the table below presents the estimates of total annual turnover for these retail and service activities, which sums to £64.9 million.

Table 2.2 Palmers Green estimates of jobs, turnover per job, and total revenues

	Local Jobs	Turnover per job	Estimate of Total Annual Town Centre Business Turnover
Retail Sale In Non-Specialised Stores	270	£135,000	£36,411,000
Retail Sale Of Bread, Cakes, Flour Confectionery etc.	11	£35,000	£389,000
Retail Sale Of Alcoholic And Other Beverages	6	£66,000	£394,000
Other Retail Sale Of Food, Beverages etc.	9	£66,000	£591,000
Dispensing Chemists	26	£126,000	£3,284,000
Retail Sale Of Cosmetic And Toilet Articles	4	£104,000	£414,000
Retail Sale Of Clothing	2	£91,000	£182,000
Retail Sale Of Footwear And Leather Goods	16	£80,000	£1,287,000
Retail Sale Of Furniture, Lighting Equipment etc.	15	£109,000	£1,634,000
Retail Sale Of Electrical Household Appliances	11	£146,000	£1,606,000
Retail Sale Of Books, Newspapers And Stationery	38	£70,000	£2,642,000
Other Retail Sale In Specialised Stores	38	£94,000	£3,587,000
Retail Sale Of Second-Hand Goods In Stores	5	£82,000	£410,000
Restaurants	195	£35,000	£6,855,000
Bars	39	£39,000	£1,524,000
Washing And Dry Cleaning	6	£47,000	£284,000
Hairdressing And Other Beauty Treatment	63	£26,000	£1,628,000
Physical Well-Being Activities	34	£52,000	£1,781,000
TOTAL	788		£64,903,000

Source: Estates Gazette jobs, December 2015, ONS Annual Business Survey turnover per employee

Setting the baseline

2.21 It is therefore feasible to combine the estimates of local turnover generated with the results of the Town Centre survey - that is to disaggregate the estimates of town centre business turnover by the information on the distribution of visits and spending by mode of transport.

2.22 A simplifying assumption that has been made here is that all turnover for these businesses is generated from physical visitor spend (eg no internet sales). If anything this assumption will lead

the assessment to overstate negative impacts, as any internet sales would be unaffected by physical changes that might affect footfall.

2.23 The results for Palmers Green are presented below.

Table 2.3 Baseline Estimates for Palmers Green

	Annual Spend by Mode	Annual Trips by Mode
Car driver	£22,340,000	811,000
Car passenger	£400,000	41,000
Local bus	£18,960,000	981,000
Rail	£3,740,000	169,000
Cycle	£830,000	36,000
Motorcycle	£50,000	10,000
Walk	£18,540,000	1,171,000
Taxi	£50,000	10,000
Total	**£64,900,000**	**3,229,000**

Source: Regeneris calculations

2.24 Using these baseline estimates, it is possible to assess the impact of changes in numbers of visitors by different mode of transport on overall town centre business turnover.

2.25 The same methodology has been used for each of the town and local centres covered in the study. The key baseline for each is set out in the baseline section for each town and local centre.

2. Analysis of Baseline Data and Evidence

2.26 This task involved drawing together further baseline evidence on the following, to aid the assessment of impacts:

- town centre area definition and number and breakdown of units
- performance data including vacancy rates and retail churn
- breakdown of visitors by primary reason for visit, arrival times in the town centre, mode of transport used by visitors and distance travelled to the centre
- competitor retail and service centre destinations.

2.27 These findings are set out in the baseline section for each town and local centre.

3. Analysis of Scheme Outputs (ie the design changes)

2.28 A detailed analysis of the design plans was undertaken as well as a site visit and consultation with a representative from the design team.

2.29 The current design plans and a summary of outputs are set out in the analysis for each town and local centre.

4. Assessment of Magnitude of Change in Outcomes

2.30 This task involved an assessment of the magnitude of change in key outcome indicators for each of the factors being assessed. The assessment drew on a wide range of available evidence, summarised for each factor in the table below.

Table 2.4 Evidence Used in Assessment of Outcomes

Factor	Evidence
Construction Phase	• Nature of works and anticipated timescales • Perspectives from Design team on construction approach options • Experience of impacts from similar schemes elsewhere • Consultation responses • Distance to competitor retail and service centre locations providing alternatives for local visitors
Cycle Users	• Design changes and benefits for cycling • Visitor survey evidence on proportion of people considering cycling and key constraints to them doing so at present • Journey length to town centre and potential cycleable journeys • Levels of cycling in other areas to benchmark against
Car Users	• Design changes and impacts on road capacity and parking space • Modelling of stopping times throughout centres under new scheme • Number and availability of car parking space on and off street, daytime and evening, both now and under the proposed schemes, and distribution of these across the town centres – drawing on various sources • Information on where different town centre users park (eg whether people who visit to work / shop / access services are parking on or off street) • Consultation responses
Bus Users	• Design changes and impacts on road capacity and bus stops • Modelling of stopping times throughout centres under new scheme • Consultation feedback • TfL feedback on designs
Loading / Unloading	• Design changes and impacts on number and location of loading bays • Consultation responses
Town Centre Environment	• Design changes and impacts on quality of environment and public realm • Experience of impacts from similar schemes elsewhere • Consultation responses

2.31 Drawing on all of this evidence, an assessment of magnitude of change was made for each factor. Given the significant uncertainties involved in the scheme (see section below on data limitations), we made a base case assessment as well as 'worse case' and 'better case' assessments, in order to provide a realistic range and test impacts.

2.32 For each factor, and under each scenario (base case, better case and worse case), we provided an assessment of scale of impact based on a seven-point scale. The definition of these assessment levels related back to the impact on business revenues, as follows:

Table 2.5 Assessment Framework

Assessment	Impact on Total Town Centre Business Turnover
Major Positive	Over 7% Increase in total town centre business turnover
Medium Positive	3-7% Increase in total town centre business turnover
Minor Positive	1-3% Increase in total town centre business turnover
Neutral / Negligible	+/- 1% of total town centre business turnover
Minor Negative	1-3% Reduction in total town centre business turnover
Medium Negative	3-7% Reduction in total town centre business turnover
Major Negative	Over 7% Reduction in total town centre business turnover

2.33 The rationale for this quantification is as follows:

- On average, the retail sector in London spends 92% of turnover on employment and supply chain costs, leaving a maximum of 8% possible profit (Annual Business Survey, 2013). If town centre businesses on average lost 8% or more of annual turnover as a result of the scheme, many would see reduced profit margins (assuming some costs are fixed) and there is a risk that some may find their business to be no longer viable[2]. An expected decrease in annual turnover of over 7% is therefore set as a major negative impact.
- Medium and minor negative impacts are set at appropriate intervals beneath this (respectively 3-7% and 1-3%).
- Major, medium and minor positive impacts are based on equivalent increases in turnover (respectively an increase in turnover of over 7%, 3-7% and 1-3%).

5. Assessment of Impact on Total Annual Town Centre Business Turnover

2.34 This final stage involved drawing together all of the impacts from above to identify the net effect on total annual town centre business turnover.

2.35 To do this, we created a model, using the estimates of total annual town centre business turnover (explained at point 1 above) as the foundation, and adjusted assumptions on the number of visits by each transport user derived from the analysis of outcomes (point 4 above).

2.36 The assessments of the impacts of change are quantified and shown as a summary at the end of the assessment chapter for each town and local centre.

Displacement

2.37 For the assessment of the spend generated by additional cycle users, it is assumed that the large majority of any change would simply be town centre spend that is displaced from other transport users (ie the majority of any new people cycling to the centre are assumed to be people who were previously visiting the town centre by car, bus, on foot, or by other means). It is assumed that:

- the change in transport mode used would not affect total annual spend in the town centre by those visitors
- as a conservative estimate, only 10% of additional cycle-user spend in the town centre constitutes new spend in the centre (for example people for whom enhanced cycle connectivity encourages them to visit and spend more in the centre).

Policy On/Off Analysis and Timing of the Assessment

2.38 The assessment is based on how the present day baseline would be affected by changes set out in the Cycle Enfield scheme. It assesses "policy on" (ie Cycle Enfield scheme being in operation), versus "policy off" (the present day baseline). It does not set out impacts at different time periods (other than separating construction and operational stages). As a result the study may underestimate the potential for longer term positive impacts, if there is a significant uplift in the attractiveness of the town centre.

[2] Note: these figures represent the average across retail businesses in London. In practice, some businesses will be operating with a tighter profit margin and be more vulnerable to changes, while some will have higher profit margins and be less vulnerable.

Limitations of the Analysis

2.39 It is important to highlight at this stage the limitations of this analysis undertaken in this study, and the uncertainties inherent in the assessments. The table below sets out some of these limitations, and which parts of our assessment they primarily impacted upon.

Table 2.6 Limiting Factors in the Assessment

Factor	Description	Which Assessments Most Affected?
Data limitations	Constraints include: • Lack of detailed footfall counts to help estimate total annual visitors to each centre • Analysis of journeys to the town centre and modelling of how the targeted modal shift from cars to cycles set by Cycle Enfield will be achieved • Detailed design plans for each centre (these will be undertaken at the next stage of the work)	All Assessments Changes to Car and Cycle Visits Primarily Changes for Car Users
Design plans not yet being fully developed	The scheme plans are not yet at detailed design stage and so some areas of our assessment have had to rely on best estimates or modelled scenarios.	Construction works
Lack of UK Precedents	There are no clear comparators for the scale of the mini Holland schemes in outer London boroughs, meaning no direct comparators against which assessments can be made regarding the likely impact on modal shift (particularly from cars to cycles). While schemes exist in other parts of the world, factors such as climate and cultural differences mean that their outcomes are not directly comparable with Cycle Enfield.	Car and cycle users, and town centre environment
Phasing of Study	The assessments for each road corridor (A105, A110 and A1010) are being undertaken separately, meaning that the assessment has not been able to analyse cumulative effects across all town centres.	Construction works

How we Have Responded to the Limitations

2.40 We have responded to the limitations outlined above by incorporating two main approaches in the study:

- Firstly, we have set out **three scenarios for each assessment**: a base case which sets out the most likely impact, as well as better and worse case scenarios, which provide a realistic range of possible impacts and help test findings.
- Secondly, we have employed **conservative assumptions** at each stage, to ensure we are not overstating positive impacts or understating negative impacts.

3. Consultation Feedback on the A1010 North Scheme

3.1 The scheme design plans for the A1010 North were made available for public consultation over 12 weeks from 1st July to 23rd September 2016. Participants were invited to state whether they supported the overall proposals, as well as give more detailed feedback. This consultation is still on-going at the time of writing and therefore we are unable to comment on the results at present.

3.2 A number of consultations with key local stakeholders was carried out as part of this study. The key views on the scheme, both positive and negative are shown in the table below.

3.3 A full list of consultees we spoke to directly is set out in Appendix A.

Table 3.1 Stakeholder Consultation Feedback for the A1010 North Scheme

Assessment Factor	Positive / Negative	Feedback
Construction Phase	+	• Construction phase may present training & employment opportunities for local people. • Cycle route will enable more people to access opportunities by offering cheaper travel to work options.
	-	• Business concerns regarding the impact of the construction phase on businesses who already have tight profit margins. An eight-month construction phase across the whole length of the A1010 North could have a significant impact on businesses reliant on passing trade.
Car Parking	-	• Businesses in Enfield Wash have concerns about the removal of single yellow line parking during the evening (especially takeaways). • Businesses in Enfield Highway are less concerned about car parking given the limited changes in the town centre during the daytime, however the removal of single yellow lines may have a small impact on the evening economy.
Congestion	-	• There are concerns about congestion given the changes to the road layout
Bus Stops		• No specific concerns were raised regarding the bus stops given that these are located in the same position in both town centres
Loading and Unloading	-	• The majority of businesses on in both town centres have rear delivery access to the shops, and so the cycle lanes will not have an impact. • A small number of businesses can only receive goods through the front door and where single yellow lines are being removed, this will make early morning deliveries more difficult.
Public realm changes	+	• Businesses were positive about potential public realm improvements, however they feel the effect on their business will be limited. There have already been efforts to improve the public realm outside Albany Leisure Centre but this has had a relatively small impact.

How Consultation Feedback Has Fed into the Report

3.4 The findings from the consultation set out above has helped to shape:

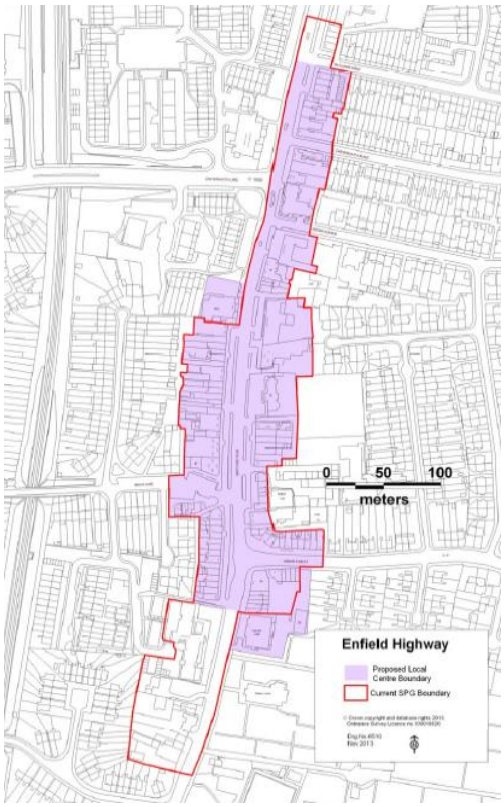
- The overall framework for the types of outputs and outcomes we should be exploring through the study (leading to the production of the theories of change chart at Figure 2.1).
- Concerns raised through consultation are addressed in the relevant assessment sections.

3.5 Aspects of the individual assessments, for example understanding the perceptions of consultee respondents gives an insight into how the scheme would influence people's use of the town centre in the future.

4. Enfield Highway Assessment

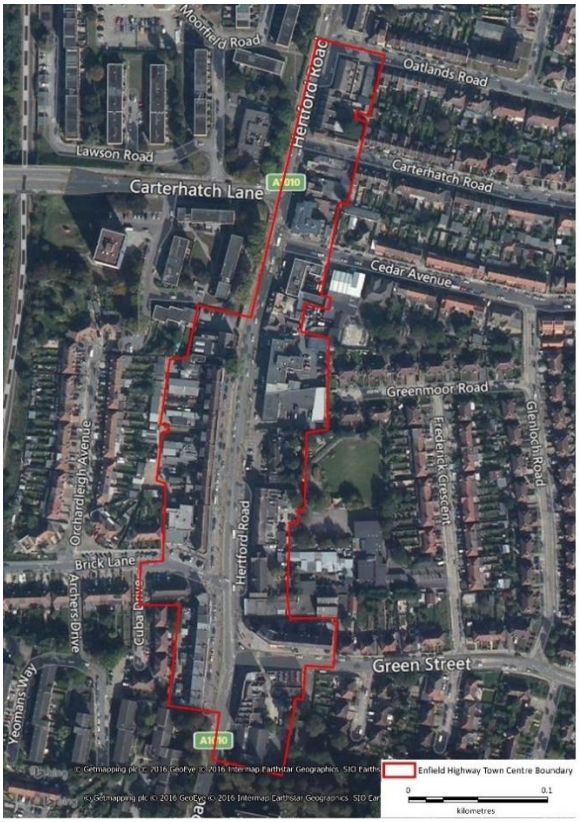
4.1 Enfield Highway is designated as a Large Local Centre in the London Plan and Enfield's Core Strategy. It is situated in the North-East of the borough on the A1010. The following maps show the outline of the town centre boundary, and therefore the area this assessment will focus on.

Figure 4.1 Town Centre Boundary



Source: Enfield Local Plan: Town Centres Uses and Boundaries Review (2013)

Figure 4.2 Context Map



Source: Regeneris Consulting & Enfield Local Plan: Town Centres Uses and Boundaries Review (2013)

4.2 The table below sets out an overview of the current retail and services provided within the town centre, many of which are within Enfield Highway, as well as equivalent data from 2005.

Table 4.1 Breakdown of Units in Enfield Highway

Type of Unit	Number of Units 2014	Number of Units 2005
Comparison Retail	15	24
Convenience Retail	16	16
A1 Services (inc hairdressers, travel agents and other class A1 users not selling convenience / comparison goods)	16	7
A2 Services	15	14
A3/A5	15	13
A4 Pubs and Bars	2	2
Vacant	3	6
Total Units	82	82
Total Active Units (ie excluding vacancies)	79	76

Source: NLP, Enfield Retail and Town Centres Study, 2014

Town Centre Performance

4.3 Town centre data reflects that **Enfield Highway is performing well**:

- **Vacancy rate is very low in the town centre**. Latest data from the Estates Gazette shows that in August 2016 there were three vacant units in Enfield Highway, representing a vacancy rate of 2.5%. This compares well with the London town centre average of 7.8% and the national rate of 11.8% (Local Data Company, Vacancy Rate Report for Q2 2014).
- **There has been an increase in the number of active units in Enfield Highway between 2005 and 2014 (+3 units)**, although there has been no change in the total number of units.

4.4 The shops and services offered in Enfield Highway changes regularly. Enfield Highway has a churn rate of approximately 8.5% of businesses ie less than one in ten units change user each year.[3] The average business has been located in Enfield Highway for 11.7 years.

Total Town Centre Business Turnover

4.5 As described in the methodology section in Chapter 2, we have undertaken analysis to estimate the total business turnover generated by town centre businesses and the value of this turnover that is generated by visitors reaching the centre by different transport modes.

4.6 It must be noted that the figures set out here represent a best estimate, and are intended purely to be a sensible estimate of current town centre turnover in order to aid the quantification of impacts. As discussed in the data limitations section of Chapter 2, more accurate data on town centre business turnover is not available. These figures should therefore be regarded as indicative estimates.

4.7 Table 4.2 shows the overall proportion of visitors and spend by mode of transport used to reach the centre.

Table 4.2 Results from Enfield Highway Centre Survey

	Car-driver	Car pass.	Bus	Rail	Cycle	Motor-cycle	Walk	Taxi
% share of visitors	17%	2%	43%	0.6%	1%	0%	36%	0.3%
% share of spending	12%	1%	51%	0.2%	0.3%	0%	35%	1%

Source: Cycle Enfield Survey, Regeneris Calculations

4.8 Using the methodology set out in Chapter 2, Table 4.3 sets out an estimate of total town centre jobs supported and total business turnover in Enfield Highway.

Table 4.3 Enfield Highway estimates of jobs, turnover per job, and total revenues

	Local Jobs	Estimate of Total Business Turnover
Enfield Highway Businesses	170	£11,817,000

Source: Estates Gazette, December 2015; Annual Business Survey, 2014.

4.9 Drawing together the data from the two tables above (as set out in the methodology at Chapter 2), the table below sets out an estimated breakdown of total annual spend and annual visits made by mode of transport used to reach the centre.

[3] Based on Estates Gazette data (December 2015) on length of tenancy of businesses in current units.

Table 4.4 Annual Business Turnover and Visits by Mode of Transport in Enfield Highway

	Value of Total Annual Business Turnover Spend by Mode	Annual Visits by Mode
Car driver	£1,430,800	128,800
Car passenger	£62,000	11,500
Local bus	£6,014,500	315,100
Rail	£23,000	4,600
Cycle	£36,800	9,200
Motorcycle	-	-
Walk	£4,111,700	269,000
Taxi	£138,000	-
Total	**£11,817,000**	**738,400**

4.10 For Enfield Highway, the baseline provides estimates that of the £11.8 million of total annual turnover across all retail and high frequency consumer service businesses in Enfield Highway:

- £1.5 million is derived from 140,000 trips from car users (drivers and some passengers).
- £6.0 million is derived from 315,000 trips by bus passengers.
- £4.1 million is derived from 269,000 pedestrians.
- At present, an estimated 9,000 cyclist trips account for around £37,000.

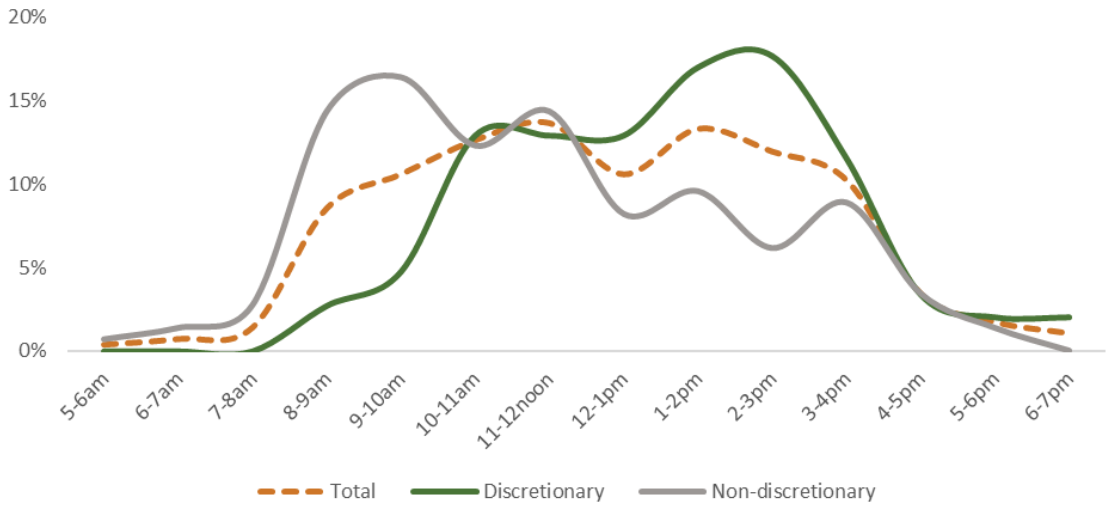
Other Baseline Data to Aid Assessments

4.11 The evidence below provides further useful evidence that is drawn on in the analysis in subsequent sections.

4.12 An analysis of Enfield Highway town centre survey data, shows that 51% of trips to town centres were non-discretionary trips (ie where the visitor could not easily visit an alternative location). This includes categories such as visiting friends and family, travelling to and from home, education and some personal trips such as to medical services. This varies by transport user, with 55% of bus users being non-discretionary and 58% of car users being non-discretionary.

4.13 The Cycle Enfield Town Centre survey for Enfield Highway also shows the arrival times of visitors to the town centre. While this data is limited by the timing of the survey being undertaken, the visitor survey fieldwork was carried out across all daytime hours, and so gives a useful indicative view of peak arrival times in the centre. It shows that discretionary visitors are much more spread out across the day, with a peak between 1pm and 4pm whereas non-discretionary visitors largely visit at the start of the day (between 8am and 10am).

Figure 4.3 Time arrived in Enfield Highway

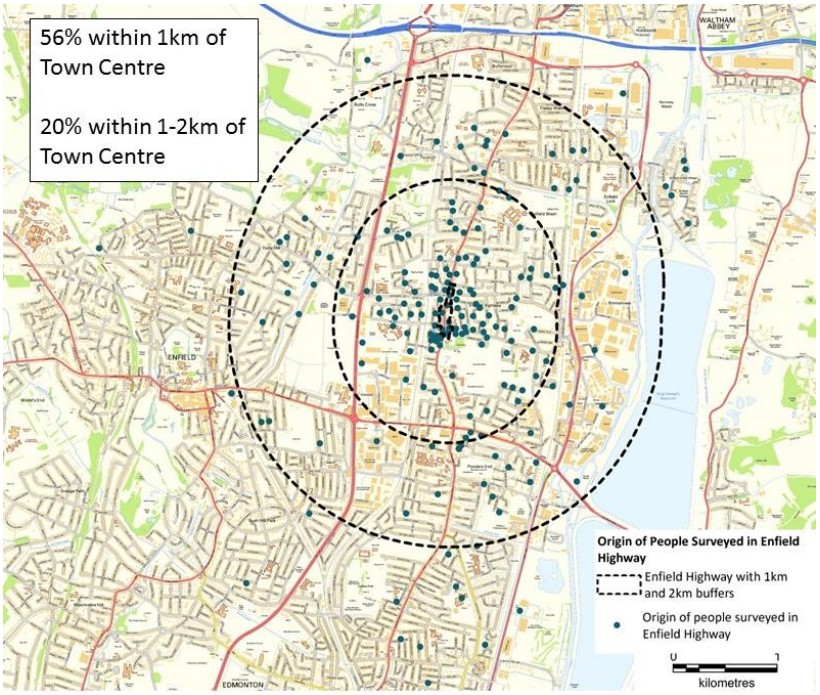


Source: Cycle Enfield Survey

Distance Travelled to Visit Town Centre

4.14 The map below shows the distance travelled to the town centre by all respondents to the Cycle Enfield Survey in Enfield Highway.

Figure 4.4 Home location of visitors surveyed in Enfield Highway



Source: Cycle Enfield Survey

Town Centre Car Parking

4.15 Data collected by Jacobs shows the occupancy of car parking spaces along the A1010 in Enfield Highway. Between Tyberry Road and Palmers Lane (slightly beyond the town centre boundary) there are 47 pay and display spaces, 38 unrestricted spaces, 16 limited waiting spaces, four loading bays and four footway parking spaces. Of the total 109 between these two areas, there is an average occupancy rate of 82%.

Alternative Retail and Service Destinations

4.16 The table below sets out an overview of key retail and service destinations which visitors to Enfield Highway might consider as alternatives.

Table 4.5 Nearest Alternative Locations to Enfield Highway

Type	Name	Distance (miles)
Town centres	Ponders End	0.7
	Enfield Wash	1.0
	Enfield Town	1.7
	Waltham Cross	2.1
	Edmonton Green	2.1
Out-of-Town Shopping Centres	Ravenside Retail Park	3.5

Source: Regeneris Consulting.

N.B. Distances are the shortest walking routes from the Hertford Road / Brick Lane Junction

Outputs – Physical Changes of Cycle Enfield Scheme

4.17 The key outputs of the Cycle Enfield scheme in Enfield Highway are shown in the table below.

Table 4.6 Cycle Scheme Deliverables at Enfield Highway

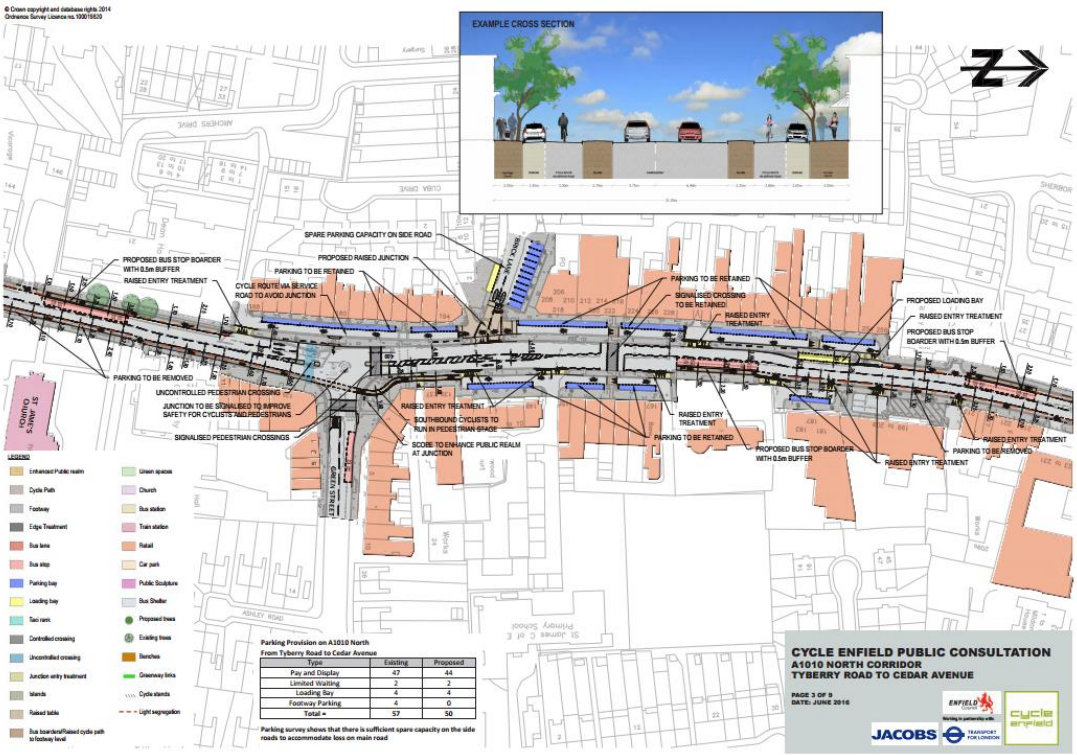
	Key Output	Detail
Construction Phase	Construction works to deliver the elements of the scheme outlined below and overleaf	• Detailed plans for the construction phase yet to be developed; however, there is a headline expectation that in Enfield Highway it will be delivered across a three-month period, which will be divided in eight phases to minimise disruption to local residents, retailers and road users.
Accessibility	Enhanced Cycle Infrastructure	• Lightly segregated cycle lanes • Junctions modified to improve safety for cyclists and pedestrians
	Changes to car parking and road capacity	• Loss of three pay and display spaces and four footway parking spaces in Enfield Highway town centre • Changes to Carterhatch Road junction (exit only) • Signalised junction replaces roundabout at A1010/Green Street junction
	Changes to bus stop locations	• Bus stops remaining in same locations, with cycle lane running between footway and stationary bus at two bus stops at police station
	Changes to loading / unloading space	• All loading bays to be retained.

	Key Output	Detail
Environ-mental	Beautification and Pedestrian Friendliness	• Junction entry treatment to slow cars • Signalisation of the pedestrian crossing at A1010 / Green Street junction. • Public realm improvements at A1010 / Green Street junction as space is freed up by signalisation.

Source: Regeneris Consulting based on Cycle Enfield Consultation Plans

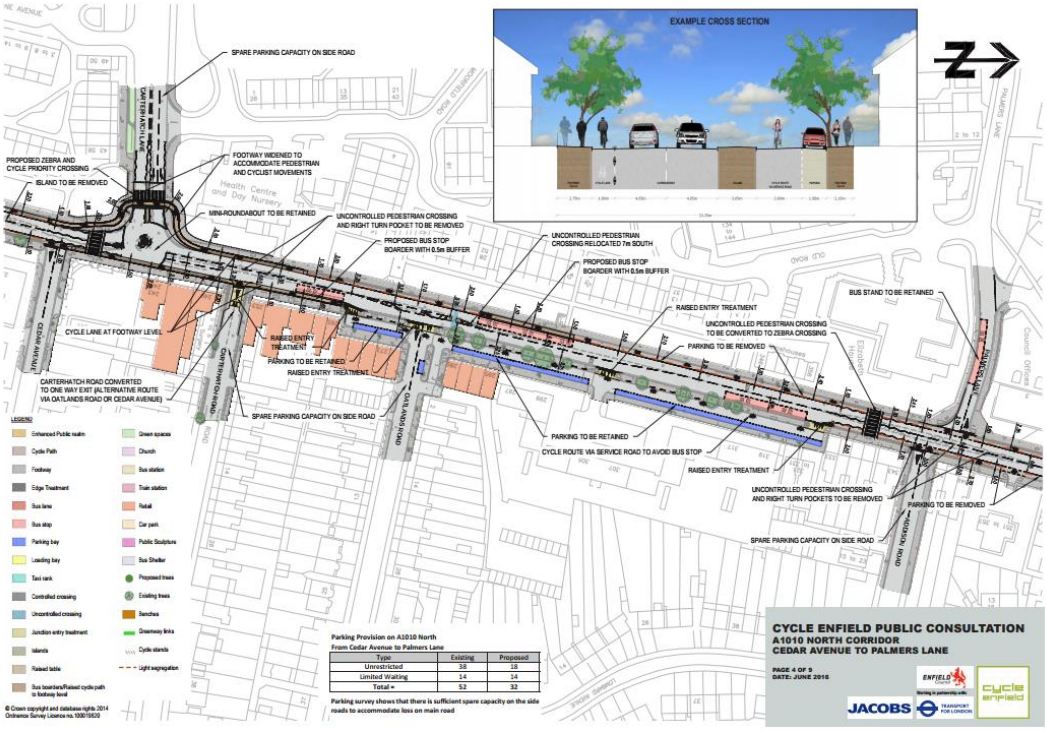
4.18 The diagrams show the original Cycle Enfield proposals for Enfield Highway town centre used for consultation. Note: some factors shown in the table above have been updated since these original scheme plans.

Figure 4.5 Proposed Plans for Enfield Highway (Southern End & Central)



Source: Cycle Enfield Consultation Plans

Figure 4.6 Proposed Plans for Enfield Highway (Northern End)



Source: Cycle Enfield Consultation Plans

Construction Phase Impacts

Overview

4.19 At this stage detailed plans for construction in Enfield Highway town centre are yet to be developed, and as such, the approach to construction phasing and specific approach both around and within the town centre is not known. The design team estimate the total construction period for Enfield Highway is likely to be around three months.

4.20 Drawing on transport engineers within our team, we have modelled possible construction approaches in Enfield Highway, summarised in the table below.

Table 4.7 Summary of Construction Options for Enfield Highway

Approach	Details	Possible Congestion Impact	Possible Parking Impact
Approach 1- one-way road access but access to businesses maintained	Modelled at a high level, this could include implementation of traffic management measures in short segments (of between 200 and 400m). Temporary traffic lights would need to be introduced, meaning one-way working through the area of construction.	In overall traffic terms, there would be 13 weeks of disruption to north-south movement along the A1010 in Enfield Highway, with delays to visitors to the centre, as well as through movements, caused by the signals. This could cause increased congestion in either direction. Note however, the works would be split into phases, so disruption in the town centre itself would not last over the full three-month period.	There could be a minor loss of on-street car parking for periods of time as works take place on those stretches.

Approach 2 - maintain two way access along the A1010	It might be possible to run two-way traffic flows and maintain retail access, however it is not yet known whether the available space would allow for this.	Under this approach, roadworks would remain but with 2 lane access retained. Speeds through the roadworks would be reduced, but would not affect journey times significantly.	Under this approach, the duration of individual stages of works, may be longer, thus parking spaces lost would continue over a longer time period.

Nature of Effect

4.21 The main impacts of construction will be:

- temporary increases in congestion
- temporary reductions in parking spaces
- temporary effects on visual amenity (although not significantly obscuring business premises) and some noise and dust blight, in proportion with those typically associated with highways maintenance and improvement work.

4.22 These effects can impact on visitor numbers and spend in the town centre, however there is currently no research which provides robust quantifications of the link between these factors and adverse town centre vitality.

4.23 Case study evidence from the London wide OLF programme[4] highlights that extended periods of construction activity can have disruptive effects in town centres where major public realm and highway works resulted in businesses reporting losses of footfall and turnover, however this was mainly the case where construction works were concentrated in one area for a period of over 6 months, or where pedestrian flows were interrupted. Neither of these would be the case in the approaches set out above (with disruption in the town centre itself expected to only last for part of the overall three-month construction period.

Impacts on Users

4.24 The analysis below focuses on the impact on three main user groups – people visiting on foot, by car and by bus, which make up 98% of total spend in Enfield Highway[5] and are likely to be most affected.

Pedestrians

4.25 Under both approaches the works are focused on the carriageway, maintaining pedestrian access to all businesses. Given people visiting on foot are typically visiting their closest centre, and there is no impact on their journey times or access to destinations, there is assumed to be negligible impact on these users and no change to the number of people visiting the centre on foot.

Car Users

4.26 Both congestion and reduced car parking could affect car users:

- The Cycle Enfield Visitor Survey for Enfield Highway shows that around 58% of car drivers are spending money in the town centre as part of non-discretionary trips (trips for which

[4] Outer London Fund Round 2 Evaluation, GLA, 2015, accessed at https://www.london.gov.uk/what-we-do/regeneration/funding-opportunities/completed-funds

[5] Based on Regeneris calculations from Estates Gazette data.

they could not easily switch to an alternative location eg going to work, visiting the doctor etc).

- The remainder of trips are discretionary and any additional delays and loss of parking may result in a proportion of trips being displaced elsewhere for the duration of construction (there are a number of other centres of comparable or larger size within a small radius – eg Ponders End, Enfield Wash and Enfield Town, all of which are within 2 miles).
- However the majority of discretionary trips take place between 10am and 3pm, outside the peak periods when congestion is likely to be greatest.
- As it has not been possible to model the impact of construction works, we have included a broad range of possible impacts within our three scenarios.
  - Our base case is based on the temporary loss of 25% of the discretionary car trips (effectively 10.5% of all car trips) for the duration of the works
  - This alters to 50% of discretionary car trips (effectively 21.0% of all car trips) under a worse case scenario, and 12.5% of discretionary car trips (effectively 5.3% of all car trips) under a better case scenario, for the duration of the works.

Bus Users

4.27 Congestion impacts and temporary changes to bus stop locations could affect bus users:

- The Cycle Enfield Visitor Survey for Enfield Highway shows that around 55% of bus users are spending money in the town centre as part of non-discretionary trips. The remainder of trips are discretionary and additional delays may result in a proportion of trips being displaced elsewhere for the duration of the construction works. Bus users typically have fewer alternative choices than car users however, due to the limitations of available bus routes they can use.
- As with car users, the impacts are also likely to be reduced due to the fact that the majority of discretionary trips take place between 10am and 3pm, outside the peak periods when congestion is likely to be greatest.
- We have again included a broad range of possible impacts within our three scenarios.
  - Our base case is based on the temporary loss of 5% of the discretionary bus trips (effectively 2.3% of all bus trips) for the duration of the works
  - This alters to 15% of discretionary bus trips (effectively 6.8% of all bus trips) under a worse case scenario, and no change under a better case scenario, for the duration of the works.

Net impact on town centre performance

4.28 The overall outcome of these effects on town centre annual business turnover is summarised in the table below. The base case is what we assess to be the most likely outcome. The better and worse case scenarios set out a realistic upper and lower benchmarks, to provide a range of impacts.

4.29 The table shows a summary of the net additional impacts broken down by transport users. For the base, better and worse case scenarios, it shows:

- % change in visits by that transport user group
- % impact on total annual town centre turnover

4.30 Various mitigation measures could be made to reduce the negative impacts set out in the base case. These are summarised in Chapter 6 of the report.

Table 4.8 Summary of Construction Phase Impacts in Enfield Highway

Transport Mode	Town Centre Annual Spend	Base Case		Better Case		Worse Case	
		% change in no. of trips	Impact on annual TC turnover	% change in no. of trips	Impact on annual TC turnover	% change in no. of trips	Impact on annual TC turnover
Walking	£4.11m						
Cycling	£0.04m						
Car	£1.49m	-10.5%	-0.3%	-5.3%	-0.2%	-21.0%	-0.7%
Bus	£6.01m	-2.3%	-0.3%	0.0%	0.0%	-6.8%	-0.9%
Other	£0.16m						
Total	**£11.82m**		**-0.6%**		**-0.2%**		**-1.5%**

4.31 Under the base case, the construction phase has a **neutral / negligible impact** on town centre economic vitality within that single year, with a potential loss of town centre spending of approximately 0.6%.

4.32 The better and worse case scenarios suggest that the range of possible impacts is expected to be a reduction in town centre spending of between 0.2% and 1.5% (respectively a neutral / negligible impact and a minor negative impact).

Cycle User Impacts

Overview and Nature of Effect

4.33 Increasing the number of cyclists using the A1010 (North) Corridor is at the heart of the Cycle Enfield scheme plans for Enfield Highway.

4.34 The changes to cycling infrastructure on the roads include uninterrupted segregated cycle lanes on both sides of the road all of the way along the A1010 stretch through Enfield Highway. In addition, new cycle parking facilities will be introduced and Enfield Council has introduced a range of measures to support an increase in cycling in the borough.

4.35 The enhanced cycle route connectivity is expected to lead to an increase in cycle users visiting the town centre, both as a result of existing visitors changing their travel mode to bicycle and making more visits to the town centre, and attracting more people to visit the town centre as a result of the enhanced connectivity.

Impact on Users

4.36 The available evidence points to a significant opportunity to increase cycling across Enfield borough, and within Enfield Highway:

- Across the borough, 0.7% of journeys are currently made by cycle. This is lower than most other outer London boroughs, suggesting potential to increase cycling within Enfield borough (TfL LTDS 2009-10 to 2011-12).
- Similarly, Census 2011 data shows that 1.4% of working Enfield residents state that they usually travel to work by cycle, compared with 2.1% across all outer London boroughs, and

2.8% across England and Wales, again reflecting potential to increase cycling in Enfield borough.

- Data from the Cycle Enfield Survey found that 1.2% of shoppers used a bike to access Enfield Highway.
- The extent to which the scheme leads to increased cycling visits, depends on the extent to which the Cycle Enfield scheme addresses the barriers to more people cycling.
- The visitor survey for Enfield Highway highlights the main constraints to people cycling more to the town centre. Of those who indicated they already sometimes cycle, or might consider cycling in the future, the main barriers to them doing so are currently: not having a bike (33%), lack of safe routes (18%), being unable to cycle (17%), and too much car traffic (15%).
- These factors are similar to those highlighted in the 2010 report 'Delivering the Benefits of Cycling in Outer London' produced by TfL, London Councils London Cycling Campaign, GLA, Sustrans and the Borough Cycling Officers Group. It highlights the key barriers as being both physical (traffic speed, severance of cycle lanes and lack of cycle parking facilities) as well as attitudinal (fear of traffic, convenience of the car, and perception of cycling as incompatible with busy lifestyles).

4.37 The Cycle Enfield scheme will substantially address many of these constraints, directly improving a feeling of safety through providing fully segregated cycle lanes as well as improved cycle parking facilities, which will directly address the physical barriers to increased cycling.

4.38 It is more difficult to assess the extent to which attitudinal barriers will shift and there is a lack of clear evidence to guide us on this.

4.39 The quantification below is relatively conservative, but based on an analysis of rates of cycling in other outer London boroughs (LTDS, 2009-10 to 2011-12), which demonstrate a realistic rate for an outer London borough, particularly recognising that the key constraints to cycling cited above will be addressed well by the Cycle Enfield scheme:

- Our base case is based on the proportion of cycling trips to the town centre increasing to 2.5%, bringing in closer in line with the average rate of cycling across all outer London boroughs (equivalent to a 108% increase in visitors from the current rate of 1.2% in Enfield Highway[6])
- This assumption alters to an increase to 4% (233% increase from baseline of 1.2%) in the better case scenario (in line with the strongest performing outer London boroughs - Kingston on Thames at 4% and Waltham Forest at 3.8%), and no change under the worse case scenario.

Net impact on town centre performance

4.40 The overall outcome of these effects on town centre annual business turnover is summarised in the table below. The base case is what we assess to be the most likely outcome. The better and worse case scenarios set out a realistic upper and lower benchmarks, to provide a range of impacts.

4.41 In assessing the net impact of an increase in cycle visitors, it is necessary to take account of displacement. To ensure the assessment sets out a conservative estimate of change, we have assumed that only 10% of additional cycle journeys constitute net additional visits to the centre (and therefore new spending). We assume that the remaining 90% of additional journeys and

[6] Cycle Enfield Survey

related spend would have occurred regardless by people travelling in by different means. As such the table below only captures the net additional impact on town centre annual business turnover of these additional cycle users.

4.42 The table shows a summary of the net additional impacts broken down by transport users. For the base, better and worse case scenarios, it shows:

- % change in visits by cycle users
- % net additional impact on total annual town centre turnover

4.43 Various measures could be made to enhance the positive impacts set out in the base case. These are summarised in final chapter of the report.

Table 4.9 Summary of Impact of Change in Cycle Users in Enfield Highway

Transport Mode	Town Centre Annual Spend	Base Case		Better Case		Worse Case	
		% change in no. of trips	Impact on annual TC turnover	% change in no. of trips	Impact on annual TC turnover	% change in no. of trips	Impact on annual TC turnover
Walking	£4.11m	0%		0%		0%	
Cycling	£0.04m	108%	0.03%	233%	0.07%	0%	0.0%
Car	£1.49m	0%		0%		0%	
Bus	£6.01m	0%		0%		0%	
Other	£0.16m	0%		0%		0%	
Total	**£11.82m**	-	0.03%	-	0.07%	-	0.0%

4.44 Under the base case the impact of increased cycle users would have a neutral / negligible impact on town centre economic vitality, with a potential increase in town centre spending of around 0.03 %.

4.45 The better and worse case scenarios suggest that the range of possible impacts is expected to be an increase in town centre spending of between 0% and 0.07% (a neutral / negligible impact in both cases).

Car User Impacts

Overview

4.46 Changes to the capacity and layout of roads and changes to signalised junctions creating extra congestion, and reduction of on-street car parking spaces could affect the number of visits made to the town centre by car.

4.47 On-street parking would be affected by reduction of on-street parking spaces to make way for cycle lanes, as well as reduction in areas with single yellow line markings, which allow evening parking where there are no dropped kerbs. These changes have created particular concerns for convenience stores who believe a large number of their customers prefer to park immediately outside their store and shop quickly, as well as evening economy units (eg bars and restaurants) for whom on-street parking loss will include the loss of on-street parking bays as well as the loss of single yellow line areas.

4.48 Figure 4.7 below provides a simplified overview of changes to parking, and their proximity to town centre units, and particularly convenience stores and evening economy units.

Nature of Effect

4.49 In relation to the existing highway network through the centre of Enfield Highway, there are currently two key junctions within the confines of town centre area. Both are currently roundabouts and so are unsignalised:

- A1010 Hertford Road with Green Street
- A1010 Hertford Road with Carterhatch Road

4.50 These two junctions represent the only major constraints to free-flow movement of north – south traffic within the core town centre, with the exception of pedestrian crossing facilities. Both junctions currently operate as three-arm roundabouts.

4.51 Whilst the Green Street junction is unsignalised, there is a pedestrian crossing facility located within 10 metres of the junction on the A1010 to the north. There is similarly a zebra crossing in close proximity on the Green Street arm of the junction.

4.52 At the Green Street junction the A1010 northbound approach has two lanes (one straight on, one right turn) whilst the other two arms of the junction have a single lane approach. Similarly, at the Carterhatch Road junction the A1010 southbound approach has two lanes (one straight on, one right turn), with the other two arm single lane; however, observations indicate that some vehicles create two lanes of traffic on the Carterhatch Road junction in order to permit left and right turn movements simultaneously.

4.53 There are a number of other minor side roads that join the A1010 in the study area but these are not signalised, although some have dedicated right-turn filters from the A1010 into the side roads.

4.54 As part of their preliminary design work, Jacobs have constructed local highway models of both of the key roundabouts to simulate their current operation during the AM and PM peak periods. The models will have utilised surveys of traffic flows and existing delays / queue lengths on each arm of each junction.

4.55 As an overall summary of the Green Street junction baseline model, it estimates that traffic travelling through the junction through Enfield Highway is currently delayed by an average of around 40 seconds in the AM peak period and just 10 seconds in the PM peak period.

4.56 The Carterhatch junction baseline model indicates that delays at this junction are currently quite high. It estimates that traffic travelling through the junction through Enfield Highway is currently delayed by an average of around 2 minutes, 20 seconds in the AM peak period and 5 minutes 50 seconds in the PM peak period.

4.57 Some data is available from Jacobs Town Centre Survey relating to the distances travelled by car drivers when accessing the nearby Palmers Green town centre. This indicates that around 50% of car trips are under 2kms with the other 50% over 2kms. Whilst this data does not permit an accurate assessment of trip lengths, it suggests, on average, that trips are relatively short in nature. For the purposes of the analysis below we have assumed an average journey time by car of around 4 minutes, i.e. 8 minutes for a 1.6km return journey.

Congestion Impacts of A1010 Hertford Road / Green Street Junction

4.58 A change in the operation of A1010 Hertford Road / Green Street junction is proposed as part of the Cycle Enfield scheme. The junction will be signalised to improve safety for cyclists and pedestrians. Two lanes will maintained on the northbound approach on the A1010 and a single lane on the other two arms of the junction. The current zebra crossing on Green Street will become a signalised crossing as part of the junction operation. The existing signalised pedestrian crossing on the A1010 will be moved closer to the junction.

4.59 As part of their preliminary design work, Jacobs have sought to model the impact of the changes in the operation of the A1010 Hertford Road / Green Street junction during the AM and PM peak periods using a local highway junction model. A series of scenarios have been tested, some of which allow for lower traffic flows through the junction as a result of potential mode shift from car to cycle as a result of the Cycle Enfield scheme. For the purposes of this analysis, the worst case scenario has been applied with no reduction in traffic flow.

4.60 The results from the Jacobs modelling work indicate that traffic delay on the A1010 (north and southbound) will remain largely unchanged in the AM Peak, but will deteriorate in the PM peak, increasing by between 20 and 25 seconds per vehicle.

4.61 Delays on the Green Street arm of the junction could be more significantly affected, with delays forecast to increase by 1 minute 30 seconds in the AM Peak and by around 1 minute in the PM peak.

4.62 Overall, vehicles passing through the junction in the AM Peak to either access or egress from Enfield Highway are forecast, on average, to incur an additional 9 seconds delay. This figure rises to 29 seconds additional delay in the PM Peak.

4.63 To put these delay figures into context we have applied them to our assumed average two-way car journey (1.6 km round trip) into the town centre of eight minutes. A return journey passing through the junction twice would incur 18 seconds additional delay, on average, representing around a 4% increase in journey times in the AM peak. In the PM Peak the additional delay of 58 seconds would represent a 12% increase in journey time.

Congestion Impacts of A1010 Hertford Road / Carterhatch Lane Junction

4.64 A minor change in the operation of A1010 Hertford Road / Carterhatch Lane junction is proposed as part of the Cycle Enfield scheme. The mini-roundabout will be retained but the right turn lane on the southbound approach to the junction will be extended to provide greater holding capacity for vehicles.

4.65 Jacobs have, again, sought to model the impact of the changes in the operation of the A1010 Hertford Road / Carterhatch Lane junction during the AM and PM peak periods using a local highway junction model.

4.66 The worst case results from the Jacobs modelling work indicate limited impact upon traffic delay in the AM Peak. There is some improvement to southbound movements through the junction and a very minor increase in delay in a northbound direction. Overall delays through the junction in the AM Peak for vehicles accessing or egressing from Enfield Highway reduces by an average of 4 seconds per vehicle.

4.67 In the PM peak additional delays of 43 seconds per vehicle are incurred for northbound movements, but this is off-set in part by reductions in delays on the other two arms. Overall delays through the junction in the PM Peak for vehicles accessing or egressing from Enfield Highway increased by an average of 18 seconds per vehicle.

4.68 Again, to put these delay figures into context we have applied them to our assumed average two-way car journey (1.6 km round trip) into the town centre of eight minutes. A return journey passing through the junction twice would save 8 seconds delay, on average, representing around a 2% reduction journey times in the AM peak. In the PM Peak the additional delay of 36 seconds would represent an 8% increase in journey time. It is worth noting that with the high delays already reported in the baseline models, specifically the PM Peak, these changes in delay are relatively minor, although obviously not improving already challenging car access to the town centre via this junction.

4.69 The Jacobs models only cover the AM and PM peak periods as these are the times when traffic flows are highest and when the scheme is forecast to generate the highest levels of mode shift from car trips to cycle trips. The changes in the junction operations will, however, also impact upon car trips during the inter-peak, evening and weekend periods. Whilst a direct quantitative assessment cannot be undertaken, the peak model data provides an insight into the likely impact.

4.70 For the weekends, the volumes of traffic at the busiest times are not dissimilar to the weekday peaks and so we can assume a similar impact, in terms of additional delay at junctions.

4.71 For the inter-peak and evening periods, the lower volumes of traffic mean there are likely to be lower increases in delay at the existing junctions.

Closure of Eastern Section of Carterhatch Lane to Eastbound Traffic

4.72 As part of the Cycle Enfield scheme design, access to Carterhatch Lane, to the east of A1010 Hertford Road, would be banned for eastbound traffic (e.g. for vehicle turning off Hertford Road into Carterhatch Lane). Westbound traffic would be unaffected and, indeed, the whole of Caterhatch Lane would remain two-way with the exception of the eastbound access.

4.73 This proposed closure would require vehicles wishing to access Carterhatch Lane from Enfield Highway to use Cedar Avenue and then Swan Lane.

4.74 For trips heading east of Swan Lane on Carterhatch Lane, it is actually already a shorter distance to travel via Cedar Avenue, it also avoids the roundabout on the A1010 with the western section of Carterhatch. Cedar Avenue is relatively narrow, particularly in comparison to Carterhatch Lane, and so is probably likely to have a lower average speed of travel along it.

4.75 For people wishing to travel to the section of Carterhatch Lane between Hertford Road and Swan Lane, the banned movement will clearly increase access times; however, given the close proximity to the Enfield Highway Town Centre, it is considered unlikely that many vehicles are making this movement and so it should affect access to the town centre.

4.76 Whilst full turning count data for the junction of Carterhatch Lane and A1010 Hertford Road is not available, data has been provided for the key movement of the right-turn traffic from Hertford Road into Caterhatch Lane, with a maximum of 74 AM peak hour movements and 85 PM peak hour. This indicates a maximum of 1½ right-turn movements per minute in the peak. Whilst not a substantial movement, against an opposite southbound flow on A1010 Hertford Road up to 15 vehicle per minute (or one every 4 seconds) then it will result in some delays. These 1½ right-turn movements per minute will be diverted to Cedar Avenue, which currently has around 1 right-turn movement every two minutes. This will create a maximum combined movement of 2 right-turn movements per minute in Cedar Avenue. In practice, some of the diverted traffic will originate from the western section from Carterhatch Lane and so would access Cedar Avenue from the north via a left-turn into Cedar Avenue.

4.77 There is currently no right-turn pocket for traffic turning in Cedar Avenue, although there is a central area of carriageway, marked as zig-zags from the nearby zebra crossing, which has a central island. Whilst this area of central carriageway is not designed for vehicles to wait, vehicles are observed doing so. The revised design removes the central island of the zebra crossing, as well as one to the south of the junction, and so there is no longer this central space. Any vehicle waiting to turn right into Cedar Avenue will, therefore, block any vehicles behind them.

4.78 If you take the view that vehicles turning right in Cedar Avenue do not currently obstruct other traffic, then the impact of the proposed scheme will be to introduce around an average of 2 seconds of delay to northbound vehicles on the A1010 Hertford Road coming out of Enfield Highway (see section below on right-turn pockets for underlying calculation assumptions). If you assume that right turn traffic into Cedar Avenue currently blocks traffic then the delay to

northbound traffic reduces to an average of 1 second per vehicle. Either way it is considered to be a minimal impact.

Removal of Right Turn Pockets

4.79 As part of the Cycle Enfield proposals, some right turn pockets are proposed to be removed from the A1010 Hertford Road. These currently provide a holding space for vehicles out of the main flow of traffic when they are waiting to turn right into a side road off the A1010. There are no locations within Enfield Highway were any existing pockets will be removed; however, on the approaches to the town centre they will be removed at The Ride, Addison Road, and Palmer Lane. The impact this will have upon car drivers accessing the town centre will vary, as not all access routes will be via these parts of the A1010 Hertford Road. For completeness, however, the potential scale of impact has been assessed.

4.80 The average flow in either direction along the A1010 during the peak periods is estimated to be around 900 vehicle movements per direction. This equates to a flow of 15 vehicles per minute or one every four seconds. Whilst this does not represent a constant flow of traffic, it has the potential to restrict right-turning traffic from the opposite side of the carriageway. The extent to which this will happen will depend upon the ebb and flow of traffic movements, with convoys of traffic often arriving together to provide a more constant flow.

4.81 In order to provide an indicative example of the potential impact, if right-turn vehicles were delayed by 15 seconds (on average), then whilst the removal of a right turn pocket has no effect on these vehicles themselves, it would (on average) delay up to 4 other vehicles behind them by an average of 7.5 seconds. This would equate to 30 seconds delay for every right turn movement.

4.82 Right-turn movements data provided by Jacobs indicates that there are 178 right turn movements from the three combined sites in the AM Peak and 160 in the PM Peak. Based on the assumptions above, these movements would create around 89 minutes delay in the AM Peak and 80 minutes in the PM Peak. Based on the average two-way flow of 1,800 vehicles, this would only represent a three second delay per vehicle movement through all three sites on a return trips to Enfield Highway, which is considered to be relatively unlikely. Even so, it can be concluded that the removal of the right turn pockets is unlikely to have any significant detrimental impact on traffic flow.

Impact of Re-designed bus stops

4.83 Alongside the delays incurred at some of the reconfigured junctions, there is also estimated to be some additional delay incurred due to general traffic as a result of the reconfigured bus stop designs. At a number of locations the revised designs require buses to stop within the main carriageway. In many cases this will prevent following general traffic from passing the stationary buses. The extent of these delays will be dependent upon a range of factors, not least how many passengers board/alight the buses at different times of the day.

4.84 A basic assessment of the potential extent of delays has been undertaken by evaluating the frequency of buses that serve the busiest bus stops within the town centre. For Enfield Highway there are three northbound bus stops, and two southbound bus stops, within the confines of the core town centre area. There are four bus routes that serve one or more of these bus stops in the town centre: the 121, 191, 279, and 307 services. These services have the following, average number of bus service per hour during the AM and PM peak periods:

- 121 6.5 buses per hour
- 191 6.7 buses per hour
- 279 10 buses per hour

- 307 5.7 buses per hour

4.85 Based on an average bus boarding/alighting time of 45 seconds (based on Jacobs survey data from Palmers Green), alongside the number of bus services, the probability of a bus being at each of the five stops has been calculated. This probability ranges between 21% and 29%.

4.86 Assuming a worst case scenario where general traffic is unable to pass the bus due to on-coming traffic, any vehicle travelling behind a bus will, on average, be delayed by 22.5 seconds (half the boarding/alighting time). Combining the probability of delay with the average length of delay provides an estimate of the average delay that will be incurred by a car approaching each bus stop within the town centre. Across the five bus stops this average delay value ranges from 2 seconds to 7 seconds.

4.87 Vehicles travelling into Enfield Highway from the south and returning to the south could be delayed by two bus stops, one northbound stop prior to Green Street and then a southbound stop prior to Brick Lane. This would incur up to 9 seconds of delay across a return trip.

4.88 Vehicles travelling into Enfield Highway from the north and returning to the north could be delayed by three bus stops, one southbound prior to Carterhatch Lane and then two northbound, prior to Caterrhatch Lane and then Oatlands Road. This would incur up to 18 seconds of delay across a return trip.

4.89 In the context of our assumed average two-way car journey (1.6 km round trip) into the town centre of eight minutes, these delays are relatively minimal (less than 4% increase).

Combined Congestion Impacts

4.90 Each of the potential impacts of the proposed Cycle Enfield scheme upon car users travelling to and from Enfield Highway has been set out above. Assessing the combined impact is challenging as they will each affect separate car journeys into the town in different ways, depending upon the precise route choice.

4.91 Two composite return trips have been created, once accessing Enfield Highway from the north and the other from the south. Both use the PM peak data which indicated the highest delays.

4.92 For a return trip from the north, a vehicle could incur an additional 5 seconds delay waiting for right-turn traffic on the A1010 (including Cedar Avenue), then 36 seconds passing through the A1010 / Carterhatch Lane junction, followed by 9 seconds waiting for buses at stops. This would give a total delay of 50 seconds or 10% increase on average journey time.

4.93 For a return trip from the south, a vehicle could incur an additional 3 seconds delay waiting for right-turn traffic on the A1010, then 58 seconds passing through the A1010 / Green Street junction, followed by 18 seconds waiting for buses at stops. This would give a total delay of 1 minute 19 seconds, or 16% increase in average journey time.

Car Parking

4.94 There are currently 60 parking spaces available in Enfield Highway available during the day time and 92 spaces available after 6.30pm. The proposals for Cycle Enfield will reduce the number of daytime spaces by 7 (a 12% reduction) and remove the single yellow line parking, reducing the number of evening spaces by an estimated 39 spaces (a 42% reduction). The table below summarises the current (and proposed) number of spaces and parking restrictions under current and proposed plans.

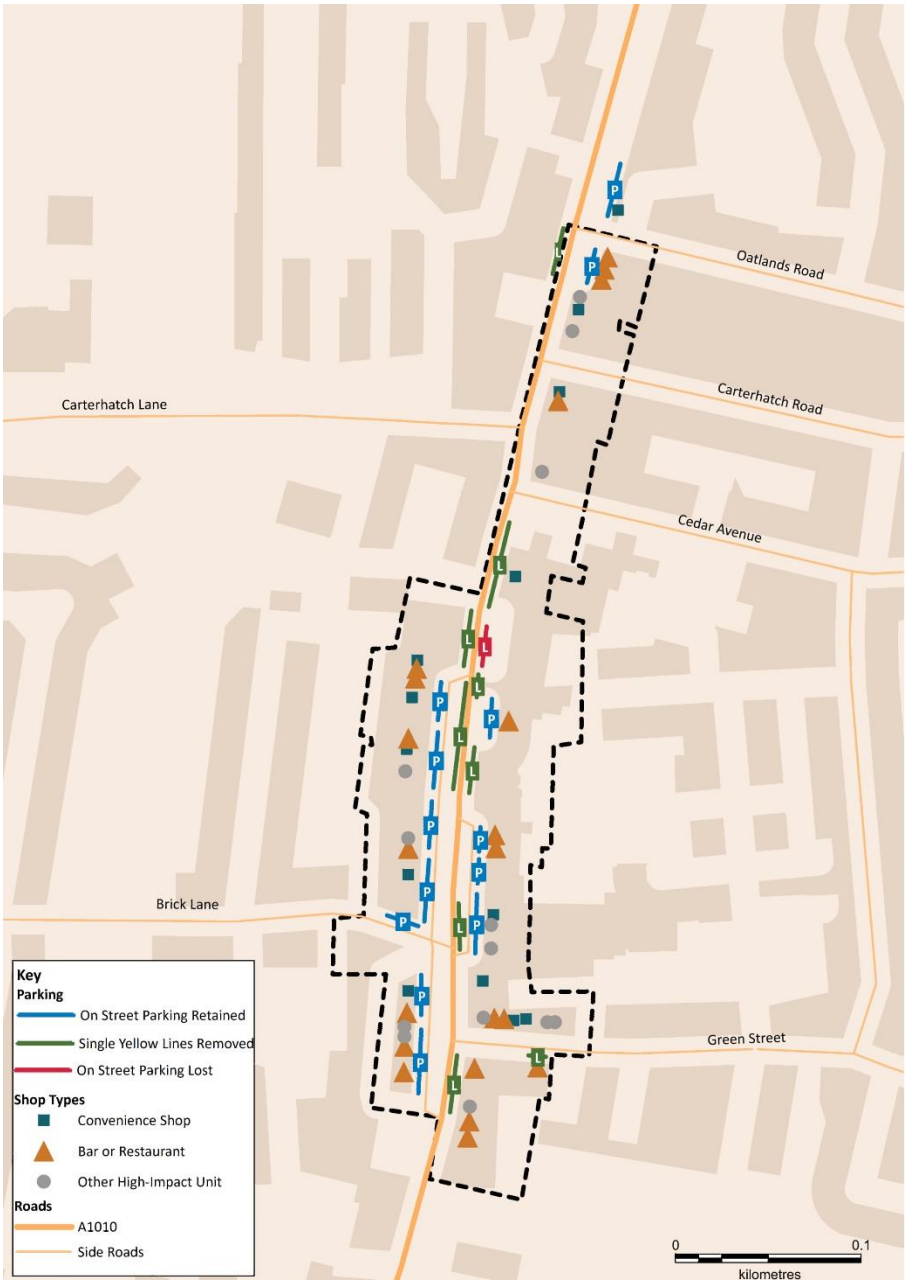
Table 4.10 Car Parking Summary for Enfield Highway

	Current Parking Provision		Proposed Parking Provision	
	Number	**Regulations**	**Number**	**Regulations**
On-street	47 pay and display 2 limited waiting 4 footway parking 7 unrestricted	Pay and display on A1010, £1.20/hr, limited to 2 hours, Mon-Fri 9.30am – 4.30pm, Sat 8am – 6.30pm	44 pay and display 2 limited waiting 7 unrestricted	Pay and display conditions assumed to be the same as current.
On-street Single Yellow Line Areas	Estimated 32 spaces	No parking Mon-Fri 8am – 9.30am, 4.30pm – 6.30pm	No parking available	
Off-street	No public car parks (Library car park for library users only – 10 spaces)		Same as present	
Total Daytime	60 spaces		53 spaces	
Total Evening	92 spaces		53 spaces	

Source: Cycle Enfield Consultation Plans

4.95 The following map shows the current parking provision in Enfield Highway and its positioning relative to high-impact units such as convenience shops, bars and restaurants and other high-impact units such as hairdressers.

Figure 4.7 Available Parking and Shop Types in Enfield Highway



Source: Estates Gazette, Cycle Enfield Consultation Plans and Regeneris Consulting.

Note: any post consultation design changes are not incorporated.

4.96 There is limited change to the numbers of on-street parking spaces supporting businesses along the corridor during the daytime, with the majority of the core shopping area (between Cedar Avenue and Green Street) experiencing very small changes in the amount of parking available. There is not anticipated to be an adverse impact relating to car parking for smaller stores which largely serve local communities and so the proportion of shopping trips by car is likely to be low.

4.97 Although on-street parking is being removed outside Enfield Business Centre, this should not have a large impact as the centre has off-street parking to the rear of the premises.

Impact on Users

4.98 The analysis above shows that the congestion impacts will lead to an additional delay of around 50 seconds (or a 10% increase) for journeys from the north, and an additional 1 minute 19 seconds delay (or a 16% increase) for journeys from the south. In isolation, this is not anticipated to have a significant impact on car users accessing the centre, particularly given that:

- There is not expected to be any impact on the 58% of car visitors making non-discretionary trips, as they will still need to visit the centre
- The majority of shoppers on discretionary trips arrive after the AM peak and leave before the PM peak, hence will be less affected by this peak time delay.

4.99 The changes to car parking will result in a minor loss of day-time parking, but a more significant reduction in overall parking available in the evenings, which is estimated to account for around 14% of the town centre economy.

4.100 The combination of these factors points to there being a limited impact on car users, however the three scenarios are used to set out a range of possible impact scenarios:

- Our base case assumes an overall 10% reduction in the 42% of discretionary car users – which equates to a 4.2% overall reduction in car user visitors.
- This alters to a 20% reduction in the number of discretionary car users in the worse case (equating to an 8.4% reduction in all car users), and no change in the better case.

Net impact on town centre performance

4.101 The overall outcome of these effects on town centre annual business turnover is summarised in the table below. The base case is what we assess to be the most likely outcome. The better and worse case scenarios set out a realistic upper and lower benchmarks, to provide a range of impacts.

4.102 It is assumed that the reduction in car users to the centre will all be entirely lost spend to Enfield Highway (ie no displacement to other modes of transport).

4.103 The table shows a summary of the net additional impacts broken down by transport users. For the base, better and worse case scenarios, it shows:

- % change in car users
- % impact on total annual town centre turnover

4.104 Various mitigation measures could be made to reduce the negative impacts set out in the base case. These are summarised in Chapter 6 of the report.

Table 4.11 Summary of Impact of Changes in Car Users in Enfield Highway

Transport Mode	Town Centre Annual Spend	Base Case		Better Case		Worse Case	
		% change in no. of trips	Impact on annual TC turnover	% change in no. of trips	Impact on annual TC turnover	% change in no. of trips	Impact on annual TC turnover
Walking	£4.11m						
Cycling	£0.04m						
Car	£1.49m	-4.2%	-0.5%	0.0%	0.0%	-8.4%	-1.1%
Bus	£6.01m						
Other	£0.16m						
Total	**£11.82m**		-0.5%		0.0%		-1.1%

4.105 Under the base case, the impact of reduced car users would have a **neutral / negligible impact** on town centre economic vitality, with a potential loss of town centre spending of approximately 0.5%.

4.106 The better and worse case scenarios suggest that the range of possible impacts is expected to be a reduction in town centre spending of between 0% and 1.1% (respectively a neutral / negligible and a minor negative impact).

Bus User Impacts

Overview

4.107 There are no proposed changes to the position of the four bus stops within the borders of Enfield Highway town centre.

4.108 The proposed cycle lane will run between the footway and stationary bus at all four bus stops with a 0.5 metre buffer, which may cause some inconvenience for bus passengers embarking or disembarking from the bus and cyclists.

Nature of Effect

4.109 The extent to which the scheme leads to a change in the number of bus visits, will depend upon a number of factors:

- **Perceptions of safety of the new bus stops, which could discourage some users from using the bus**
  - The majority of bus stops within the town centre will be designed to have a bus stop boarder with the cycle lane running between the footway and stationary bus. The northbound bus stop at the leisure centre is planned to have a bus stop bypass.
  - TfL have indicated that this infrastructure is commonplace in continental Europe, a number are now operating across London and have not created any additional issues or collisions, and their use will be monitored, with TfL taking action to mitigate if there is any evidence emerging of a risk to bus passengers.
- **Congestion Impacts which could extend journey times by bus**
  - There is expected to be an additional delay of around 50 seconds (or a 10% increase) to journeys from the north and an additional delay of 1 minute 19 seconds (or a 16% increase) for journeys from the south. These changes will not fundamentally affect bus routes as they are small additional delays across a whole bus route but some minor amendments may need to be made to scheduling. Similar impacts may occur during weekend periods when general traffic volumes are high. There is likely to be minimal impact during the inter-peak and evening periods, although the additional signals will create some extra journey time.

Impact on Users

4.110 The visitor survey shows that around 55% of bus users are spending money in the town centre as part of non-discretionary trips (ie for non-flexible purposes such as work or education). It is assumed that there would be no impact on these visits.

4.111 The remaining 45% of bus user trips are on discretionary trips and so the changes outlined could lead to a proportion of these trips being displaced to alternative destinations.

4.112 However, the limited impacts and fewer convenient alternative options for bus users is expected to mean the impact is limited. This takes into account the following:

- The disruption to journeys is likely to be minimal – with only an estimated 50 – 79 second additional delay
- There are no plans to relocate any bus stops
- The success of the new bus stop arrangements, using bus stop boarders and by-passes will be kept under review.
- Bus users are likely to have less flexibility in decision making about retail and service centre destinations, unless they live nearby to alternative bus routes.

4.113 The scenarios include the following:

- Our base case scenario is for no change to bus users as a result of the changes.
- The better case scenario assumes the same, while the worse case scenario assumes a reduction of 5% of discretionary trips (which equates to a 2.3% in visits by all bus users).

Net impact on town centre performance

4.114 The overall outcome of these effects on town centre annual business turnover is summarised in the table below. The base case is what we assess to be the most likely outcome. The better and worse case scenarios set out a realistic upper and lower benchmarks, to provide a range of impacts.

4.115 It is assumed that any reduction in bus users to the centre will all be entirely lost spend to Enfield Highway (ie no displacement to other modes of transport).

4.116 The table shows a summary of the net additional impacts broken down by transport users. For the base, better and worse case scenarios, it shows:

- % change in bus users
- % impact on total annual town centre turnover

4.117 Various mitigation measures could be made to reduce the negative impacts set out in the base case. These are summarised in Chapter 6 of the report.

Table 4.12 Summary of Impact of Change in Bus Users in Enfield Highway

Transport Mode	Town Centre Annual Spend	Base Case		Better Case		Worse Case	
		% change in no. of trips	Impact on annual TC turnover	% change in no. of trips	Impact on annual TC turnover	% change in no. of trips	Impact on annual TC turnover
Walking	£4.11m						
Cycling	£0.04m						
Car	£1.49m						
Bus	£6.01m	0.0%	0.0%	0.0%	0.0%	-2.3%	-1.1%
Other	£0.16m						
Total	**£11.82m**		0.0%		0.0%		-1.1%

4.118 Under the base case, there is assumed to be no change in bus users, hence a neutral / negligible impact on town centre economic vitality.

4.119 The better and worse case scenarios suggest that the range of possible impacts is expected to be a reduction in town centre spending of between 0% and 1.1% (a neutral / negligible impact and a minor negative impact respectively.

Impacts on Loading & Unloading

4.120 There are presently four designated loading or unloading bays in Enfield Highway town centre and these are all planned to remain in the same location as part of the Cycle Enfield proposals.

4.121 A number of businesses along the high street are already able to load or unload from the rear of their premises, and will therefore not be affected by changes to the parking at the front. However there are a small number of premises unable to use the rear of the premises for loading purposes and these are reliant on these loading bays on the high street.

4.122 The inconvenience to the majority of businesses in Enfield Highway is likely to be minimal therefore, the impact of changes to delivery vehicle access on town centre business turnover has been assessed as **neutral / negligible.**

Town Centre Environment

Overview

4.123 The proposed scheme includes a number of elements which have the potential to directly enhance the overall town centre environment. These include:

- Junction entry treatment to slow cars.
- Signalisation of the pedestrian crossing at A1010 / Green Street junction.
- Scope to improve the public realm at the A1010 / Green Street junction which will become signalised.

4.124 In addition to these direct enhancements to the town centre environment, it is expected by scheme planners that the town centre environment will be indirectly enhanced by changes in the volume and nature of traffic flows in the area as a result of the transport specific interventions.

Nature of Effect

Ease of Access around the Centre

4.125 There are a number of planned changes to crossings in Enfield Highway as part of the Cycle Enfield scheme which will make the town centre a more pedestrian friendly area. The A1010 / Green Street junction will be signalised under the proposals, which will provide a signalised pedestrian crossing replacing the uncontrolled junction at present. Given that there is a lot of traffic around this junction this will greatly improve pedestrian safety.

4.126 These improvements will encourage more pedestrian footfall in Enfield Highway as journeys will be quicker and safer than at present.

4.127 Overall, the provision of designated crossing points and associated signage and the overall volume of cyclists (particularly in the short term) will minimise the risk of adverse accessibility effects. One concern raised by businesses was the removal of an uncontrolled crossing between Moorfield Road

health centre and the pharmacy on the opposite side of the A1010 which would prevent people crossing between the two. However the scheme plans do allow people to use the existing zebra crossing to cross Carterhatch Lane and the A1010 to travel between the two.

Public Realm

4.128 There is scope to improve the public realm around the A1010 / Green Street junction, with the signalisation of the current roundabout freeing up space for improvements. No decision has yet been made on what these improvements will entail.

4.129 Generally, there is a lack robust evidence on the impact of public realm improvements. However, case study evidence collated across a range of research studies suggest some evidence of a link between public realm improvement and enhanced town centre performance:

- UK case study evidence cited by Association of Town Centre Managers[7] suggests that public realm improvements such as pedestrianisation or adding seating and greenery, can increase retail footfall by about 30% and retail turnover by an average of 17%.
- Evidence cited by Living Streets[8] and based on a range of international case studies suggests that public realm improvements can improve footfall by 10-25%
- Evidence referenced by BIS and DfT[9], has suggested that turnover for businesses in a high street location increased by between 5 and 15% following investment in public realm developments.

4.130 Evidence from the recent Outer London Fund R2 programme provides further evidence on the link between public realm / environmental improvement and town centre performance. The programme saw public realm improvement projects delivered across 26 outer London town centres, and, while the projects varied in their scale and scope, there is strong evidence[10] that the investments are starting to result in improvements in town centre vitality as measured across a range of indicators including visitor satisfaction, vacancy rates, footfall and employment. However, emerging evidence from the programme suggests that impact is greatest where enhancements are relatively concentrated and where they are 'transformational' in the way the people perceive and use a specific town centre.

Town Centre Environment

4.131 It is anticipated that the town centre environment will be further enhanced by changes in the volume and nature of traffic flows in the area as a result of the transport specific interventions.

4.132 The OLF programme highlights that economic benefit is likely to be strongest if environmental improvements help to diversify town centre uses, encourage more people to spend leisure and recreation time there.

[7] https://www.atcm.org/townteamuploads/why_great_spaces_matter

[8] http://www.livingstreets.org.uk/sites/default/files/content/library/Reports/PedestrianPound_fullreport_web.pdf

[9] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/3890/making-sustainable-local-transport-happen-whitepaper.pdf

[10] Outer London Fund Round 2 Evaluation, GLA, 2015, accessed at https://www.london.gov.uk/what-we-do/regeneration/funding-opportunities/completed-funds

Impact on Users

4.133 In the assessment of impacts we have taken into account the range of factors analysed above to consider overall environmental effects of the scheme on town centre users. We believe it is likely that the proposed scheme will have a considerable impact on the town centre environment in Enfield Highway, and that there could be an uplift in footfall as a result of this. However, given there are still uncertainties about the specifics of the scheme and lack of clear precedents we have made conservative assumptions about these impacts.

- Our base case assumes that overall footfall and spend in the town centre will not change as a result of improvements to the town centre environment
- This assumption for the worse case scenario is that there will also be no change in town centre footfall, but this rises to a 2% increase in overall footfall and spend across all users in the better case scenario.

Net impact on town centre performance

4.134 The overall outcome of these effects on town centre annual business turnover is summarised in the table below. The base case is what we assess to be the most likely outcome. The better and worse case scenarios set out a realistic upper and lower benchmarks, to provide a range of impacts.

4.135 It is assumed that the increases in visitors to the town centre and corresponding spend assessed here would all be net additional, not displaced from other transport modes.

4.136 The table shows a summary of the net additional impacts broken down by transport users. For the base, better and worse case scenarios, it shows:

- % change in visits by each transport user group
- % impact on total annual town centre turnover

4.137 Various measures could be made to enhance the positive impacts set out in the base case. These are summarised in Chapter 6 of the report.

Table 4.13 Summary of Town Centre Environment Impacts in Enfield Highway

Transport Mode	Town Centre Spend	Base Case		Better Case		Worse Case	
		% change	Value change	% change	Value change	% change	Value change
Walking	£4.11m	0%	0%	2%	2%	0%	0%
Cycling	£0.04m	0%	0%	2%	2%	0%	0%
Car	£1.49m	0%	0%	2%	2%	0%	0%
Bus	£6.01m	0%	0%	2%	2%	0%	0%
Other	£0.16m	0%	0%	2%	2%	0%	0%
Total	**£11.82m**		0%		2%		0%

4.138 Under the base case there is assumed to be a 0% increase in town centre users, hence a <u>neutral / negligible impact</u> on town centre economic vitality.

4.139 There is no change under the worse case scenarios (a neutral / negligible impact), but an increase in town centre spending of 2% under the better case scenario (a minor positive impact).

Summary and Assessment of Net Impacts

4.140 The table below draws together the net additional impacts set out under each of the assessment areas above. The table shows the overall impact both in terms of value and proportion of total annual town centre business turnover for Enfield Highway. This is broken down to show:

- Construction phase impacts, only occurring within a single year
- Operational phase impacts, which would be annual effects and which are broken down by the net effects of changes to visitors by different transport mode, and the town centre environment impacts.

4.141 In each case we show three scenarios. The base case is what we assess to be the most likely outcome. The better and worse case scenarios set out a realistic upper and lower benchmarks, to provide a range of impacts, recognising the inherent uncertainties in this assessment.

Table 4.14 Summary of Net Impacts in Enfield Highway

Impacts		Base Case	Better Case	Worse Case
Construction Phase	**£**	**-£73,000**	**-£19,600**	**-£179,900**
	%	**-0.6%**	**-0.2%**	**-1.5%**
Transport Shifts (Bus, Car & Cycle Users)	£	-£58,700	+£8,600	-£260,700
	%	-0.5%	+0.1%	-2.2%
Town Centre Environment	£	-	+£236,300	-
	%	0.0%	+2.0%	0.0%
Total Operational Phase (Transport Shift & Town Centre Environment)	**£**	**-£58,700**	**+£244,900**	**-£260,700**
	%	**-0.5%**	**+2.1%**	**-2.2%**

4.142 Under the base case:

- The construction phase would have a **neutral / negligible impact on town centre economic vitality within that single year**, with a potential loss of town centre spending of approximately 0.6%.
- The operational phase would have a **neutral / negligible impact on town centre economic vitality on an ongoing basis**, with a potential loss of town centre spending of approximately 0.5% per annum.

4.143 For both the construction and operational phases, various measures could be made to reduce the negative impacts and enhance the positive impacts. These measures are summarised in Chapter 6 of the report.

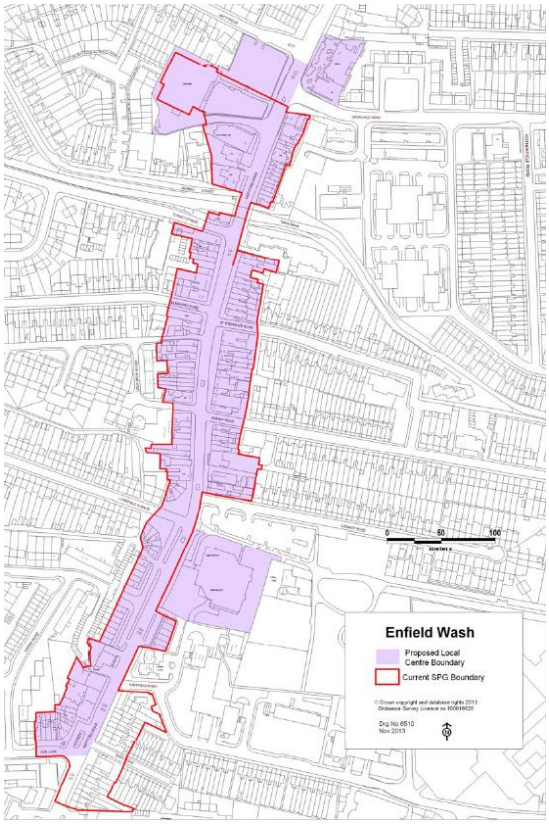
4.144 **By implementing these, we believe the impact of the operational phase can ensure a neutral or positive level**.

4.145 The lack of UK precedents makes it difficult to predict the extent to which the scheme will have the transformational effect on town centre attractiveness and liveability which scheme planners seek. As such, this has not been modelled in the figures above. However, based on evidence of the impact of transformational public realm projects (set out earlier in this report), if this is achieved, then there could be a longer term uplift in town centre spend of up to 10-15%.

5. Enfield Wash Assessment

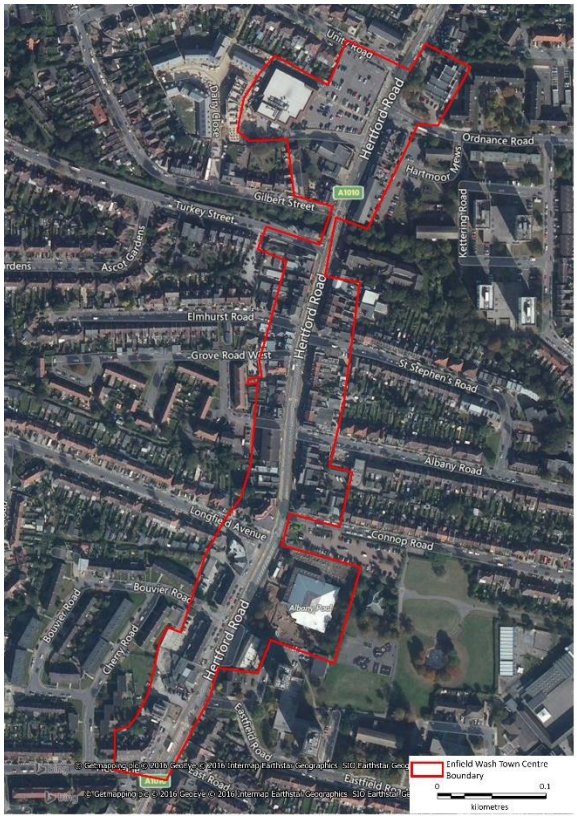
5.1 Enfield Wash is designated as a Large Local Centre in the London Plan and Enfield's Core Strategy. It is situated in the North-East of the borough on the A1010. The following maps show the outline of the town centre boundary, and therefore the area this assessment will focus on.

Figure 5.1 Town Centre Boundary



Source: Enfield Local Plan: Town Centres Uses and Boundaries Review (2013)

Figure 5.2 Context Map



Source: Regeneris Consulting & Enfield Local Plan: Town Centres Uses and Boundaries Review (2013)

5.2 The table below sets out an overview of the current retail and services provided within the town centre, many of which are within Enfield Wash, as well as equivalent data from 2005.

Table 5.1 Breakdown of Units in Enfield Wash

Type of Unit	Number of Units 2014	Number of Units 2005
Comparison Retail	16	28
Convenience Retail	15	16
A1 Services (inc hairdressers, travel agents and other class A1 users not selling convenience / comparison goods)	22	11
A2 Services	12	13
A3/A5	29	22
A4 Pubs and Bars	4	6
Vacant	7	7
Total Units	105	103
Total Active Units (ie excluding vacancies)	98	96

Source: NLP, Enfield Retail and Town Centres Study, 2014

Town Centre Performance

5.3 Town centre data reflects that **Enfield Wash is performing well**:

- **Vacancy rate is very low in the town centre**. Latest data from the Estates Gazette shows that in August 2016 there were only two vacant units in Enfield Wash, representing a vacancy rate of 2.0%. This compares well with the London town centre average of 7.8% and the national rate of 11.8% (Local Data Company, Vacancy Rate Report for Q2 2014).
- **There has been an increase in the number of active units in the town centre between 2005 and 2014 (+2 units)**, and a slight increase in the total number of units.

5.4 The shops and services offered in Enfield Wash changes regularly. Enfield Wash has a churn rate of approximately 10.5% of businesses i.e. one in ten units change user each year.[11] The average business in the town centre is nine and a half years old.

Total Town Centre Business Turnover

5.5 As described in the methodology section in Chapter 2, we have undertaken analysis to estimate the total business turnover generated by town centre businesses and the value of this turnover that is generated by visitors reaching the centre by different transport modes.

5.6 It must be noted that the figures set out here represent a best estimate, and are intended purely to be a sensible estimate of current town centre turnover in order to aid the quantification of impacts. As discussed in the data limitations section of Chapter 2, more accurate data on town centre business turnover is not available. These figures should therefore be regarded as indicative estimates.

5.7 Table 4.2 shows the overall proportion of visitors and spend by mode of transport used to reach the centre.

Table 5.2 Results from Enfield Wash Centre Survey

	Car-driver	Car pass.	Bus	Rail	Cycle	Motor-cycle	Walk	Taxi
% share of visitors	14%	3%	45%	3%	1%	0%	35%	0%
% share of spending	14%	3%	42%	0.4%	0.5%	0%	40%	0%

Source: Cycle Enfield Survey, Regeneris Calculations

5.8 Using the methodology set out in Chapter 2, Table 4.3 sets out an estimate of total town centre jobs supported and total business turnover in Enfield Wash.

Table 5.3 Enfield Wash estimates of jobs, turnover per job, and total revenues

	Local Jobs	Estimate of Total Business Turnover
Enfield Wash Businesses	220	£16,585,800

Source: Estates Gazette, December 2015; Annual Business Survey, 2014.

5.9 Drawing together the data from the two tables above (as set out in the methodology at Chapter 2), the table below sets out an estimated breakdown of total annual spend and annual visits made by mode of transport used to reach the centre.

[11] Based on Estates Gazette data (December 2015) on length of tenancy of businesses in current units.

Table 5.4 Annual Business Turnover and Visits by Mode of Transport		
	Value of Total Annual Business Turnover Spend by Mode	Annual Visits by Mode
Car driver	£2,397,700	140,500
Car passenger	£431,200	26,100
Local bus	£6,915,400	450,800
Rail	£71,900	26,100
Cycle	£81,700	9,800
Motorcycle	-	-
Walk	£6,688,000	359,300
Taxi	-	-
Total	**£16,585,800**	**1,012,600**

5.10 For Enfield Wash, the baseline provides estimates that of the £16.59 million of total annual turnover across all retail and high frequency consumer service businesses in Enfield Wash:

- £2.8 million is derived from 167,000 trips from car users (drivers and some passengers).
- £6.9 million is derived from 451,000 trips by bus passengers.
- £6.7 million is derived from 359,000 pedestrians.
- At present, an estimated 9,800 cyclist trips account for around £82,000.

Other Baseline Data to Aid Assessments

5.11 The evidence below provides further useful evidence that is drawn on in the analysis in subsequent sections.

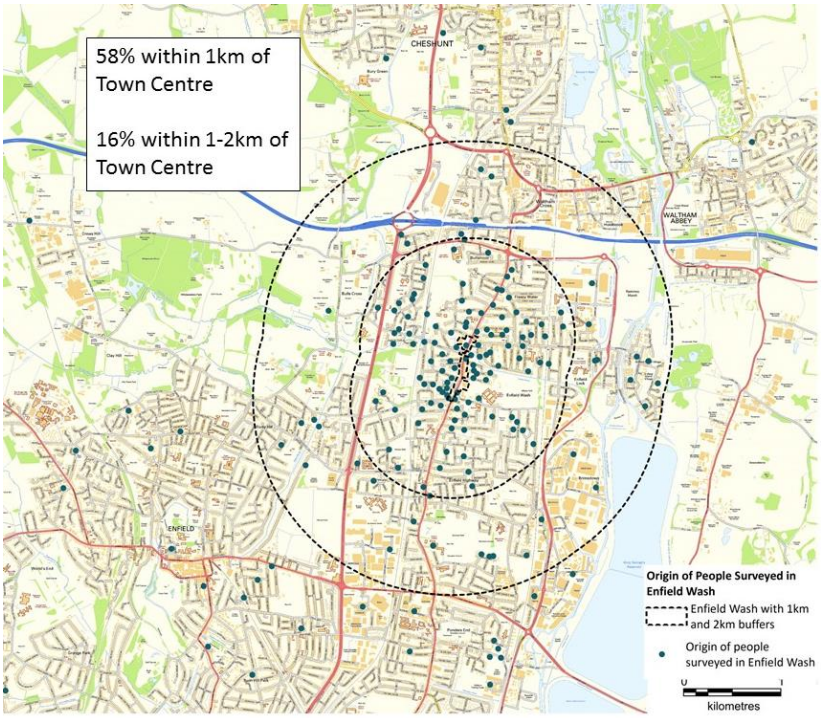
5.12 An analysis of Enfield Wash town centre survey data, shows that 53% of trips to town centres were non-discretionary trips (ie where the visitor could not easily visit an alternative location). This includes categories such as visiting friends and family, travelling to and from home, education and some personal trips such as to medical services. This varies by transport user, with 60% of bus users being non-discretionary and 35% of car users being non-discretionary.

5.13 Typically visitors making discretionary visits are more likely to visit the centre outside of peak travel times.

Distance Travelled to Visit Town Centre

5.14 The map below shows the distance travelled to the town centre by all respondents to the Cycle Enfield Survey in Enfield Wash.

Figure 5.3 Home location of visitors surveyed in Enfield Wash



Source: Cycle Enfield Survey

Town Centre Car Parking

5.15 Data collected by Jacobs shows the occupancy of car parking spaces along the A1010 in Enfield Wash. Between East Road and Totteridge Road (slightly beyond the town centre boundary) there are 29 unrestricted spaces and 26 limited waiting spaces. Of the total 55 spaces between these two areas, there is an average occupancy rate of 87%.

Alternative Retail and Service Destinations

5.16 The table below sets out an overview of key retail and service destinations which visitors to Enfield Wash might consider as alternatives.

Table 5.5 Nearest Alternative Locations to Enfield Wash

Type	Name	Distance (miles)
Town centres	Enfield Highway	1.0
	Waltham Cross	1.1
	Ponders End	1.7
	Cheshunt	2.3
	Enfield Town (Palace Exchange)	2.6
	Edmonton Green	4.0
Out-of-Town Shopping Centres	Ravenside Retail Park	4.8

Source: Regeneris Consulting.

N.B. Distances are the shortest walking routes from the Hertford Road / Turkey Street Junction

Outputs – Physical Changes of Cycle Enfield Scheme

5.17 The key outputs of the Cycle Enfield scheme in Enfield Wash are shown in the table below.

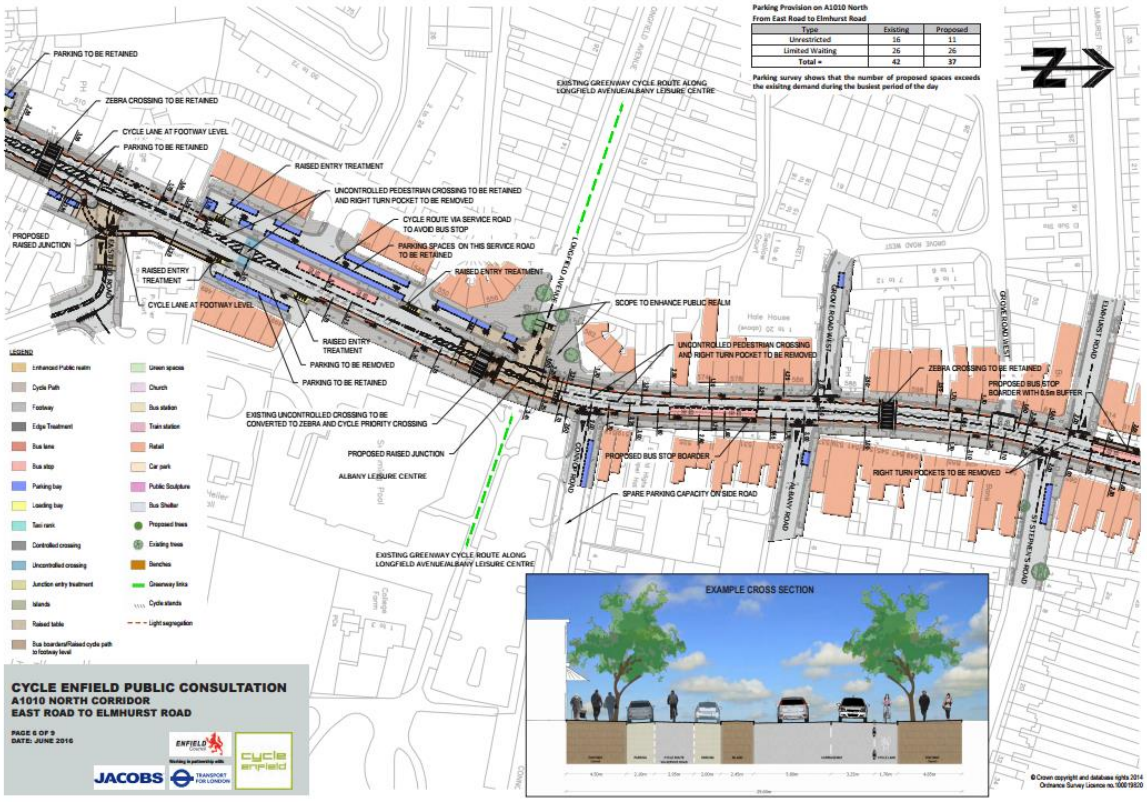
Table 5.6 Cycle Scheme Deliverables at Enfield Wash

	Key Output	Detail
Construction Phase	Construction works to deliver the elements of the scheme outlined below and overleaf	• Detailed plans for the construction phase yet to be developed; however, there is a headline expectation that in Enfield Wash it will be delivered across a three-month period, with the process divided into eight phases to minimise disruption to local residents, retailers and road users.
Accessibility	Enhanced Cycle Infrastructure	• Lightly segregated cycle lanes • Junctions modified to improve safety for cyclists and pedestrians
	Changes to car parking and road capacity	• Five unrestricted parking spaces will be lost along the A1010 within the Enfield Wash town centre boundary. • Right arm at A1010 / St Stephen's Road junction removed
	Changes to bus stop locations	• Bus stops remaining in same locations, with cycle lane running between footway and stationary bus at three bus stops with bus stop at Albany Leisure Centre (northbound) not being affected by cycle lane.
	Changes to loading / unloading space	• No designated loading bays at present. Situation will be unchanged with proposals
Environ-mental	Beautification and Pedestrian Friendliness	• Junction entry treatment to slow cars • Existing uncontrolled crossing outside Albany Leisure Centre to be converted to Zebra and Cycle priority crossing • Public realm improvements at A1010 / Longfield Avenue junction • Uncontrolled crossing near A1010 / Connop Road junction removed • Staggered pedestrian crossing installed across A1010 outside Unity Centre

Source: Regeneris Consulting based on Cycle Enfield Consultation Plans

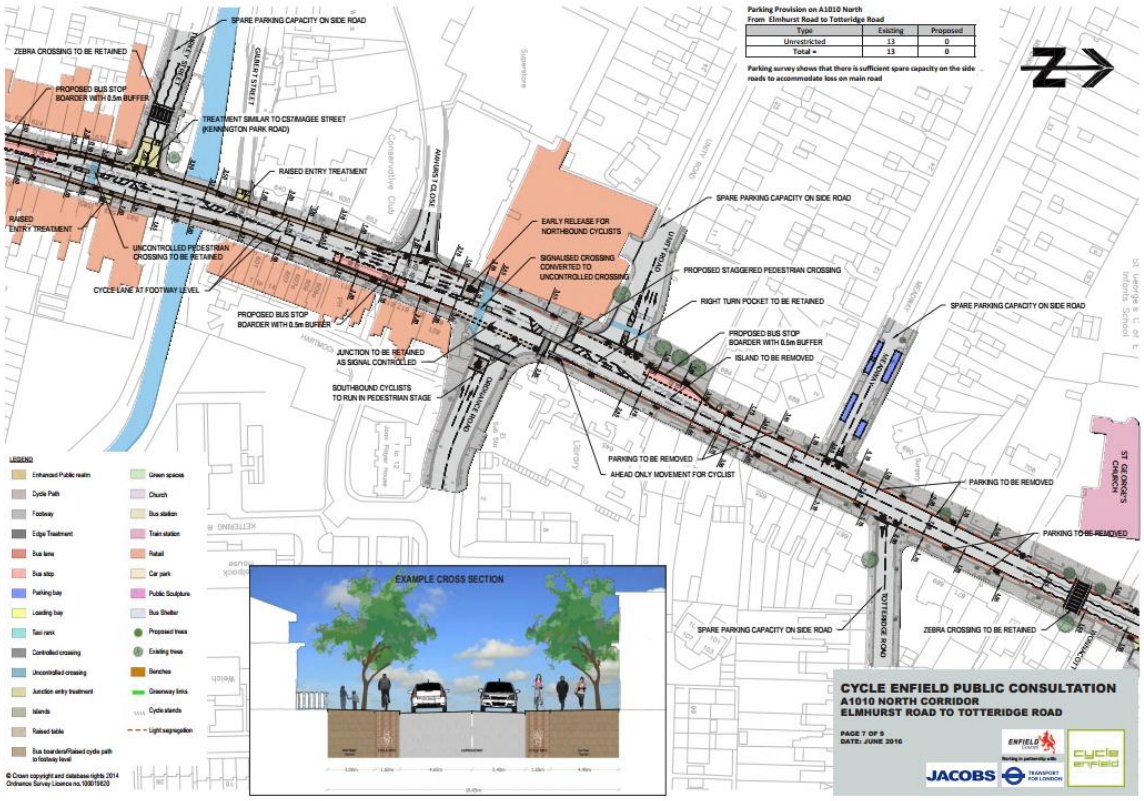
5.18 The diagrams show the original Cycle Enfield proposals for Enfield Wash town centre used for consultation. Note: some factors shown in the table above have been updated since these original scheme plans.

Figure 5.4 Proposed Plans for Enfield Wash (Southern End)



Source: Cycle Enfield Consultation Plans

Figure 5.5 Proposed Plans for Enfield Wash (Northern End)



Source: Cycle Enfield Consultation Plans

Construction Phase Impacts

Overview

5.19 At this stage detailed plans for construction in Enfield Wash town centre are yet to be developed, and as such, the approach to construction phasing and specific approach both around and within the town centre is not known. The design team estimate the total construction period in Enfield Wash town centre is likely to be around three months.

5.20 Drawing on transport engineers within our team, we have modelled possible construction approaches in Enfield Wash, summarised in the table below.

Table 5.7 Summary of Construction Options for Enfield Wash

Approach	Details	Possible Congestion Impact	Possible Parking Impact
Approach 1- one-way road access but access to businesses maintained	Modelled at a high level, this could include implementation of traffic management measures in short segments (of between 200 and 400m). Temporary traffic lights would need to be introduced, meaning one-way working through the area of construction.	In overall traffic terms, there would be 13 weeks of disruption to north-south movement along the A1010 in Enfield Wash, with delays to visitors to the centre, as well as through movements, caused by the signals. This could cause increased congestion in either direction. Note however, the works would be split into phases, so disruption in the	There could be a minor loss of on-street car parking for periods of time as works take place on those stretches.

		town centre itself would not last over the full three month period.	
Approach 2 - maintain two way access along the A1010	It might be possible to run two-way traffic flows and maintain retail access, however it is not yet known whether the available space would allow for this.	Under this approach, roadworks would remain but with 2 lane access retained. Speeds through the roadworks would be reduced, but would not affect journey times significantly.	Under this approach, the duration of individual stages of works, may be longer, thus parking spaces lost would continue over a longer time period.

Nature of Effect

5.21 The main impacts of construction will be:

- temporary increases in congestion
- temporary reductions in parking spaces
- temporary effects on visual amenity (although not significantly obscuring business premises) and some noise and dust blight, in proportion with those typically associated with highways maintenance and improvement work.

5.22 These effects can impact on visitor numbers and spend in the town centre, however there is currently no research which provides robust quantifications of the link between these factors and adverse town centre vitality.

5.23 Case study evidence from the London wide OLF programme[12] highlights that extended periods of construction activity can have disruptive effects in town centres where major public realm and highway works resulted in businesses reporting losses of footfall and turnover, however this was mainly the case where construction works were concentrated in one area for a period of over six months, or where pedestrian flows were interrupted. Neither of these would be the case in the approaches set out above, with disruption in Enfield Wash expected to last for three months.

Impacts on Users

5.24 The analysis below focuses on the impact on three main user groups – people visiting on foot, by car and by bus, which make up 99% of total spend in Enfield Wash[13] and are likely to be most affected.

Pedestrians

5.25 Under both approaches the works are focused on the carriageway, maintaining pedestrian access to all businesses. Given people visiting on foot are typically visiting their closest centre, and there is no impact on their journey times or access to destinations, there is assumed to be negligible impact on these users and no change to the number of people visiting the centre on foot.

Car Users

5.26 Both congestion and reduced car parking could affect car users:

[12] Outer London Fund Round 2 Evaluation, GLA, 2015, accessed at https://www.london.gov.uk/what-we-do/regeneration/funding-opportunities/completed-funds

[13] Based on Regeneris calculations from Estates Gazette data.

- The Cycle Enfield Visitor Survey for Enfield Wash shows that around 35% of car drivers are spending money in the town centre as part of non-discretionary trips (trips for which they could not easily switch to an alternative location eg going to work, visiting the doctor etc).
- The remainder of trips are discretionary and any additional delays and loss of parking may result in a proportion of trips being displaced elsewhere for the duration of construction (there are a number of other centres of comparable or larger size within a small radius – eg Enfield Highway, Waltham Cross and Ponders End, all of which are within 2 miles). However, the majority of discretionary trips are likely to take place outside peak travel times, reducing the impact of any delays.
- As it has not been possible to model the impact of construction works, we have included a broad range of possible impacts within our three scenarios.
    - Our base case is based on the temporary loss of 25% of the discretionary car trips (effectively 16% of all car trips) for the duration of the works
    - This alters to 50% of discretionary car trips (effectively 33% of all car trips) under a worse case scenario, and 12.5% of discretionary car trips (effectively 8% of all car trips) under a better case scenario, for the duration of the works.

Bus Users

5.27 Congestion impacts and temporary changes to bus stop locations could affect bus users:

- The Cycle Enfield Visitor Survey for Enfield Wash shows that around 60% of bus users are spending money in the town centre as part of non-discretionary trips. The remainder of trips are discretionary and additional delays may result in a proportion of trips being displaced elsewhere for the duration of the construction works. Bus users typically have fewer alternative choices than car users however, due to the limitations of available bus routes they can use.
- As with car users, the impacts are also likely to be reduced due to the fact that the majority of discretionary trips will take place outside the peak periods when congestion is likely to be greatest.
- We have again included a broad range of possible impacts within our three scenarios.
    - Our base case is based on the temporary loss of 5% of the discretionary bus trips (effectively 2% of all bus trips) for the duration of the works
    - This alters to 15% of discretionary bus trips (effectively 6% of all bus trips) under a worse case scenario, and no change under a better case scenario, for the duration of the works.

Net impact on town centre performance

5.28 The overall outcome of these effects on town centre annual business turnover is summarised in the table below. The base case is what we assess to be the most likely outcome. The better and worse case scenarios set out a realistic upper and lower benchmarks, to provide a range of impacts.

5.29 The table shows a summary of the net additional impacts broken down by transport users. For the base, better and worse case scenarios, it shows:

- % change in visits by that transport user group
- % impact on total annual town centre turnover

5.30 Various mitigation measures could be made to reduce the negative impacts set out in the base case. These are summarised in Chapter 6 of the report.

Table 5.8 Summary of Construction Phase Impacts in Enfield Wash

Transport Mode	Town Centre Annual Spend	Base Case		Better Case		Worse Case	
		% change in no. of trips	Impact on annual TC turnover	% change in no. of trips	Impact on annual TC turnover	% change in no. of trips	Impact on annual TC turnover
Walking	£6.69m						
Cycling	£0.08m						
Car	£2.83m	-16.3%	-0.7%	-8.1%	-0.3%	-32.5%	-1.4%
Bus	£6.92m	-2.0%	-0.2%	0.0%	0.0%	-6.0%	-0.6%
Other	£0.07m						
Total	**£16.59m**		**-0.9%**		**-0.3%**		**-2.0%**

5.31 Under the base case, the construction phase has a neutral / negligible impact on town centre economic vitality within that single year, with a potential loss of town centre spending of approximately 0.9%.

5.32 The better and worse case scenarios suggest that the range of possible impacts is expected to be a reduction in town centre spending of between 0.3% and 2.0% (respectively a neutral / negligible impact and a minor negative impact).

Cycle User Impacts

Overview and Nature of Effect

5.33 Increasing the number of cyclists using the A1010 (North) Corridor is at the heart of the Cycle Enfield scheme plans for Enfield Wash.

5.34 The changes to cycling infrastructure on the roads include uninterrupted segregated cycle lanes on both sides of the road all of the way along the A1010 stretch through Enfield Wash. In addition, new cycle parking facilities will be introduced and Enfield Council has introduced a range of measures to support an increase in cycling in the borough.

5.35 The enhanced cycle route connectivity is expected to lead to an increase in cycle users visiting the town centre, both as a result of existing visitors changing their travel mode to bicycle and making more visits to the town centre, and attracting more people to visit the town centre as a result of the enhanced connectivity.

Impact on Users

5.36 The available evidence points to a significant opportunity to increase cycling across Enfield borough, and within Enfield Wash:

- Across the borough, 0.7% of journeys are currently made by cycle. This is lower than most other outer London boroughs, suggesting potential to increase cycling within Enfield borough (TfL LTDS 2009-10 to 2011-12).
- Similarly, Census 2011 data shows that 1.4% of working Enfield residents state that they usually travel to work by cycle, compared with 2.1% across all outer London boroughs, and

2.8% across England and Wales, again reflecting potential to increase cycling in Enfield borough.

- Data from the Cycle Enfield Survey found that 1% of shoppers used a bike to access Enfield Wash.
- The extent to which the scheme leads to increased cycling visits, depends on the extent to which the Cycle Enfield scheme addresses the barriers to more people cycling.
- The visitor survey for Enfield Wash highlights the main constraints to people cycling more to the town centre. Of those who indicated they already sometimes cycle, or might consider cycling in the future, the main barriers to them doing so are currently: lack of safe routes (34%), not having a bike (27%), being unable to cycle (15%) and too much car traffic (15%).
- These factors are similar to those highlighted in the 2010 report 'Delivering the Benefits of Cycling in Outer London' produced by TfL, London Councils London Cycling Campaign, GLA, Sustrans and the Borough Cycling Officers Group. It highlights the key barriers as being both physical (traffic speed, severance of cycle lanes and lack of cycle parking facilities) as well as attitudinal (fear of traffic, convenience of the car, and perception of cycling as incompatible with busy lifestyles).

5.37 The Cycle Enfield scheme will substantially address many of these constraints, directly improving feeling of safety through providing fully segregated cycle lanes as well as improved cycle parking facilities, which will directly address the physical barriers to increased cycling.

5.38 It is more difficult to assess the extent to which attitudinal barriers will shift and there is a lack of clear evidence to guide us on this.

5.39 The quantification below is relatively conservative, but based on an analysis of rates of cycling in other outer London boroughs (LTDS, 2009-10 to 2011-12), which demonstrate a realistic rate for an outer London borough, particularly recognising that the key constraints to cycling cited above will be addressed well by the Cycle Enfield scheme:

- Our base case is based on the proportion of cycling trips to the town centre increasing to 2.5%, bringing in closer in line with the average rate of cycling across all outer London boroughs (equivalent to a 150% increase in visitors from the current rate of 1.0% in Enfield Wash[14])
- This assumption alters to an increase to 4% (300% increase from baseline of 1.0%) in the better case scenario (in line with the strongest performing outer London boroughs - Kingston on Thames at 4% and Waltham Forest at 3.8%), and no change under the worse case scenario.

Net impact on town centre performance

5.40 The overall outcome of these effects on town centre annual business turnover is summarised in the table below. The base case is what we assess to be the most likely outcome. The better and worse case scenarios set out a realistic upper and lower benchmarks, to provide a range of impacts.

5.41 In assessing the net impact of an increase in cycle visitors, it is necessary to take account of displacement. To ensure the assessment sets out a conservative estimate of change, we have assumed that only 10% of additional cycle journeys constitute net additional visits to the centre (and therefore new spending). We assume that the remaining 90% of additional journeys and

[14] Cycle Enfield Survey

related spend would have occurred regardless by people travelling in by different means. As such the table below only captures the net additional impact on town centre annual business turnover of these additional cycle users.

5.42 The table shows a summary of the net additional impacts broken down by transport users. For the base, better and worse case scenarios, it shows:

- % change in visits by cycle users
- % net additional impact on total annual town centre turnover

5.43 Various measures could be made to enhance the positive impacts set out in the base case. These are summarised in final chapter of the report.

Table 5.9 Summary of Impact of Change in Cycle Users in Enfield Wash

Transport Mode	Town Centre Annual Spend	Base Case		Better Case		Worse Case	
		% change in no. of trips	Impact on annual TC turnover	% change in no. of trips	Impact on annual TC turnover	% change in no. of trips	Impact on annual TC turnover
Walking	£6.69m	0%		0%		0%	
Cycling	£0.08m	150%	0.07%	300%	0.15%	0%	0.0%
Car	£2.83m	0%		0%		0%	
Bus	£6.92m	0%		0%		0%	
Other	£0.07m	0%		0%		0%	
Total	**£16.59m**	-	0.07%	-	0.15%	-	0.0%

5.44 Under the base case the impact of increased cycle users would have a neutral / negligible impact on town centre economic vitality, with a potential increase in town centre spending of around 0.07 %.

5.45 The better and worse case scenarios suggest that the range of possible impacts is expected to be an increase in town centre spending of between 0% and 0.15% (a neutral / negligible impact in both cases).

Car User Impacts

Overview

5.46 Changes to the capacity and layout of roads and changes to signalised junctions creating extra congestion, and reduction of on-street car parking spaces could affect the number of visits made to the town centre by car.

5.47 On-street parking would be affected by reduction of on-street parking spaces to make way for cycle lanes, as well as reduction in areas with single yellow line markings, which allow evening parking where there are no dropped kerbs. These changes have created particular concerns for convenience stores who believe a large number of their customers prefer to park immediately outside their store and shop quickly, as well as evening economy units (eg bars and restaurants) for whom on-street parking loss will include the loss of on-street parking bays as well as the loss of single yellow line areas.

5.48 Figure 5.6 below provides a simplified overview of changes to parking, and their proximity to town centre units, and particularly convenience stores and evening economy units.

Nature of Effect

5.49 In relation to the existing highway network through the centre of Enfield Wash, there is a single key junction within the confines of town centre area: A1010 Hertford Road with Ordnance Road. This is a 3-arm signalised junction, with pedestrian crossing facilities on each arm. Each arm has two approach lanes for traffic.

5.50 This junction represents the only major constraint to free-flow movement of north – south traffic within the core town centre, with the exception of pedestrian crossing facilities. The next nearest major junctions affected by the proposed Cycle Enfield scheme are at Caterhatch Lane (800 metres to the south of the town centre) or Bullsmoor Lane/Mollison Avenue (1 km to the north). As such these are not anticipated to have a significant impact upon local traffic accessing the town centre.

5.51 There are a number of other minor side roads that join the A1010 in the study area but these are not signalised, although some have dedicated right-turn filters from the A1010 into the side roads.

5.52 As part of their preliminary design work, Jacobs have constructed local highway model of Ordnance Road junction to simulate its current operation during the AM and PM peak periods. The model will have utilised surveys of traffic flows and existing delays / queue lengths on each arm of each junction.

5.53 As an overall summary of the baseline model, it estimates that traffic travelling through the junction through Enfield Wash is currently delayed by an average of around 1 minute 50 seconds in the AM peak period and around 50 seconds in the PM Peak period.

5.54 Some data is available from Jacobs Town Centre Survey relating to the distances travelled by car drivers when accessing the nearby Palmers Green town centre. This indicates that around 50% of car trips are under 2kms with the other 50% over 2kms. Whilst this data does not permit an accurate assessment of trip lengths, it suggests, on average, that trips are relatively short in nature. For the purposes of the analysis below we have assumed an average journey time by car of around 4 minutes, i.e. 8 minutes for a 1.6km return journey.

Congestion Impacts of A1010 Hertford Road / Ordnance Road Junction

5.55 Alterations to the operation of A1010 Hertford Road / Ordnance Road junction are proposed as part of the Cycle Enfield scheme. The signalised junction will be retained but early release signals for cyclist will be introduced to improve safety for cyclists. The formal pedestrian crossing on the southern arm of the junction will be removed, but the other two retained. Two lanes will maintained on the southbound A1010 and Ordnance Road approaches, but the northbound will be reduced to a single lane approach.

5.56 As part of their preliminary design work, Jacobs have sought to model the impact of the changes in the operation of the A1010 Hertford Road / Ordnance Road junction during the AM and PM peak periods using a local highway junction model. A series of scenarios have been tested, some of which allow for lower traffic flows through the junction as a result of potential mode shift from car to cycle as a result of the Cycle Enfield scheme. For the purposes of this analysis, the worst case scenario has been applied with no reduction in traffic flow.

5.57 The results from the Jacobs modelling work indicate that traffic delays on southbound approach to the junction will increase by an average of 21 seconds per vehicle. Delays on the other two arms of the junction will marginally reduce. Overall delays through the junction in the AM Peak for vehicles accessing or egressing from Enfield Wash will increase by an average of 5 seconds per vehicle.

5.58 In the PM peak the main increase in delay is forecast to be on the Ordnance Road arm of the junction with an additional 17 seconds per vehicle. Delays on the A1010 Hertford Road are forecast

to reduce by 4 seconds in both directions. Given the predominance of north – south movements through the junction the overall impact is forecast to be neutral for delays through the junction in the PM Peak for vehicles accessing or egressing from Enfield Wash.

5.59 To put the additional AM peak delay figure into context we have applied them to our assumed average two-way car journey (1.6 km round trip) into the town centre of eight minutes. A return journey passing through the junction twice would incur 10 seconds delay, on average, representing around a 2% increase journey times in the AM peak. No change to average journey times is forecast in the PM Peak

Removal of Right Turn Pockets

5.60 As part of the Cycle Enfield proposals, some right turn pockets are proposed to be removed from the A1010 Hertford Road. These currently provide a holding space for vehicles out of the main flow of traffic when they are waiting to turn right into a side road off the A1010. Three locations have been identified within close proximity to Enfield Wash at Elmhurst Road, St. Stephen's Road and Ingersoll Road. Three further locations have been identified that are further away from Enfield Wash but could still impact some journeys. These are at Addison Road, Palmer Lane, and Larmans Road. For completeness all of these locations are included within the analysis as a worst case.

5.61 Right turn movement data provided by Jacobs for each site indicates that these pockets have only been removed where vehicle movements are generally less than one per minute. Under the design of the Cycle Enfield scheme, these vehicles will block the main flow of traffic on the A1010 Hertford Road whilst they wait to turn right into the respective side roads.

5.62 The average flow in either direction along the A1010 during the peak periods is estimated to be around 900 vehicle movements per direction. This equates to a flow of 15 vehicles per minute or one every four seconds. Whilst this does not represent a constant flow of traffic, it has the potential to restrict right-turning traffic from the opposite side of the carriageway. The extent to which this will happen will depend upon the ebb and flow of traffic movements, with convoys of traffic often arriving together to provide a more constant flow.

5.63 In order to provide an indicative example of the potential impact, if right-turn vehicles were delayed by 15 seconds (on average), then whilst the removal of a right turn pocket has no effect on these vehicles themselves, it would (on average) delay up to 4 other vehicles behind them by an average of 7.5 seconds. This would equate to 30 seconds delay for every right turn movement.

5.64 The movement data indicates that there are 165 right turn movement from the three combined sites in the AM Peak and 205 in the PM Peak. Based on the assumptions above, these movements would create around 83 minutes delay in the AM Peak and 103 minutes in the PM Peak. Based on the average two-way flow of 1,800 vehicles, this would represent around a three second delay per vehicle movement through Enfield Wash. It can therefore be concluded that the removal of the right turn pockets, even under the worst case analysis, is unlikely to have any significant detrimental impact on traffic flow.

Impact of Re-designed bus stops

5.65 Alongside the delays incurred at some of the reconfigured junctions, there is also estimated to be some additional delay incurred due to general traffic as a result of the reconfigured bus stop designs. At a number of locations, the revised designs require buses to stop within the main carriageway. In many cases this will prevent following general traffic from passing the stationary buses. The extent of these delays will be dependent upon a range of factors, not least how many passengers board/alight the buses at different times of the day.

5.66 A basic assessment of the potential extent of delays has been undertaken by evaluating the frequency of buses that serve the busiest bus stops within the town centre. For Enfield Wash there are three northbound and three southbound bus stops within the confines of the core town centre

area. For two of the northbound bus stops the Cycle Enfield designs still permit the buses to stop off the main carriageway and so they will not impact upon general traffic flow.

5.67 Of the remaining four bus stops, there are three bus routes that serve one or more of these bus stops in the town centre: the 121, 191, and 279 services. These services have the following, average number of bus service per hour during the AM and PM peak periods:

- 121 6.5 buses per hour
- 191 6.7 buses per hour
- 279 10 buses per hour

5.68 Based on an average bus boarding/alighting time of 45 seconds (based on Jacobs survey data from Palmers Green), alongside the number of bus services, the probability of a bus being at each of the six stops has been calculated. This probability ranges between 21% and 29% for each bus stop.

5.69 Assuming a worst case scenario where general traffic is unable to pass the bus due to on-coming traffic, any vehicle travelling behind a bus will, on average, be delayed by 22.5 seconds (half the boarding/alighting time). Combining the probability of delay with the average length of delay provides an estimate of the average delay that will be incurred by a car approaching each bus stop within the town centre. Across the five bus stops this average delay value ranges from 3 seconds to 7 seconds.

5.70 Vehicles travelling into Enfield Wash from the south and returning to the south could be delayed by two southbound bus stops, one prior to Connop Road and one prior to Ingersoll Road. This would incur up to 11 seconds of delay across a return trip.

5.71 Vehicles travelling into Enfield Wash from the north and returning to the north could be delayed by two bus stops, one southbound just after Ordnance Road and then one northbound, After Elmhurst Road. This would incur up to 8 seconds of delay across a return trip.

5.72 In the context of our assumed average two-way car journey (1.6 km round trip) into the town centre of eight minutes, these delays are minimal (less than 2% increase).

Combined Congestion Impacts

5.73 Each of the potential impacts of the proposed Cycle Enfield scheme upon car users travelling to and from Enfield Wash has been set out above. Assessing the combined impact is challenging as they will each affect separate car journeys into the town in different ways, depending upon the precise route choice.

5.74 In order to provide an indication of the potential worst case delays, a composite return trip has been created that accesses Enfield Wash from the north, thus potentially incurring delay at the Ordnance Road junction, unlike trips from the south. The AM peak data has been used as it forecasts the highest delays.

5.75 For a return trip from the north, a vehicle could incur an additional 3 seconds delay waiting for right-turn traffic on the A1010, then 10 seconds passing and returning through the A1010 / Ordnance Road junction, followed by 8 seconds waiting for buses at stops. This would give a total delay of 21 seconds or 4% increase on average journey time.

Car Parking

5.76 There is planned to be a reduction of five unrestricted parking space lost in Enfield Wash town centre. The table below summarises the current (and proposed) number of spaces and parking restrictions under current and proposed plans. There is expected to be a loss of five on-street

parking space during the day (a 7% reduction) and the loss of 35 spaces during the evening (-33%) due to the loss of single yellow line parking which is available after 6.30pm.

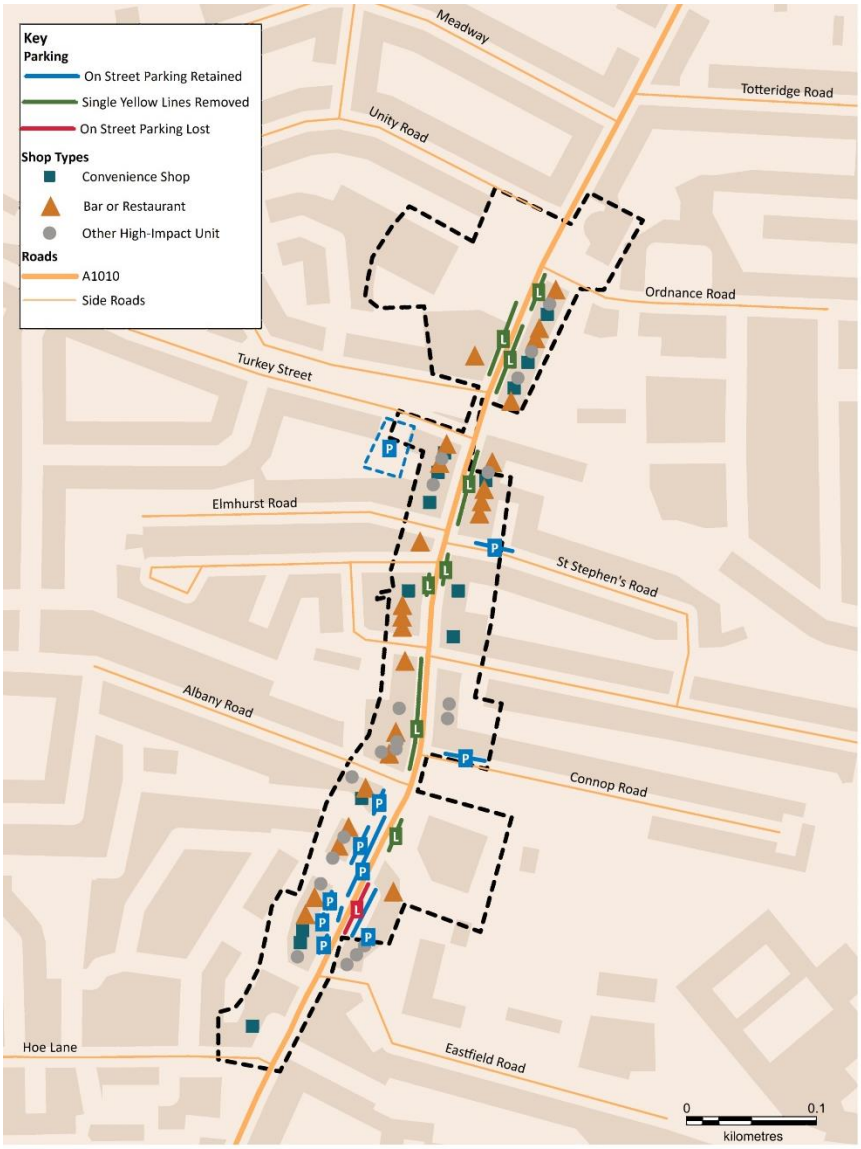
Table 5.10 Car Parking Summary in Enfield Wash

	Current Parking Provision		Proposed Parking Provision	
	Number	**Regulations**	**Number**	**Regulations**
On-street	16 unlimited spaces on A1010 26 limited waiting spaces	• Unlimited spaces available 7 days, 24 hours	11 unlimited spaces on A1010 26 limited waiting spaces	• Assumed available 7 days, 24 hours
On-street Single Yellow Line Areas	Estimated 30 spaces	• Available before 8am and after 6.30pm	No spaces	
Off-street	Turkey Street Car Park (owned by Enfield Council)- 33 spaces (1 disabled)	• Open 7 days, 24hrs • Free parking	Turkey Street Car Park (owned by Enfield Council) 33 spaces (1 disabled)	• Open 7 days, 24hrs • Free parking
Total Daytime	75 spaces		70 spaces	
Total Evening	105 spaces		70 spaces	

Source: Parkopedia

5.77 The following map shows the current parking provision in Enfield Wash and its positioning relative to high-impact units such as convenience shops, bars and restaurants and other high-impact units such as hairdressers.

Figure 5.6 Available Parking and Shop Types in Enfield Wash



Source: Estates Gazette, Cycle Enfield Consultation Plans and Regeneris Consulting.

Note: any post consultation design changes are not incorporated.

5.78 There is limited change to the numbers of on-street parking spaces supporting businesses along the corridor, although some on-street parking is lost.

5.79 In consultation, the main area of concern highlighted was North of Turkey Street, where there are a number of takeaway food units which highlight the loss of single yellow line parking as potentially having an effect on their evening business.

5.80 In total, 22% of the units in Enfield Highway are evening economy units, which may be more affected by the loss of single yellow line parking spaces (available after 6.30pm).

Impact on Users

5.81 The analysis above shows that the congestion impacts will lead to a 4% increase in the journey times for people travelling through Enfield Wash. In isolation, this is not anticipated to have a significant impact on car users accessing the centre, particularly given that:

- There is not expected to be any impact on the 35% of car visitors making non-discretionary trips, as they will still need to visit the centre
- The majority of shoppers on discretionary trips arrive after the AM peak and leave before the PM peak, hence will be less affected by this peak time delay.

5.82 The changes to car parking will result in a minor loss of day-time parking, but a more significant reduction in overall parking available in the evenings, which is estimated to account for around 22% of the town centre economy.

5.83 All of these factors point to there being a limited impact on car users, however the three scenarios are used to set out a range of possible impact scenarios:

- Our base case assumes an overall 10% reduction in the 65% of discretionary car users – which equates to a 6.5% overall reduction in car user visitors.
- This alters to a 20% reduction in the number of discretionary car users in the worse case (equating to a 13.0% reduction in all car users), and no change in the better case.

Net impact on town centre performance

5.84 The overall outcome of these effects on town centre annual business turnover is summarised in the table below. The base case is what we assess to be the most likely outcome. The better and worse case scenarios set out a realistic upper and lower benchmarks, to provide a range of impacts.

5.85 It is assumed that the reduction in car users to the centre will all be entirely lost spend to Enfield Highway (ie no displacement to other modes of transport).

5.86 The table shows a summary of the net additional impacts broken down by transport users. For the base, better and worse case scenarios, it shows:

- % change in car users
- % impact on total annual town centre turnover

5.87 Various mitigation measures could be made to reduce the negative impacts set out in the base case. These are summarised in Chapter 6 of the report.

Table 5.11 Summary of Impact of Changes in Car Users in Enfield Wash

Transport Mode	Town Centre Annual Spend	Base Case		Better Case		Worse Case	
		% change in no. of trips	Impact on annual TC turnover	% change in no. of trips	Impact on annual TC turnover	% change in no. of trips	Impact on annual TC turnover
Walking	£6.69m						
Cycling	£0.08m						
Car	£2.83m	-6.5%	-1.1%	0.0%	0.0%	-13.0%	-2.2%
Bus	£6.92m						
Other	£0.07m						
Total	**£16.59m**		-1.1%		0.0%		-2.2%

5.88 Under the base case, the impact of reduced car users would have a **minor negative impact** on town centre economic vitality, with a potential loss of town centre spending of approximately 1.1%.

5.89 The better and worse case scenarios suggest that the range of possible impacts is expected to be a reduction in town centre spending of between 0% and 2.2% (respectively equivalent to a neutral / negligible and a minor negative impact).

Bus User Impacts

Overview

5.90 There are no proposed changes to the position of the four bus stops within the borders of Enfield Wash town centre.

5.91 All the bus stops will remain in same locations, with cycle lane running between footway and stationary bus at three of the bus stops and the bus stop at Albany Leisure Centre (northbound) being unaffected by cycle lane.

5.92 The proposed cycle lane will run between the footway and stationary bus at the other three bus stops which may cause some inconvenience for bus passengers embarking or disembarking from the bus and cyclists.

Nature of Effect

5.93 The extent to which the scheme leads to a change in the number of bus visits, will depend upon a number of factors:

- **Perceptions of safety of the new bus stops, which could discourage some users from using the bus**
  - The majority of bus stops within the town centre will be designed to have a bus stop boarder with the cycle lane running between the footway and stationary bus. The northbound bus stop at the leisure centre is planned to have a bus stop bypass.
  - TfL have indicated that this infrastructure is commonplace in continental Europe, a number are now operating across London and have not created any additional issues or collisions, and their use will be monitored, with TfL taking action to mitigate if there is any evidence emerging of a risk to bus passengers.
- **Congestion Impacts which could extend journey times by bus**
  - There is expected an additional delay of around 21 seconds for a journey through the town centre (a 4% increase on current journey times). These changes will not fundamentally affect bus routes as they are small additional delays across a whole bus route but some minor amendments may need to be made to scheduling. Similar impacts may occur during weekend periods when general traffic volumes are high. There is likely to be minimal impact during the inter-peak and evening periods, although the additional signals will create some extra journey time.

Impact on Users

5.94 The visitor survey shows that around 60% of bus users are spending money in the town centre as part of non-discretionary trips (ie for non-flexible purposes such as work or education). It is assumed that there would be no impact on these visits.

5.95 The remaining 40% of bus user trips are on discretionary trips and so the changes outlined could lead to a proportion of these trips being displaced to alternative destinations.

5.96 However, the limited impacts and fewer convenient alternative options for bus users is expected to mean the impact is limited. This takes into account the following:

- The disruption to journeys is likely to be minimal – with only an estimated 21 second additional journey time (4% increase on current times)
- There are no expected changes to the location of bus stops
- The success of the new bus stop arrangements, using bus stop boarders and by-passes will be kept under review.
- Bus users are likely to have less flexibility in decision making about retail and service centre destinations, unless they live nearby to alternative bus routes.

5.97 The scenarios include the following:

- Our base case scenario is for no change to bus users as a result of the changes.
- The better case scenario assumes the same, while the worse case scenario assumes a reduction of 5% of discretionary trips (which equates to a 2% in visits by all bus users).

Net impact on town centre performance

5.98 The overall outcome of these effects on town centre annual business turnover is summarised in the table below. The base case is what we assess to be the most likely outcome. The better and worse case scenarios set out a realistic upper and lower benchmarks, to provide a range of impacts.

5.99 It is assumed that any reduction in bus users to the centre will all be entirely lost spend to Enfield Wash (ie no displacement to other modes of transport).

5.100 The table shows a summary of the net additional impacts broken down by transport users. For the base, better and worse case scenarios, it shows:

- % change in bus users
- % impact on total annual town centre turnover

5.101 Various mitigation measures could be made to reduce the negative impacts set out in the base case. These are summarised in Chapter 6 of the report.

Table 5.12 Summary of Impact of Change in Bus Users in Enfield Wash

Transport Mode	Town Centre Annual Spend	Base Case		Better Case		Worse Case	
		% change in no. of trips	Impact on annual TC turnover	% change in no. of trips	Impact on annual TC turnover	% change in no. of trips	Impact on annual TC turnover
Walking	£6.69m						
Cycling	£0.08m						
Car	£2.83m						
Bus	£6.92m	0.0%	0.0%	0.0%	0.0%	-2.0%	-0.8%
Other	£0.07m						
Total	**£16.59m**		0.0%		0.0%		-0.8%

5.102 Under the base case, there is assumed to be no change in bus users, hence a neutral / negligible impact on town centre economic vitality.

5.103 The better and worse case scenarios suggest that the range of possible impacts is expected to be a reduction in town centre spending of between 0% and 0.8% (both a neutral / negligible impact).

Impacts on Loading & Unloading

5.104 There are presently no designated loading or unloading bays in Enfield Wash town centre, with businesses using parking bays for loading purposes.

5.105 The majority of businesses along the high street are already able to load or unload from the rear of their premises, and will therefore not be affected by changes to the parking at the front. However there are a number of premises unable to use the rear of the premises for loading purposes and these are reliant on parking spaces along the high street.

5.106 The inconvenience to the majority of businesses in Enfield Wash is likely to be minimal (or non-existent) as most have rear access. Therefore, the impact of changes to delivery vehicle access on town centre business turnover has been assessed as **neutral / negligible.**

Town Centre Environment

Overview

5.107 The proposed scheme includes a number of elements which have the potential to directly enhance the overall town centre environment. These include:

- Junction entry treatment to slow cars where there are pedestrian or cycle crossings
- The existing uncontrolled crossing outside Albany Leisure Centre is to be converted to a zebra and cycle priority crossing
- Public realm improvements at A1010 / Longfield Avenue junction
- An uncontrolled crossing near A1010 / Connop Road junction removed
- Staggered pedestrian crossing installed across A1010 outside Unity Centre

5.108 In addition to these direct enhancements to the town centre environment, it is expected by scheme planners that the town centre environment will be indirectly enhanced by changes in the volume and nature of traffic flows in the area as a result of the transport specific interventions.

Nature of Effect

Ease of Access around the Centre

5.109 There are a number of planned changes to crossings in Enfield Wash as part of the Cycle Enfield scheme which will make the town centre a more pedestrian friendly area. The crossing outside Albany Leisure Centre is to be converted to a zebra and cycle priority crossing, which will help improve safety, especially with the number of people using the Leisure Centre. A staggered pedestrian crossing will be installed across A1010 outside Unity Centre, again helping to improve pedestrian safety outside a well used facility in the town centre.

5.110 The uncontrolled crossing near A1010 / Connop Road junction will be removed in favour of the enhanced zebra crossing outside Albany Leisure Centre.

5.111 Overall, these improvements will encourage more pedestrian footfall in Enfield Wash as journeys will be quicker and safer than at present. The provision of designated crossing points and associated signage and the overall volume of cyclists (particularly in the short term) will minimise the risk of adverse accessibility effects.

Public Realm

5.112 There is expected to be some public realm improvements at A1010 / Longfield Avenue junction, which should improve the area beyond what is already there.

5.113 Generally, there is a lack robust evidence on the impact of public realm improvements. However, case study evidence collated across a range of research studies suggest some evidence of a link between public realm improvement and enhanced town centre performance:

- UK case study evidence cited by Association of Town Centre Managers[15] suggests that public realm improvements such as pedestrianisation or adding seating and greenery, can increase retail footfall by about 30% and retail turnover by an average of 17%.
- Evidence cited by Living Streets[16] and based on a range of international case studies suggests that public realm improvements can improve footfall by 10-25%
- Evidence referenced by BIS and DfT[17], has suggested that turnover for businesses in a high street location increased by between 5 and 15% following investment in public realm developments.

5.114 Evidence from the recent Outer London Fund R2 programme provides further evidence on the link between public realm / environmental improvement and town centre performance. The programme saw public realm improvement projects delivered across 26 outer London town centres, and, while the projects varied in their scale and scope, there is strong evidence[18] that the investments are starting to result in improvements in town centre vitality as measured across a range of indicators including visitor satisfaction, vacancy rates, footfall and employment. However, emerging evidence from the programme suggests that impact is greatest where enhancements are relatively concentrated and where they are 'transformational' in the way the people perceive and use a specific town centre.

Town Centre Environment

5.115 It is anticipated that the town centre environment will be further enhanced by changes in the volume and nature of traffic flows in the area as a result of the transport specific interventions.

5.116 The OLF programme highlights that economic benefit is likely to be strongest if environmental improvements help to diversify town centre uses, encourage more people to spend leisure and recreation time there.

[15] https://www.atcm.org/townteamuploads/why_great_spaces_matter

[16] http://www.livingstreets.org.uk/sites/default/files/content/library/Reports/PedestrianPound_fullreport_web.pdf

[17] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/3890/making-sustainable-local-transport-happen-whitepaper.pdf

[18] Outer London Fund Round 2 Evaluation, GLA, 2015, accessed at https://www.london.gov.uk/what-we-do/regeneration/funding-opportunities/completed-funds

Impact on Users

5.117 In the assessment of impacts we have taken into account the range of factors analysed above to consider overall environmental effects of the scheme on town centre users. We believe it is likely that the proposed scheme will have a considerable impact on the town centre environment in Enfield Wash, and that there could be an uplift in footfall as a result of this. However, given there are still uncertainties about the specifics of the scheme and lack of clear precedents we have made conservative assumptions about these impacts.

- Our base case assumes that overall footfall and spend in the town centre will remain the same across all users as a result of improvements to the town centre environment
- This assumption for the worse case scenario is that there will be no change in town centre footfall, but this rises to a 2% increase in overall footfall and spend across all users in the better case scenario.

Net impact on town centre performance

5.118 The overall outcome of these effects on town centre annual business turnover is summarised in the table below. The base case is what we assess to be the most likely outcome. The better and worse case scenarios set out a realistic upper and lower benchmarks, to provide a range of impacts.

5.119 It is assumed that the increases in visitors to the town centre and corresponding spend assessed here would all be net additional, not displaced from other transport modes.

5.120 The table shows a summary of the net additional impacts broken down by transport users. For the base, better and worse case scenarios, it shows:

- % change in visits by each transport user group
- % impact on total annual town centre turnover

5.121 Various measures could be made to enhance the positive impacts set out in the base case. These are summarised in Chapter 6 of the report.

Table 5.13 Summary of Town Centre Environment Impacts in Enfield Wash

Transport Mode	Town Centre Spend	Base Case		Better Case		Worse Case	
		% change	Value change	% change	Value change	% change	Value change
Walking	£6.69m	0%	0%	2%	2%	0%	0%
Cycling	£0.08m	0%	0%	2%	2%	0%	0%
Car	£2.83m	0%	0%	2%	2%	0%	0%
Bus	£6.92m	0%	0%	2%	2%	0%	0%
Other	£0.07m	0%	0%	2%	2%	0%	0%
Total	**£16.59m**		0%		2%		0%

5.122 Under the base case there is assumed to no change in town centre users, hence a neutral / negligible impact on town centre economic vitality.

5.123 There is no change under the worse case scenarios (a neutral / negligible impact), but an increase in town centre spending of 2% under the better case scenario (a minor positive impact).

Summary and Assessment of Net Impacts

5.124 The table below draws together the net additional impacts set out under each of the assessment areas above. The table shows the overall impact both in terms of value and proportion of total annual town centre business turnover for Enfield Wash. This is broken down to show:

- Construction phase impacts, only occurring within a single year
- Operational phase impacts, which would be annual effects and which are broken down by the net effects of changes to visitors by different transport mode, and the town centre environment impacts.

5.125 In each case we show three scenarios. The base case is what we assess to be the most likely outcome. The better and worse case scenarios set out a realistic upper and lower benchmarks, to provide a range of impacts, recognising the inherent uncertainties in this assessment.

Table 5.14 Summary of Net Impacts in Enfield Wash

Impacts		Base Case	Better Case	Worse Case
Construction Phase	**£**	**-£149,500**	**-£57,500**	**-£333,600**
	%	**-0.9%**	**-0.3%**	**-2.0%**
Transport Shifts (Bus, Car & Cycle Users)	£	-£171,600	+£24,500	-£506,100
	%	-1.0%	+0.1%	-3.1%
Town Centre Environment	£	-	+£331,700	-
	%	0.0%	2.0%	0.0%
Total Operational Phase (Transport Shift & Town Centre Environment)	**£**	**-£171,600**	**+£356,200**	**-£506,100**
	%	**-1.0%**	**2.1%**	**-3.1%**

5.126 Under the base case:

- The construction phase would have a **neutral / negligible impact on town centre economic vitality within that single year**, with a potential loss of town centre spending of approximately 0.9%.
- The operational phase would have a **neutral / negligible or minor negative impact on town centre economic vitality on an ongoing basis**, with a potential loss of town centre spending of approximately 1.0% per annum.

5.127 For both the construction and operational phases, various measures could be made to reduce the negative impacts and enhance the positive impacts. These measures are summarised in Chapter 6 of the report.

5.128 **By implementing these, we believe the impact of the operational phase can ensure a neutral or positive level**.

5.129 The lack of UK precedents makes it difficult to predict the extent to which the scheme will have the transformational effect on town centre attractiveness and liveability which scheme planners seek. As such, this has not been modelled in the figures above. However, based on evidence of the impact of transformational public realm projects (set out earlier in this report), if this is achieved, then there could be a longer term uplift in town centre spend of up to 10-15%.

6. Mitigation Measures, Support for Town Centre Prosperity and Performance Monitoring

6.1 In response to the impacts set out in the preceding chapters, a number of possible responses have been identified; these include impact specific mitigation measures, along with a number of wider measures which could be implemented to support town centre vitality.

6.2 The mitigation measures respond directly to the impacts identified above, and draw on best practice from elsewhere in London and the UK.

Construction Phase Mitigation

6.3 As highlighted in the previous chapter, there is potential for the construction of the scheme to result in temporary adverse impacts largely as a result of the potential for disruption to pedestrian flow and vehicle movement and the effects of this on business trading.

6.4 Delivery planning is still at a very early stage, with the precise timetable and approach to construction yet to be decided. Realistically, construction works of this nature will always lead to a degree of disruption and it will never be possible to totally eliminate this; that said, a range of mitigation measure can be put in place to manage and reduce disruption and minimise adverse local economic impacts:

Overarching Mitigation Options for the A1010 North Scheme

6.5 The ongoing design and planning process provides an opportunity to develop and refine a number of important pre-construction mitigation approaches.

- **Design of construction works** – as demonstrated by impact assessment in the preceding chapter, the design of the construction works and programme can have a significant impact on the scale of disruption; the analysis has shown for example that, if possible, maintaining two-way access for the duration of construction could help to reduce additional congestion and hence disruption. As such, in designing the construction programme it is imperative that the engineers bear town centre vitality in mind and do as much as possible to limit disruption to businesses and users. This should include carefully planning the phasing and timing of the works and doing as much as possible to minimise access disruption both on the road and pavement
- **Traffic management plan** – linked to the above, modelling by JMP suggests there is potential for additional congestion during the construction process. A detailed traffic management plan could help to scope out these effects and ensure that alternative provisions are put in place where possible
- **Publicity and business liaison** – once the delivery plans have been developed, it is important that these are widely published to ensure that both town centre businesses and users are aware of what the work entails, how they might be impacted and when. This should be via the usual communication and publicity channels, but also via direct liaison with high street businesses adjacent to planned works.

6.6 Once the construction work is underway, a range of additional mitigation measures can be deployed to help reduce disruption:

- **Approach to construction** – while construction activity will inevitably lead to a certain amount of disruption, efforts should be made to ensure that in is undertaken in a way which is considerate to local businesses and town centre users. In the event that sightlines to business premises are affected temporary 'business as usual' or and or wayfinding signs should be considered.
- **Ongoing business liaison** – explore the potential for the contractors to employ a specific business liaison officer for the duration of the construction period. This individual should be located on site and should be responsible for liaising with local businesses on a day to day basis regarding the construction process. This will ensure there is a 'go to person' for local businesses and will help to identify any issues swiftly as they emerge. This approach was deployed in several of the larger Outer London Fund projects and was reportedly successful in helping to build dialogue and trust
- **Proactive efforts to maintain footfall flows** to local shops during construction. This could include a range of approaches including:
  - temporary review of town centre parking restrictions, particularly during more disruptive phases of construction as part of efforts to maintain and encourage footfall
  - local wayfinding to guide pedestrians if necessary
  - where construction works are lengthy, explore possibility of holding town centre events to encourage stronger footfall to area
  - efforts to create a stronger brand for the town centre via wider marketing efforts tied in with longer term aspirations for the town centre once the scheme is complete.

Operational Phase Mitigation

6.7 Once the scheme is operational, there is potential to deploy a number of additional measures to mitigate negative impacts, or maximise positive impacts of the scheme on town centre economic vitality.

Car Parking Approaches

6.8 The main negative impacts relating to the loss in car users relates to a number of parking bays being relocated from on-street to off-street. The challenge is therefore to ensure current on-street parkers are easily able to park off-street instead.

- **Ensuring clear signage to** the off-street car parks, and safe and attractive routes from these car parks into the town centres is key.
- **On-street parking policy could be reviewed** to consider providing 30 minutes free parking where this is currently pay and display, and potentially a shorter maximum stay period for on-street parking in the centre. This would allow a more rapid churn of cars using these spaces, and could mitigate for the loss of on-street spaces.

Traffic flow

6.9 Although additional congestion delays throughout the centres are not anticipated to have a major impact on car users, these impacts could be further reduced by the introduction of additional traffic management measures.

6.10 Scheme planners have suggested that SCOOT is expected to be introduced as part of the scheme, to optimise the flow of traffic between signalised junctions and reduce congestion, and this would be supported as a mitigation measure.

Loading / unloading

6.11 Although loading and unloading effects are not expected to impact on overall economic vitality of the centres, it is recognised, particularly in Enfield Wash that a small number of individual businesses could be more affected by this. Where this is the case, LB Enfield could offer to work with these individual businesses to explore alternative loading and unloading solutions that would minimise cost impacts for their businesses.

Maximising Prosperity

6.12 While not direct mitigation responses there are also a number of additional measures that could be considered to help to support town centre vitality and maximise any benefits generated by the schemes:

- **Town centre management** – evidence form the Outer London Fund Programme has highlighted the important role that town centre management can play in supporting town centre vitality, particularly given increasing resource constraints within councils. It is understood that LB Enfield has aspirations to establish town teams for the larger town centres within the Borough: if established these could play a valuable role in helping to build relationships between stakeholders in each of the town centres, providing a stronger mechanism to both identify and respond to issues, while also offering potential to be proactive in developing future schemes and initiatives to enhance town centre vitality.
- **Employment and training** – the council could explore the potential to engage local residents – particularly young people – in the delivery process. This could include engaging with local schools (either on construction or cycling aspects or both), and by ensuring the construction process includes training, work experience and apprenticeship opportunities for local residents.

The Need for Ongoing Monitoring

6.13 Given the scale and complexity of the proposals, it is important that LB Enfield closely monitors the impacts of delivery activity – both during the construction period and over the short-medium term period once the schemes are operational. This will help to ensure that potential adverse effects are identified if and where they emerge and, where necessary enable appropriate mitigation responses to be developed and deployed.

6.14 Monitoring should include:

- **Ongoing renewal of town centre health check intelligence** which provides a quantitative overview of town centre performance and vitality. The 2014 health check data collected as part of the Retail Study and updated for this impact assessment provides the baseline against which future changes in performance can be measured.
- **Ongoing liaison with the town centre stakeholders** to maintain an up to date picture of more qualitative aspects of town centre vitality. Again, this will help to identify specific issues or concerns as they emerge and help to inform mitigation responses. Liaison should be approached both informally (eg ad hoc walk arounds and conversations with local

businesses and residents) and formally (eg piggybacking onto wider town team or business association activities).

- **Ongoing monitoring system** to assess the use and effectiveness of bus stop boarders and bypasses to ensure they are being used correctly and safely by bus drivers, cyclists and pedestrians. If there are any weaknesses in the current design these could be quickly addressed
- **Ongoing monitoring of parking provision and congestion** to establish any significant and detrimental effect of delivery. Again, monitoring will ensure that if there are any weaknesses in the current design these could be addressed.

Appendix A - Consultees

A.1 A series of consultations were carried out with key stakeholders and local businesses to support our findings.

A.2 Official consultations were carried out with:

- Huw Jones (Chief Executive North London Chamber of Commerce)
- Olly Prigmore (Chairman of Enfield Business and Retailers Association and owner of G Johns and Sons Ltd)
- Lovelace Poku (Regeneration Manager, Enfield Council)
- Anna Loughlin (Interim Head of Business and Economic Development Service, Enfield Council)
- Leon Thorne (Principal Strategy Planner (Cycling), Transport for London)
- Alex Sexton (Borough Cycling Programme Officer, Transport for London)

A.3 Short discussions were also carried out with representatives from the following businesses in Enfield Highway and Enfield Wash:

- TGF Pizza
- Stokrotka
- Enfield Fish Market
- Enfield Food Centre
- Well Enfield Pharmacy

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