Hounslow Transport Strategy

Third Local Implementation Plan

February 2019

London Borough of Hounslow

Contents

Glossary

CAVs	Connected and Autonomous Vehicles
CO_2	Carbon Dioxide
CIL	Community Infrastructure Levy
CS9	London Cycle Superhighway 9
CPZ	Controlled Parking Zone
DfT	Department for Transport
EQIA	Equality Impact Assessment
KSI	Killed or Seriously Injured
LIP	Local Implementation Plan
LIP3	Third Local Implementation Plan
MAQF	Mayor's Air Quality Fund MAQF
MTS	Mayor's Transport Strategy
NO_2	Nitrogen Dioxide
NO_x	Nitrogen Oxides
$PM_{2.5}$	PM2.5 Fine Particulate Matter less than 2.5 micrometres in diameter, able to penetrate deep into the lung
PM_{10}	Fine Particulate Matter less than 10 micrometres in diameter
PTAL	Public Transport Accessibility Level
SCA	Strategic Cycling Analysis
SEA	Strategic Environmental Assessment
STARS	Sustainable Travel: Active, Responsible, Safe (TfL programme)
SUD	Safe Urban Driving
SuDS	Sustainable Drainage System
TfL	Transport for London
TLRN	Transport for London Road Network
ULEV	Ultra-Low Emission Vehicle
ULEZ	Ultra-Low Emission Zone

Foreword to the draft LIP

I'm delighted to be able to present this new transport strategy for Hounslow 2019-2041.

Some great work has been completed in the period covered by the last transport strategy. Over half of our roads have now been converted to 20mph, including all roads outside schools. 95% of bus stops now meet the necessary accessibility standards to allow them to be used by those in a wheelchair. Over 80% of junctions are now protected by double yellow lines to prevent unsafe parking that restricts visibility (100% will be covered by end 2019). Over 160 disabled bays have also been provided; 30 new of extended CPZs schemes have been implemented and there has been a significant expansion of electric vehicle charging points including 48 new lamp column chargers and 33 Source London public charging points. Over 200 new cycle spaces delivered and the 'Legible London' pedestrian wayfinding signage has been delivered in Hounslow, Chiswick and Brentford town centres and currently being designed for Feltham. Well over 4000 children received Bikeability Level 1 or 2 cycle training, and over 500 adults received cycle training, from complete beginners to confidence building on-road sessions. 1500 car seats have been checked to make sure they are fitted correctly, and 8000 pupils have benefitted from pedestrian skills training. We have also delivered the first high quality and substantially segregated cycle facilities on borough roads along stretches Staines Road, Hanworth Road and Boston Manor Road.

However, this administration is absolutely committed to raising our game on tackling polluted air, with transport currently the leading cause of poor air quality. This new strategy refocuses our efforts on dealing with this problem and as such it includes:

- More money for electric vehicle charging points and car club bays that help reduce the impact of car travel on air quality
- A focus on creating a high-quality network of bike lanes - the 'Hounslow Priority Cycle Network' - that will help encourage people to leave the car behind for local trips
- Improvements to the strategic walking network such as the Thames Path and Capital Ring to help get more people walking for leisure
- More investment in removing barriers to mobility impaired people navigating our footways and accessing public transport
- Support for residents that want to reduce through traffic in their streets
- Provision to improve bus reliability and deliver our aspirations for new rail lines and stations in Brentford and Bedfont
- Funding to promote sustainable transport to schools, businesses and communities and to undertake activities such as cycle training and other road safety initiatives

- A commitment to consult on a workplace parking levy in the Brentford area to support a new rail link to the Elizabeth Line (Crossrail) at Southall (subject to a separate consultation).

Alongside these programmes is our continuing work to make the road network as safe as possible by finishing the 20mph programme and tackling collision hotspots. We also want to use this strategy to help ensure we can deliver our ambitious pledge for 5,000 new homes in a sustainable way.

Councillor Hanif Khan

Transport and Corporate Property

London Borough of Hounslow

1. Introduction and preparing a LIP[1]

1.1. Introduction[2]

The Local Implementation Plan (LIP) is a statutory document prepared under Section 145 of the GLA Act that sets out how the borough proposes to deliver the Mayor's Transport Strategy (MTS) in its area, as well as contributing to other local and sub-regional goals. It has been developed in accordance with the Revised Guidance for Borough Officers on Developing the Third Local Implementation Plan.

This document is the third LIP for the London Borough of Hounslow. It covers the period 2019-2041 which is the same as the MTS (published in March 2018) and it also takes account of the transport elements of the draft London Plan, and other relevant Mayoral and local policies. The document sets out long term goals and transport objectives for the London Borough of Hounslow for the next 22 years and the targets and outcomes the borough is seeking to achieve, beginning with a three-year programme of investment, including delivery proposals, for the period 2019/20 - 2021/22. A more detailed delivery plan is provided for the first financial year, 2019/20.

This LIP identifies how the London Borough of Hounslow will work towards achieving the MTS goals of:

- Healthy Streets and healthy people
- A good public transport experience
- New homes and jobs

The council notes that the overarching aim of the strategy is for 80 per cent of all trips in London to be made on foot, by cycle or using public transport by 2041, compared to 63 per cent today, and that there are different targets set for central, inner and outer London. The LIP outlines how the council will set local priorities and targets in order to assist with achieving this aim.

This document also outlines how the council will work with TfL to assist with delivering the outcomes, polices and proposals of the MTS.

[1] Requirement R1: No response required in LIP submission. It is a requirement for the borough to provide a response to every Mandatory Requirement.

[2] Requirement R2: Boroughs are required to include in their LIP an explanation of the statutory background of the LIP process.

1.2. Local approval process[3]

The approval process ensured that Elected Members not only approved the final document but also provided guidance to borough officers during the development of the draft. In addition to informal engagement, elected Members were asked to review the preparation process and draft contents, including objectives and challenges, at the council's Local Area Forums. Following this initial engagement, the draft LIP was presented for public consultation in November 2018.

The final document was approved initially by the Portfolio Holder on 22 January 2019 and formally approved at the full Council meeting on 12 February 2019.

1.3. Statutory consultation[4]

The GLA Act 1999 places a duty on boroughs, when preparing a LIP, to consult with the following organisations:

- The relevant Commissioner or Commissioners of Police for the City of London and the Metropolis
- TfL
- Such organisations representing disabled people as the boroughs consider appropriate
- Other London boroughs whose area is, in the opinion of the council preparing the LIP, likely to be affected by the plan
- Any other body or person required to be consulted by the direction of the Mayor

The borough undertook a public consultation exercise between November 2018 and January 2019. The consultation appeared on the borough's website and was available for any member of the public to respond.

In addition, over 200 bodies were directly consulted, including the statutory consultees mentioned above. All direct consultees were written to, drawing attention to the consultation, where it could be found on the borough's website, and the closing date.

The direct consultees fell into a number of broad categories as follows:

[3] Requirement R3: The boroughs are required to outline the democratic processes taken to approve the submission of the LIP at a borough level.

[4] Requirement R4: Boroughs are required to provide evidence to show that all statutory consultees and any other organisations/groups have been engaged with during the formal statutory consultation period. They must also demonstrate how the views of their consultees have been taken into account.

Statutory consultees	***Number consulted***
TfL	1
Police	1
Disability groups*	20
Local authorities	6
Non-statutory consultees	
National agencies	4
Transport & environment groups and	6
Business groups	2
Community groups	24
Residents' groups and associations	68
Schools	90

* Disability groups included two detailed workshops with members of Hounslow's Disability Community Forum which represent as well as direct notification of 18 other groups.

National agencies included: Natural England, Historic England, Environment Agency and Highways England.

Transport & environment groups included: London TravelWatch, Living Streets, Hounslow Cycling Campaign, Air Quality Brentford and WestTrans

There were 13 responses from these bodies and these were:

- Transport for London
- Natural England
- Spelthorne District Council
- Historic England
- OWGRA (Osterley & Wyke Green Residents' Association)
- Two respondents explicitly representing local businesses
- Metropolitan Police
- London Borough of Richmond Upon Thames
- Environment Agency
- Hounslow Green Party
- Hounslow Cycling Campaign
- Grove Park School

In total, 65 online responses to the LIP were received.

A more detailed summary of the responses received and the borough's response to individual points raised can be found on the borough's website at http://haveyoursay.hounslow.gov.uk.

1.4. Statutory duties[5]

The council has taken into account all the statutory duties and processes as set out in the requirements in the GLA Act in the preparation of this LIP.

The council has met its statutory duty and conducted a Strategic Environmental Assessment (SEA) and, as recommended, an Equality Impact Assessment (EQIA) on the proposals contained in its LIP. The SEA concluded that that the Hounslow LIP is not expected to have any significant adverse impacts on the environment, although the assessment of LIP outcomes and programmes for both purposes has resulted in the following changes to the LIP.

- Additions under outcome 6 to include the impact of poor public realm on accessibility and the need for bus driver training.
- A new objective under outcome 6 relating to maintenance of highway assets due to their environmental impact.
- A new objective under outcome 4 to integrate Sustainable Urban Drainage Systems (SuDS) into public realm design.

All proposed transport proposals, including infrastructure schemes and route options will take into consideration on the surrounding setting, in terms of the natural, built and historic environments. Proposals will seek to incorporate improvements into the layout and design of streets and the wider townscape, which are contextually sensitive to the local natural, built and historic environments and where possible protect, conserve and enhance such assets. The Council will work with the necessary stakeholders such as Historic England, the Environment Agency and Natural England on a project by project basis to ensure that this is delivered throughout the implementation of the LIP.

The SEA Environmental Report, including a non-technical summary, and a draft of the EQIA were available on the borough's website during the consultation period. No specific comments on the SEA were received at this stage however comments from statutory consultees were received at scoping stage and taken into consideration. The Environmental Report and Environmental Statement, and the final EQIA remain on the website at this link: http://haveyoursay.hounslow.gov.uk.

[5] Requirement R5: There is a requirement to undertake a Strategic Environmental Assessment and it is recommended that an Equalities Impact Assessment is also done (which addresses the borough's Public Sector Equality Duty). The boroughs are required to consider whether it is appropriate for the LIP to be assessed against other matters, for example crime and disorder, health, economic and business issues, air quality and climate change.

1.5. LIP approval[6]

The draft LIP was submitted to the Mayor on 16 February 2019 and approved by the Mayor on XX XXX 2019.

[6] Requirement R6: Boroughs must meet all of the following requirements for the submission of their LIP set out below under the following headings: a. Name of document b. Submitting the document to TfL c. Submission milestones.

2. Borough Transport Objectives

2.1. Introduction

This chapter sets out the local policy context for the third Hounslow LIP. It covers the borough's detailed interpretation of the MTS and the local policies and proposals that will help deliver the MTS. The chapter also considers the link between the LIP and other key frameworks against which the council plans and delivers local services.

The LIP firmly demonstrates that it is informed by evidence and analysis of local needs and issues and that it is shaped by the wider context of the MTS vision, the MTS Healthy Streets Approach and the MTS policies, proposals and outcomes.

2.2. Hounslow – The Local context[7]

2.2.1. Geography and Demographics

Situated in Outer West London, The London Borough of Hounslow, named after the town at its centre, is a wedge-shaped area of approximately 56 square kilometres. It extends from Chiswick in the east to the Greater London boundary in the west, immediately south of Heathrow Airport. Hounslow borders four London boroughs; Ealing, Hammersmith & Fulham, Hillingdon and Richmond-upon-Thames, as well as Spelthorne in Surrey. The topography of the borough is extremely flat throughout.

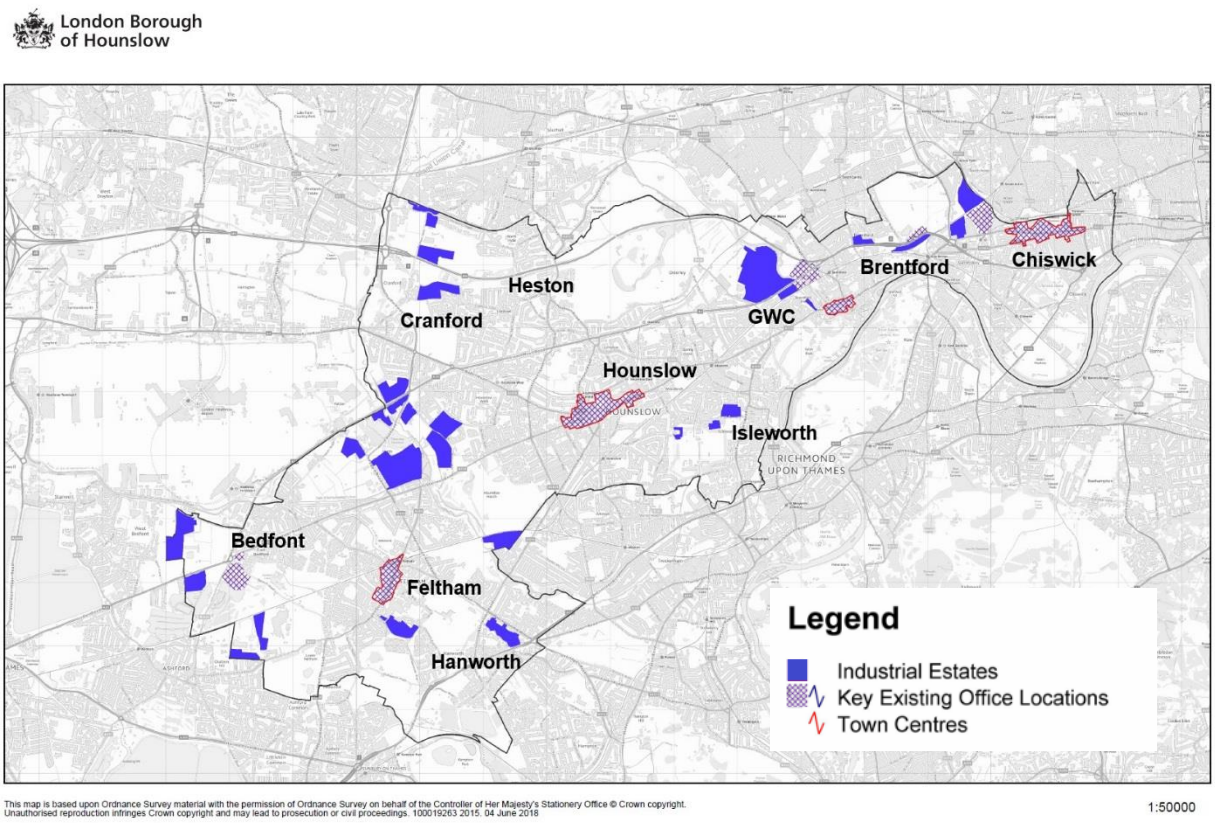
The borough is urban, dense and compact in the east around Chiswick and Brentford, gradually changing to become more suburban as one moves westwards towards Feltham and Hanworth. Residential communities are focused around the four town centres of Chiswick, Hounslow, Brentford and Feltham and the urban villages of Heston, Bedfont, Isleworth, Hanworth and Cranford. Each of these localities has its own character and attractions, reflecting their different histories and functions. Town centre improvement is a high priority for the borough and work has recently begun on the second phase of the regeneration of Hounslow town centre, a redevelopment that will bring a multi-screen cinema, dining and entertainment options and over 500 new homes. In May 2018 works to enable a major remodelling of Feltham train station began with the aim of lengthening the platforms to fully accommodate 10 car trains through the closure of the level crossing. The enabling works also improved pedestrian and cycling safety and permeability within the town centre.

There are important commercial and industrial land uses within the borough. The A4 Great West Corridor (GWC) has been designated as an Opportunity Area in the draft

[7] Requirement No R7: Boroughs are required to set out the local context including the geographical, demographic and other characteristics of their boroughs, cross-referencing existing policy and context documents as appropriate. Alternatively, please provide web-link(s) to a borough document that contains this information and reference the section and page numbers where this information can be found.

London Plan along with the west of the borough, which forms part of the Heathrow Opportunity Area and has large industrial and logistics parks serving the airport. There are a number of established industrial sites generally concentrated in the west of the borough, often serving Heathrow, although Chiswick Business Park is an employment hub offering high quality office space for over 8,000 employees. A summary of key employment areas and town centres is shown in Figure 2-1.

Figure 2-1 – Hounslow Key Employment Centres



The borough has one of the most culturally diverse communities in the UK, with a total population of approximately 278,000[8], and a working age population of 180,000. The census in 2011 recorded over 120 languages being spoken by borough residents, with 35 per cent of the population belonging to minority ethnic groups. The demographic make-up of the area has, however, changed considerably over the last decade due to a large increase in residents migrating from eastern Europe.

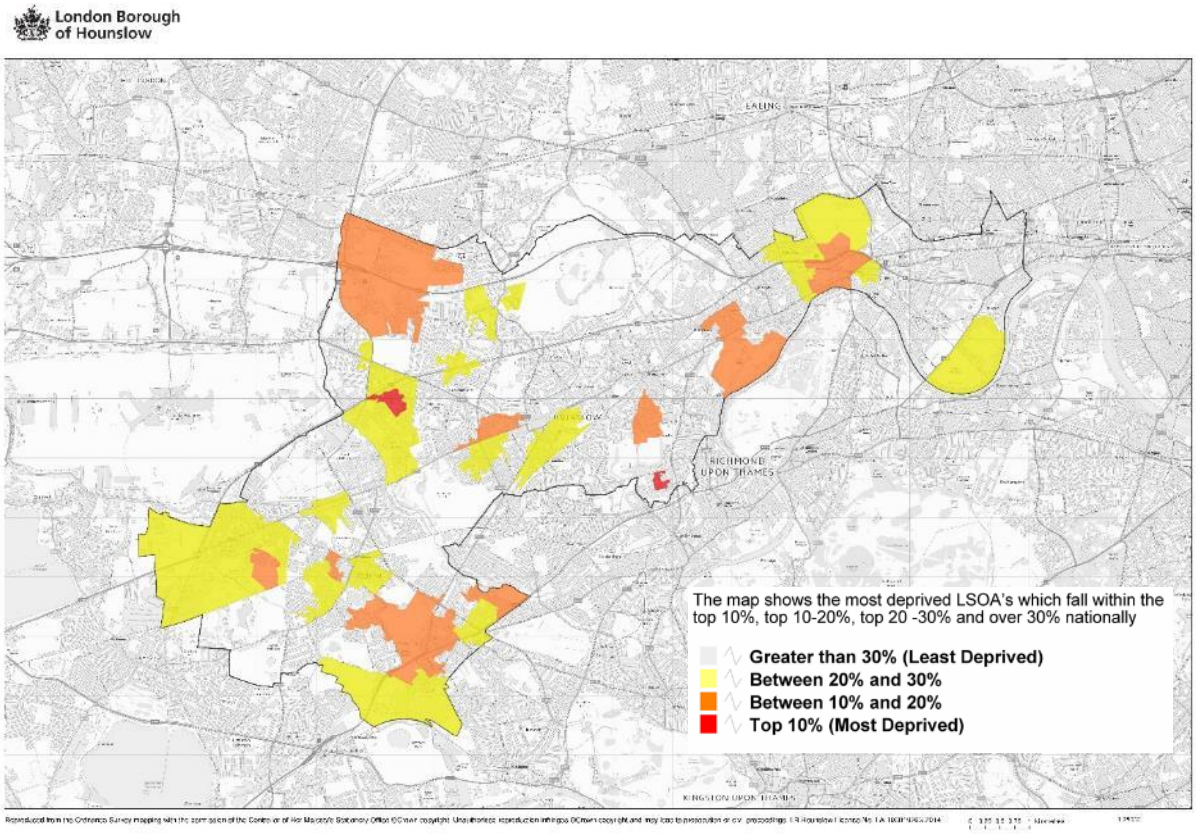
The borough has large areas of open space and a strong heritage, with historic estates at Chiswick, Osterley, Syon and Gunnersbury retaining their houses and parkland. In addition, the Royal Botanic Gardens at Kew, a site of international importance, lies

[8]GLA 2016-based housing-led population projections, 2018 projection for Hounslow.

adjacent to Hounslow's south-eastern border. The Thames flows alongside the borough and is criss-crossed by smaller waterways such as the Crane, Longford, and Duke of Northumberland's Rivers.

The borough contains several affluent areas and although as a whole is not poor in comparison to many other London boroughs, does contain a number of significant pockets of deprivation located in parts of Bedfont, Hanworth and Heston in the west and Brentford and Syon in the east. These areas are mapped in Figure 2-2.

Figure 2-2 – Index of Multiple Deprivation Rank (IMD 2015)



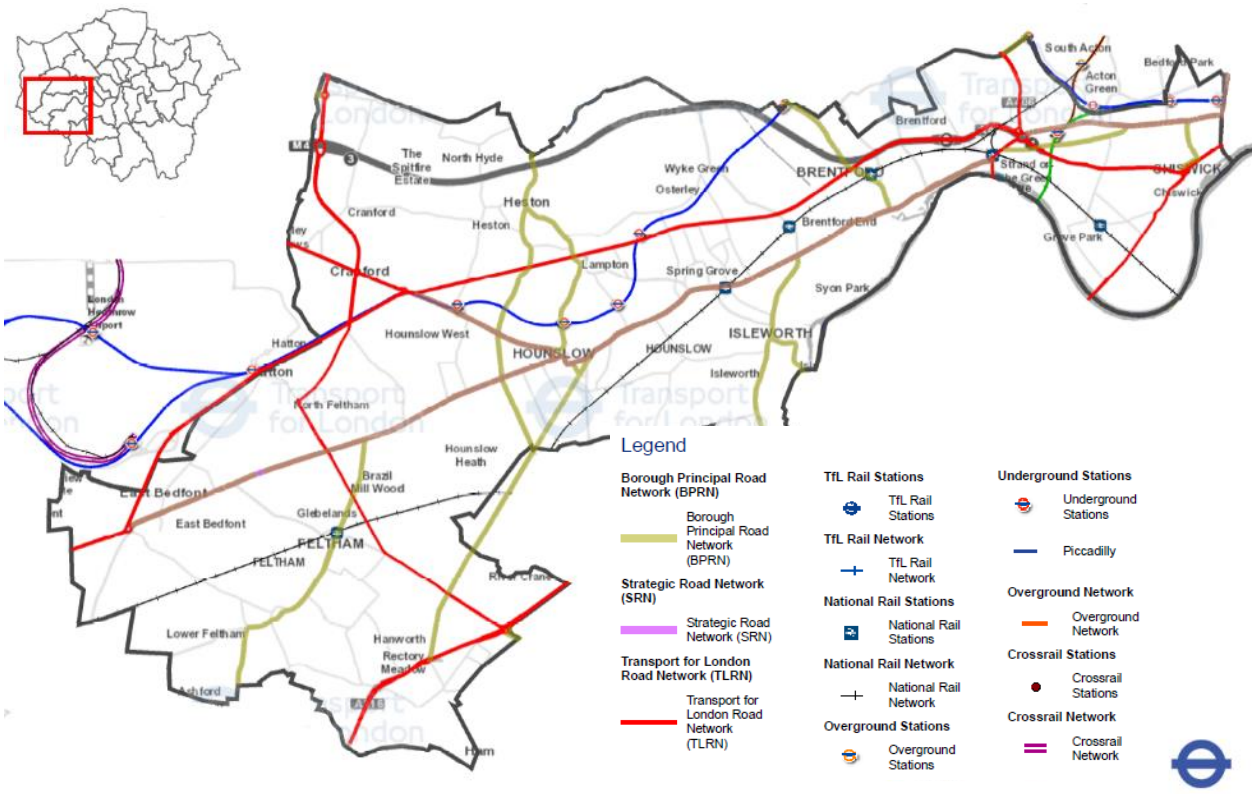
2.2.2. Current and Committed Transport Situation

The borough's transport geography, shown in Figure 2-3, is dominated by east to west radial routes both on the road and public transport networks. Although it is just outside of the borough, Heathrow's influence as a trip generator far outweighs any other single destination, and over time, the transport network has developed to accommodate connections between the airport and central London. The borough's transport network is therefore, host to a very high proportion of through traffic across all modes.

Orbital routes are more limited in number and they are often more disjointed, highly congested or overcrowded. These routes are vital for connectivity between residential areas and amenities such as schools and hospitals, as well as for those employed

locally, and any delays on these routes have an immediate local economic and social impact.

Figure 2-3: Hounslow's Transport Geography



The road network includes one motorway, the M4, which provides access primarily between the M25, Heathrow and inner/central London but also has exits to the A312 in Cranford and the A4 at Chiswick Roundabout. The elevated section of the M4, the 'Chiswick flyover', follows the route of the A4 until they part at Boston Manor Road, just north of Brentford train station. Other major roads on the Transport for London Road Network include the A4, A30 and A316, which also run east to west and the A312, which runs north to south connecting Feltham and Cranford. The principal borough road is the A315 which bisects the borough, connecting Chiswick, Brentford and Hounslow town centres and carries a large proportion of the borough's buses.

Alongside an extensive road network, the borough has a comprehensive public transport system including National Rail and London Overground railway services, London Underground services on the Piccadilly and District lines and 44 bus routes, seven of which operate 24 hours a day. Rail connections in the central and west of the borough are provided solely by the South Western Railway 'Hounslow Loop' running from Feltham to Chiswick via Hounslow, Brentford, and Kew Bridge and on to London

Waterloo. In the east, London Overground and District Line services can be accessed at Gunnersbury station.

The Piccadilly Line runs from Heathrow, through Hounslow town centre, and although it runs through Chiswick it currently does not stop at any of the Chiswick stations except for early mornings and late nights at Turnham Green. Although the distance covered within the borough boundary is considerable, it's route means that it serves only a small proportion of the resident population, increasing the importance of the borough's bus and rail networks.

The District Line provides connections only for those in Chiswick and consequently, areas such as Heston and Cranford in the north west of the borough rely solely on the bus network for public transport provision due to their distance from rail and tube stations.

The introduction of Crossrail services ('Elizabeth Line') in 2019 will bring new options for residents and businesses close to the Ealing boundary of the borough although the route does not run through the borough. Further analysis of the public transport provision is presented in Chapter 3, under outcomes 5 to 7.

The proposed expansion of Heathrow Airport would bring significant changes to the borough's transport network in the long term. The council has expressed concern about the potential negative impacts on air quality, noise and congestion caused by an increase in traffic and lack of concrete plans for new public transport infrastructure. The expansion will, however, bring significant economic benefits for the borough and the plans for a southern access tunnel would improve access from the south west of the borough, potentially reducing traffic on local roads and enabling new, faster bus routes to the airport to be provided. The construction of a third runway and subsequent diversion of the A4 could also bring a change in characteristics for this busy route. A reduced volume of through traffic on the A4 would allow more freedom to make changes to reduce its impact as a physical barrier and its aesthetics.

2.2.3. Commuting Patterns

The following series of maps show the commuting patterns of borough residents based on census 2011 data. Figure 2-4 shows that a clear east to west gradation exists for commuters into central London (Westminster) with residents in Feltham much less likely to work centrally than those in Chiswick. However, the reverse applies in Figure 2-5 for Heathrow where most commuters come from the wards immediately surrounding the airport. Inward commuters into Hounslow (Figure 2-6) come predominantly from the surrounding boroughs and Westminster except in the case of Spelthorne where higher volumes might be expected. This reflects the relatively poor transport connections between London and Surrey.

Figure 2-4: Commuting volumes to Westminster

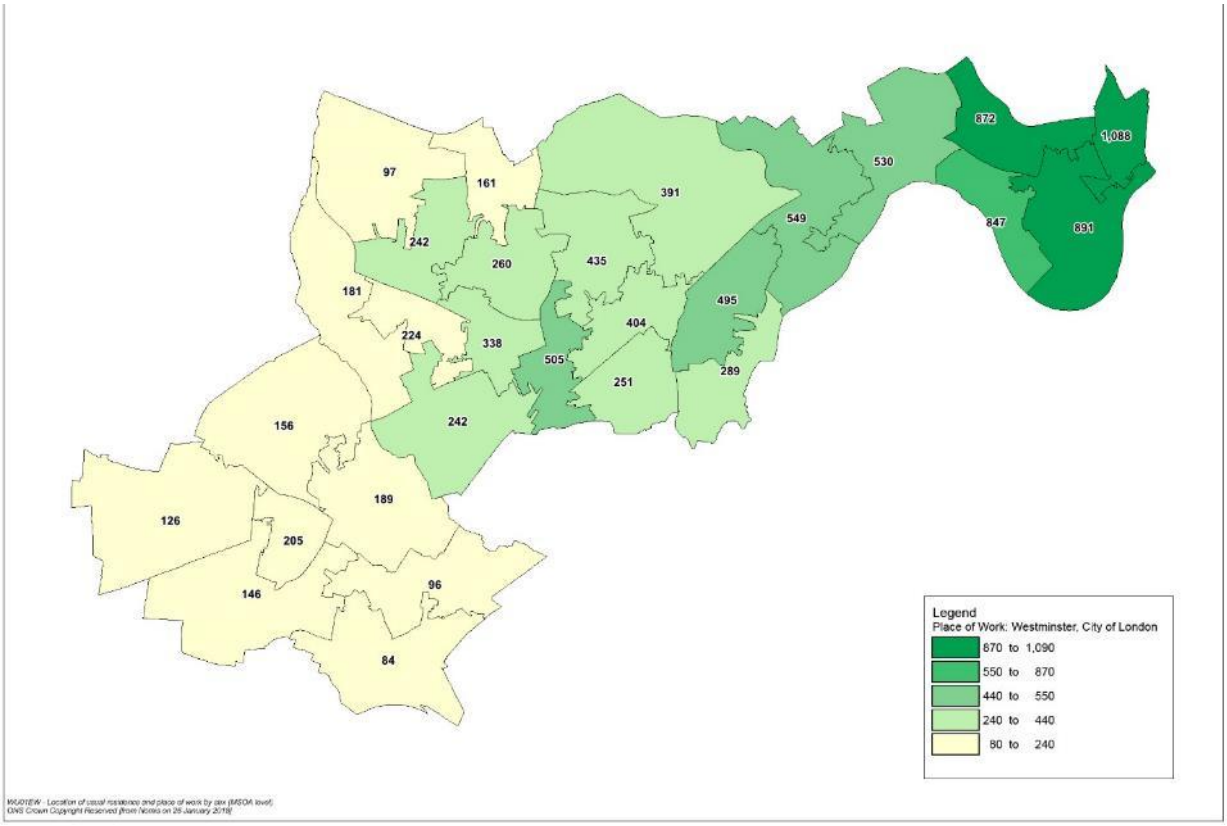


Figure 2-5: Commuting volumes to Hillingdon (inc. Heathrow)

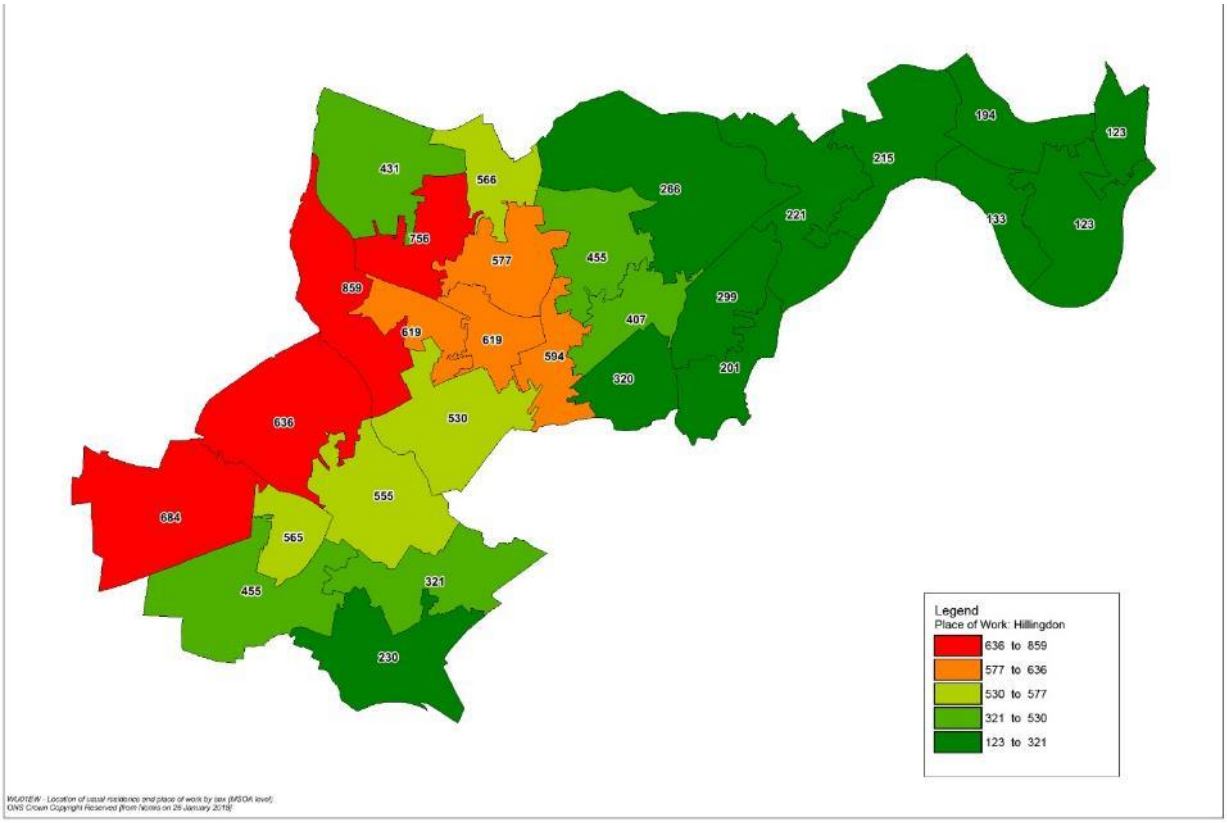
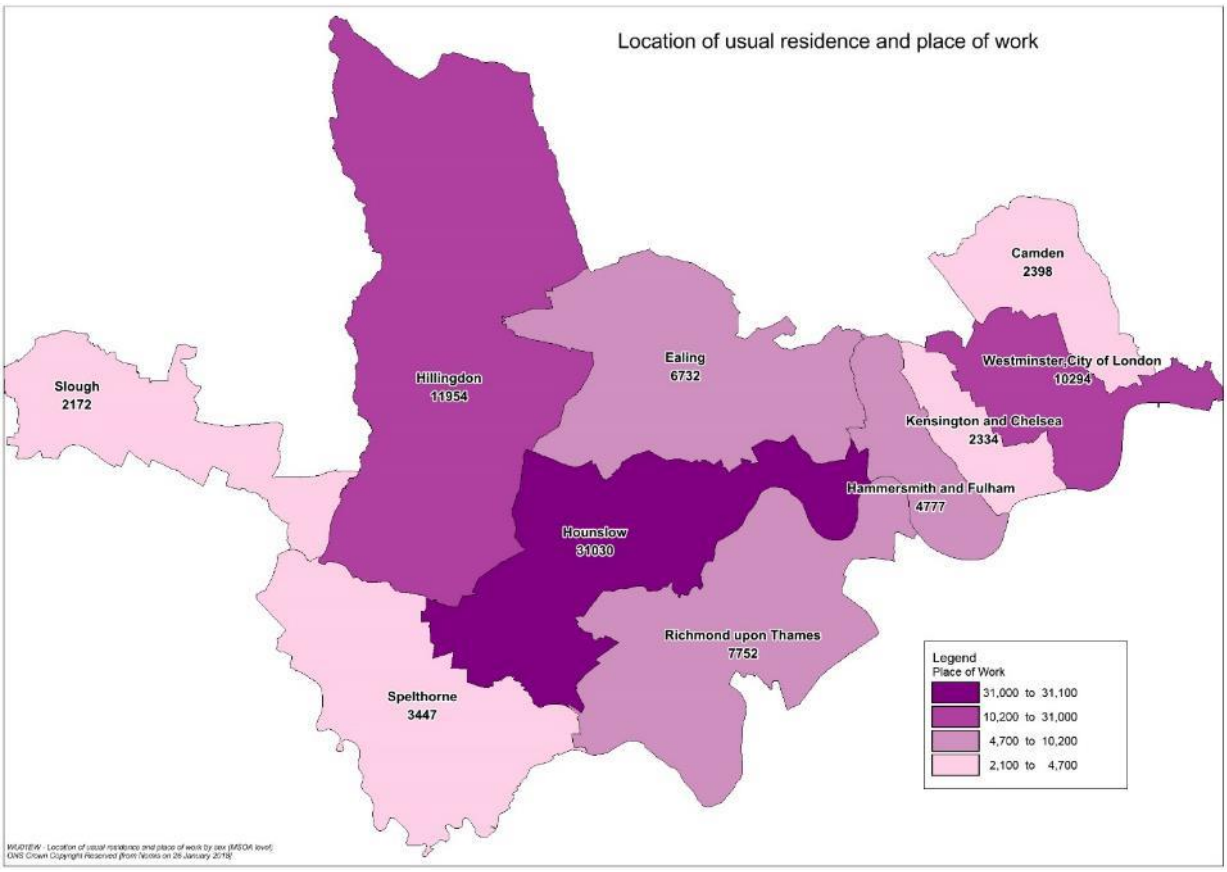


Figure 2-6 Inward commuting volumes to Hounslow



2.2.4. Transport Classification

The Transport Classification of Londoners[9] is a tool developed by TfL that categorises Londoners based on the travel choices they make, and the motivations for making those decisions. Data for the borough, presented in Figure 2-7, shows that the central and western regions are predominantly 'suburban' in nature with smaller pockets of 'student and graduates' and 'family challenge' categories. As might be expected for outer London, suburban categories tend to display high levels of car use and be resistant to changing their travel choices. In contrast, students are already highly likely to be using public transport or active modes whilst the family challenge category may find personal finances a barrier to travel and hence struggle to access employment or services.

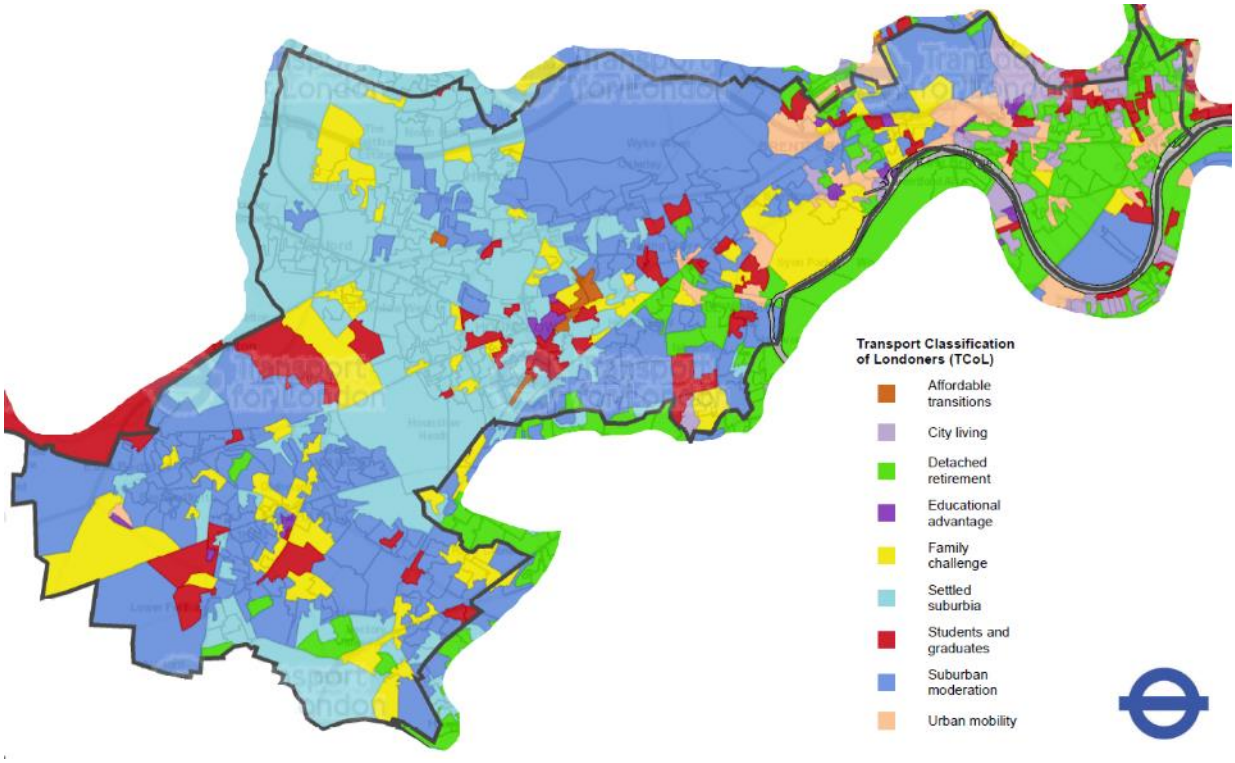
The east of the borough is very different, with Chiswick in particular having large areas of 'detached retirement' mixed with the 'city living' and 'urban mobility' categories. This reflects the diversity associated with being closer to inner London and suggests

[9] TfL (2018), Transport Classification of Londoners (TCoL), https://tfl.gov.uk/cdn/static/cms/documents/transport-classification-of-londoners-presenting-the-segments.pdf

communities with very mixed attitudes and travel choices. Those in the detached retirement category will likely have very high levels of car use and be less likely to change their habits but the opposite applies to the city and urban categories.

Policies and programmes will therefore need to take account of the highly diverse nature of 'travel communities' in Hounslow.

Fig 2-7 Transport Classification of Londoners



2.2.5. Active Travel in Hounslow

The variation in neighbourhood characteristics found as you move from the boundary with Hammersmith & Fulham to the edge of Surrey means that the cycling levels and the overall experience differs significantly across the borough. The highest levels of cycling occur in the east of the borough, in Chiswick, where cyclists can make up to 17% of vehicle flows in peak hours. Cycling numbers in the west of the borough are generally lower. Overall however, current cycle mode share is around 3% of all trips,

putting cycling levels in the borough second only to Richmond Upon Thames among Outer London boroughs[10].

Recent years have seen significant improvements to cycling infrastructure which includes over 13km of greenways which connect many of the borough's parks and open spaces. The majority of the borough's local roads are 20mph zones which has improved the cycling experience in residential areas whilst the busier roads such as the A315, a key spinal road connecting the town centres, have benefited from improvements including segregated facilities in some sections. In 2018, connectivity to Ealing was improved by the installation of a kilometre of high-quality segregated cycle track connecting the Great West Road to Boston Manor along Boston Manor Road. The A4 has two-way segregated cycle tracks on both sides although frequent junctions and irregular maintenance make these routes less attractive leading to recent proposals from TfL to improve several sections. Finally, Cycle Superhighway 9 (CS9), which would connect Hounslow to Kensington using the A315, is currently in consultation phase but if agreed, will seek to significantly improve east to west journey times and safety for those using cycles.

Cycling in the borough has the same issue with diversity as it does across London, with

certain middle class socio-economic groups and white, working age males being more likely to cycle. Hounslow was one of the first London boroughs to introduce dock-less bike share which provides low-cost and spontaneous access to bikes in the east of the borough, a significant step in increasing access to cycling. A highly successful and extensive cycle proficiency training programme both in schools and for adults has also shown that young and first-time cyclists can be successfully engaged. Additionally, the borough has a very active women's cycle club, 'The Biking Belles', and there are regular Breeze rides that are well attended.

The walking network in the borough includes 775km of footway and 9 borough-defined healthy walks around parks and green spaces. The presence of wide, busy strategic roads in the borough has degraded the pedestrian experience in some areas, creating severance through slow, difficult crossings and poor air quality. Perhaps the most obvious example of severance is along the A4 where Brentford communities are separated by a 6 lane A-road and the elevated M4. The River Thames is also a physical barrier to destinations to the south and east of the borough. In contrast, improvements

[10] TfL (2017), Travel in London Report 10, http://content.tfl.gov.uk/travel-in-london-report-10.pdf

to the public realm, pedestrianisation and the addition of convenient crossings have all contributed to improved walking conditions in many of the town centre areas. Examples include public realm improvements to Hounslow High Street at Hounslow West Station (Bath Road).

2.3. The Local Policy Context

Since the LIP is primarily a statement of how the council will implement the Mayor of London's Transport Strategy, the policies and objectives set by the MTS have the greatest impact on its content. However, the council's transport policy is also shaped by national and local plans and policies, for example by the national aspirations to double levels of cycling by 2025[11] and locally by the goals set for improving transport provision in the Local Plan to facilitate growth.

This section highlights the most important influences on the LIP, and how their objectives have been taken into consideration.

2.3.1. Hounslow Together's Future Borough Strategy

Hounslow Together is a Local Strategic Partnership (LSP) of public, private and voluntary sector organisations, which collectively agree a long-term vision for the borough. They are responsible for publishing the Future Borough Strategy, a sustainable community strategy that sets the strategic direction for the borough via a set of high-level objectives.

The Future Borough Strategy 2018-2035 has identified the following as it's guiding vision:

> The borough of Hounslow will be a **destination** where people choose to live, remain, work, play and visit. It will remain a borough made up of **distinct and prosperous places**, each retaining its own **unique character, function and history**. Our communities and the individuals within will be safe, healthy, happy, connected and able to achieve their ambitions by being in the borough.

This vision is broken down into the following 6 priorities.

[11] DfT (2016), Cycling and Walking Investment Strategy,

Table 2-1 Hounslow Together Strategic Priorities

	Application/Significance to LIP
Promotion and Identity: a place to visit, locate and stay	The LIP will contribute towards connecting residential and cultural sites, enabling access to cultural amenities. Improved transport connections will widen catchment areas for the many employment clusters in the borough.
Infrastructure; growth forecast means infrastructure changing communities and business	The LIP will take several steps towards increasing public transport use, reducing private car use, and making new connections. These will help facilitate the new and ever-changing dynamic of the borough.
Relationships and networks; creating, binding community networks to help them achieve	The LIP will support this objective by embedding the Healthy Streets approach in scheme design, where equality of access and sharing public spaces are key concepts. Pushing for new transit links will further help bind communities.
Workforce skills and services;	Current and future employment clusters are key to the LIP, since these Opportunity Areas tie directly in to proposed major transport infrastructure schemes. The LIP will support development of new workforce and skills by linking talent to employment, for example the through Southern Rail Access to Heathrow and the proposed rail connection between Brentford and Southall (Crossrail). _
Behaviours; Preserving positive and changing negative behaviours on community wellbeing	The LIP will promote behaviour change, primarily through work in schools where the STARS programme works to change behaviour of current and future travel in the borough.
Institutions and partnerships	The LIP will support institutional partnerships through projects looking to facilitate new access to key employment clusters, as well as working with schools and community hubs to promote positive change in transport behaviours.

2.3.2. Corporate Plan 2014-19

The Corporate plan sets the priorities for the Council in the form of a series of pledges to residents. A new corporate plan is expected early in 2019. The following current pledges and objectives have direct relevance or an impact on the transport network and have been considered in the creation of the LIP:

Table 2-2 Hounslow Corporate Plan Pledges

Pledge	Objectives
Keeping you safe	Continue to upgrade street lights, design out crime in new developments and improve road safety

Pledge	Objectives
Brighter Futures for our children	Support the growing demand for school places by improving transport facilities to help accommodate the equivalent of three new secondary schools
Good Quality Homes and Jobs	Improve public transport along the Golden Mile and secure a terminal 5 rail link to Feltham Town Centre, Working with TfL to improve public transport links to hospitals.
A cleaner Greener Borough	Introduce 20mph around schools, continue to improve roads and pavements, improve local cycling opportunities
Active Healthy Communities	Increase the number of residents doing regular exercise
Help and support when you need it	Ensure proper support for all sections of our community including elderly, isolated and vulnerable residents (to live independently)
An ambitious council delivering quality services and value for money	The overarching goal is that all transport projects must deliver value for money.

2.3.3. The Hounslow Local Plan

The current Hounslow Local Plan was adopted on 15th September 2015 by the Council. Its purpose is to define the future spatial strategy of the borough until 2030 with the objective of contributing to the achievement of sustainable development whilst addressing the spatial implications of economic, social and environmental change. There is a strong relationship between transport and the spatial policies it sets since growth in employment or housing can be dependent on transport infrastructure but also defines or creates the need for it. The Local Plan is also required to be in general conformity with The London Plan, the spatial development strategy produced by the Mayor. The London Plan sets out a number of policy requirements that have been included in the local plan objectives and so these are not analysed separately here.

The Local Plan also commits to performing two additional local plan reviews which are currently underway, the Great West Corridor and West of Borough reviews. In order to meet the projected growth in London's population, and conform with the Mayor's London Plan, the west of the borough and the Great West Corridor have been designated as Opportunity Areas, where future employment and housing growth should take place. The Local Plan Reviews will, when complete, provide greater detail on the level of development that will be supported.

Specific transport policies in The Local Plan with direct impact on the LIP include:

- Supporting planned upgrades to the Piccadilly and District lines
- Promoting the development of rail connectivity between Southall and Brentford, Hounslow to Old Oak Common and southern rail access to Heathrow

- Promoting improved bus corridors, particularly those serving growth areas such as the Golden Mile
- Supporting improved access to the Piccadilly line, including introduction of a permanent stop at Turnham Green
- Promoting new cycle networks, including a ‘cycling spine’ along the A315, with connecting Greenways and Quietways, and the provision of cycle parking at transport interchanges
- Promoting improvements to the highway network to best facilitate sustainable modes, including targeted junction improvements, targeted travel demand management
- Supporting initiatives to reduce the impact of road infrastructure in the built environment.

The Local Plan also includes the following non-transport specific objectives which have relevance to this report:

- Successful town centres, providing the services and facilities needed by the borough’s population
- Ensuring that sufficient development capacity is provided for employment growth.
- Maximising housing supply with the goal of exceeding London Plan targets.
- Protecting and enhancing green belt and open spaces
- Moving towards a low carbon borough by minimising demand
- Directing new community facilities to the most appropriate locations.

2.3.4. Hounslow Thematic Strategies

The following reports have also been used to inform the challenges, opportunities and objectives of the LIP:

- Joint Strategic Needs Assessment 2017
- Hounslow Joint Health and Wellbeing Strategy 2018-2022
- Air Quality Action Plan 2018 - 2023
- Leisure and Culture Strategy 2016 – 2020
- Hounslow Local Plan 2015
- Great West Corridor Local Plan Area Review (draft) 2017
- West of Borough Local Plan Area Review (draft) 2017.

2.4. Changing the Transport Mix

This section describes the borough's overarching transport challenges and opportunities within the framework of achieving the Mayor's overarching aim of 80% of all trips by Londoners to be made by active modes (walking and cycling) or on public transport by 2041. As an Outer London borough with lower levels of public transport accessibility, Hounslow is not expected to reach an 80% mode share but has been set the target of achieving a 71% mode share by 2041 from a base of 56% in 2016/17.

2.4.1. Challenges and Opportunities[12]

2.4.1.1. Challenges

The following borough-wide challenges to changing the transport mix are derived from multiple sources, including the MTS, member and resident engagement, previous transport studies and existing council policy.

1. Air Quality

Air pollution has a substantial impact on health, leading to a shortening of life expectancy for thousands of people across the UK every year. In the borough, the major sources of pollutants are Heathrow Airport and road transport. Air quality is however generally improving in the borough and current objectives for levels of particulate matter are being met – though the World Health Organisation position that there is no safe level is noted. NO_2 levels were however recorded to have exceeded European limits at 4 monitored sites in 2017 (Brentford, Chiswick, Heston and Gunnersbury) and remain a focus for action.

Poor air quality discourages active travel modes, particularly for those who are more vulnerable to its effects such as young children, the elderly and those with respiratory conditions. Research has also indicated that pollution levels may be higher in vehicles (including buses) than outside[13] which will particularly impact members of the population who rely on moving around the borough by car.

[12] Requirement R8: Boroughs are required to identify key opportunities for shifting trips and journey stages to walking, cycling and public transport to contribute to achieving the overarching aim for 80 per cent of trips to be made by active, efficient and sustainable modes by 2041.

[13] Karanasiou A, Viana, M, Querol, X, Moreno, T, de Leeuw, F, (2014). Assessment of personal exposure to particulate air pollution during commuting in European cities—Recommendations and policy implications. Science of The Total Environment 490, 785-797.

2. Congestion

There are two primary causes of congestion in the borough; the relatively high level of car use amongst our residents and the volume of through traffic, much related to Heathrow Airport or central London. Congestion has a severe economic impact, delaying or frustrating deliveries and supply chains and adding to the cost of doing business. Long and unreliable commutes will also negatively affect mental health, particularly through stress. High levels of congestion can deter active travel since walking and cycling on or next to busy roads feels unsafe and can result in high levels of exposure to pollutants.

Whilst congestion is clearly a matter of public concern in many parts of the borough it is important to note that traffic flow data collected over the last ten years does suggest that the number of vehicle kilometres being driven has fallen since the pre-recession peak in 2006. On roads within the borough for example (excluding TfL controlled roads and the M4), there was a 7.7% drop in vehicle kilometres driven between 2006 and 2016. This likely reflects general changes in travel habits across London (for example a trend towards flexible working) and improved public transport provision. It should be noted however that traffic levels on the M4 have continued to climb during that period and flows on some of the major TfL controlled roads have returned to pre-recession levels.

Hounslow is also one of the fastest growing boroughs in London; with a projected population growth of around 16% between 2018 and 2041, the transport infrastructure needs to adapt quickly to avoid further congestion. It should not be assumed that all of the demand for travel amongst new residents will be for the private car however; travel habits are shifting towards other modes as illustrated by data that indicates a sustained decline in car use amongst young adults.

3. Road Safety

The number of people killed or seriously injured annually on Hounslow's roads has more than halved over last 15 years, however this progress has stalled in the last five years and more recently there have been small increases in the number of children involved in minor collisions. Data shows that these accidents are spread across the borough and whilst most occur on busier roads, a significant proportion of collisions can be seen on residential roads.

As well as preventing accidents, having a safer road network and ensuring that road users feel safe will encourage more people to walk and cycle. Road safety remains a high priority for both this strategy and our residents.

4. Severance

Severance is the separation of people and places due to a physical barrier that presents limited or inconvenient crossing points. The primary causes of severance in Hounslow are the major strategic roads which cross the borough, the most significant being the east-west M4/A4 corridor and A316, and the north-south North Circular Road and A312. The presence of these roads creates severance and discourages walking and cycling because crossing such routes can be slow and difficult on both multi-stage and direct crossings, whilst the infrequent, heavily congested junctions negatively impact bus reliability.

Severance can also act as a barrier for residents wishing to accessing services, education and employment. For example, many Heathrow workers in the west of the borough report that it is unsafe or difficult to cycle to work since routes to Heathrow are broken by major roads whilst schools on busy roads tend to have lower levels of active travel amongst pupils and staff.

5. Orbital Transport Links

Transport networks across outer London are dominated by radial routes into central London. Limited orbital routes on rail and bus services mean that those looking to access jobs or services in areas other than Central London often have no viable alternative to the car due to the lack of fast, efficient public transport links. The lack of such journey options frustrates the council's ability to reduce the need for many residents to own and use a car.

Local bus routes do not always serve communities and their destinations, for example the Great West Corridor, despite being a major employment site, does not currently have direct bus links to Ealing Broadway, Hounslow and the west of the borough generally. For those bus routes that do link town centres orbitally (e.g. the 281 and 111 between Hounslow and Kingston) the routes taken are often circuitous and slow and do not generally provide a competitive alternative to the private car.

Those commuting into and through the borough tend to have longer journeys than those within the borough and many of their trips originate outside of the M25. The council is therefore not always in control of the transport decision making that impacts

upon it and therefore there is a need to coordinate with national bodies and other local authorities which can delay change.

2.4.1.2. Opportunities

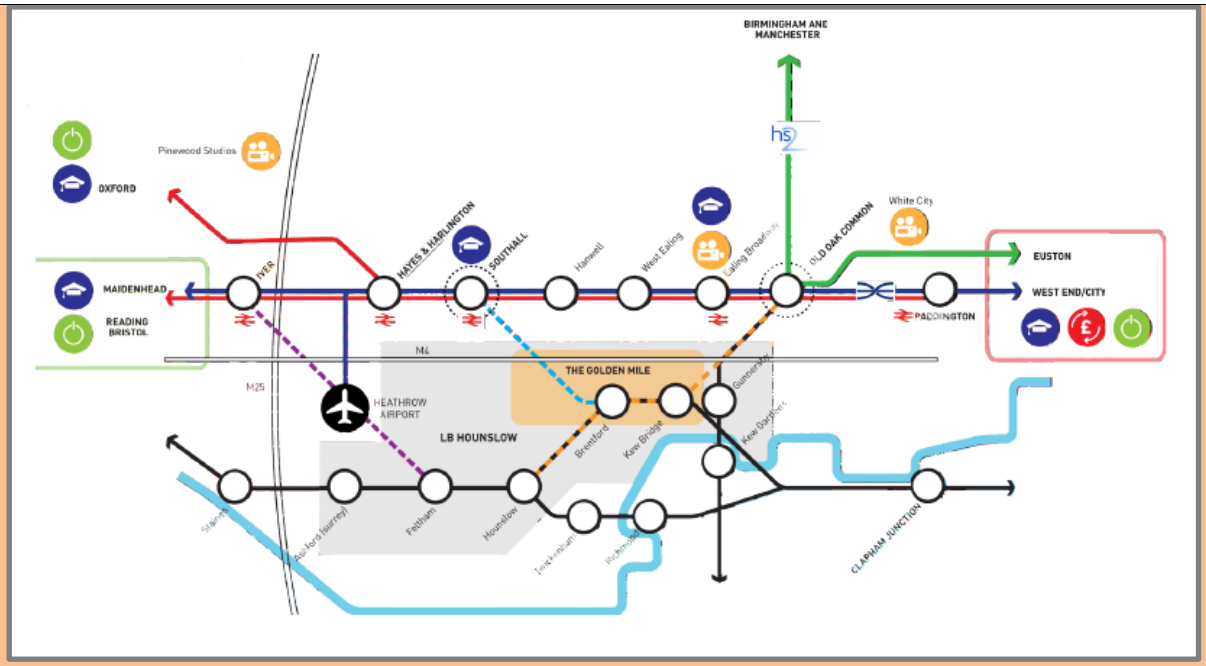
1. Growth Brings Funding and Demand

New development will bring significant investment into the borough and provide the opportunity to deliver more strategic transport infrastructure improvements. Without growth, the funding to support new schemes, and the business case for them, will be much weaker. The council recognises that some strategic level interventions will be necessary to deliver these targets and therefore supporting three proposed major rail projects to improve links to and from the borough.

Figure 2-8 shows details of the three strategic rail links supported by the London Borough of Hounslow:

- Southall Rail Link – Connecting Brentford (at Transport Avenue) to Southall (where it would connect with the Elizabeth Line). Network Rail is investigating the feasibility of this connection on behalf of the council and the proposal is currently at options assessment stage.
- The West London Orbital – A new Overground line connecting Hounslow and Brentford to Crossrail (Elizabeth Line) at Old Oak Common and beyond to Cricklewood or West Hampstead. This is currently being taken forward by TfL working with West London Alliance and supported by the council.
- Heathrow Southern Rail Access – A direct connection between Feltham and Heathrow with a potential new station at Bedfont. This is being promoted by the council in partnership with WSP consultants.

Figure 2-8 Proposed new rail links

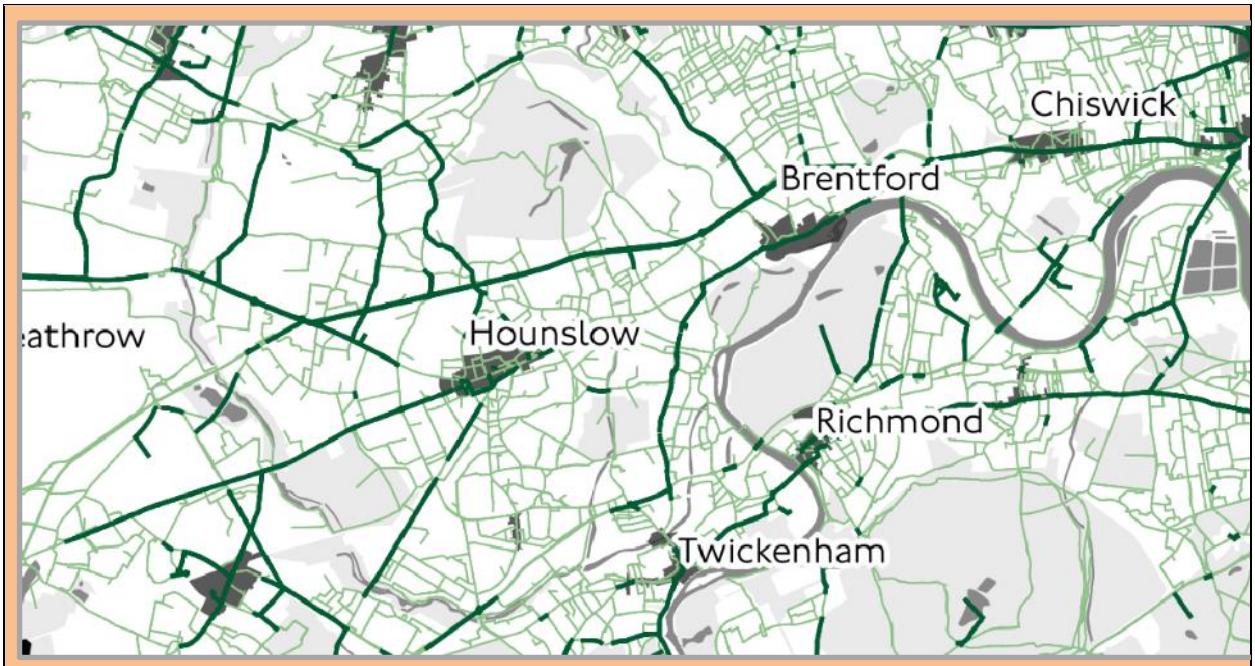


2. Active Travel Potential

Creating a shift from the private car to walking and cycling will bring significant benefits for congestion, air quality and the personal health of those increasing their daily activity. TfL's Strategic Cycling Analysis Report (SCA)[14] demonstrated that there was considerable potential for improving cycle infrastructure in the borough in order to increase the number of people cycling. Further evidence of this comes from the results of staff travel surveys carried out by large companies in the borough which reveal that many people still drive short distances (<3miles) to work and that the perception of safety is still the most common barrier to cycling. Improving safety through the provision of off road, segregated infrastructure combined with a cycle training programme has been effective in other areas of the UK. Figure 2-9 shows the links considered to have the most potential.

Figure 2-9: Links with the greatest potential cycle flows, shown in dark green (TfL,SCA 2017).

[14] TfL (2017), Strategic Cycling Analysis, http://content.tfl.gov.uk/strategic-cycling-analysis.pdf



Walking is the most accessible form of active travel and there are opportunities across the borough to improve existing routes or create new links. One example is the area of the Thames path around Kew Bridge which, if opened to pedestrians, could offer a traffic free, safe alternative to the busy and complex Kew Bridge junction. The council intends to seek funding to create a route under Kew Bridge through an existing arch which would offer an attractive and healthier walking route.

3. Changing Behaviour

Due to the widespread implementation of the DfT's smarter choices programme[15], there is now an extensive body of evidence on how transport habits can be changed. Suggested measures are generally categorised as either 'push' (e.g. increasing parking charges) or 'pull' (e.g. providing incentives for cycling) and there is now consensus that a combination of infrastructure or service improvements and smarter choices is the most effective method of changing behaviour.

The high levels of car use and resulting congestion currently evident across the borough act as a 'push' factor, leading to more opportunities to promote sustainable travel options. To illustrate this, the series of maps presented in Appendix C, extracted from the MTS evidence base, show patterns in the number of car borne

[15] DfT (2005), Smarter Choices: Changing the way we travel , https://www.gov.uk/government/publications/smarter-choices-main-report-about-changing-the-way-we-travel

trips that could be made by other modes and residents' willingness to change their mode of travel across the borough. There are several areas that show both a high volume of switchable trips and willingness to change including parts of Feltham, Hounslow, Isleworth and Chiswick.

Personal health and well-being has been used extensively as a 'pull' factor to promote the benefits of active travel. Through the inclusion of the Healthy Streets approach, the MTS puts human health at the heart of transport policy. For the council, it presents the opportunity to utilise a framework by which streets and public realm can be improved to increase the numbers travelling by cycle, on foot or by public transport. The benefits are expected to be wide ranging, with the greatest impact being from increased physical activity but also better air quality and a reduction in road congestion all contributing to physical and mental health improvements.

Finally, since nearly a third of households currently in the borough do not have access to a car, good public transport and walking/cycling infrastructure is essential if they are able to access the services they require.

4. London Underground and Overground Upgrades

Two significant improvements are planned to TfL Underground and Rail services:

- **Piccadilly Line upgrade (c. 2023)** – Planned delivery of more spacious and faster trains, and new signalling allowing a much higher frequency of service.
- **Elizabeth Line (2019)** - Will increase London's rail network capacity by 10 per cent, cutting journey times substantially and relieving congestion on other rail and Tube lines, particularly the Piccadilly line.

These improvements and associated capacity increases will be of immediate benefit to those living within walking distance of affected stations, however by creating new or improving existing bus and active travel connections many more residents and visitors will be able to access these services.

2.5. London Borough of Hounslow's Transport Vision and Objectives[16]

2.5.1. Vision

The following vision has been set for this LIP period:

The transport network and public realm will enable and encourage the development of a prosperous, healthy, accessible and safe environment for all residents and visitors.

2.5.2. Objectives

In setting the overarching objectives for the LIP, the following sources have been considered:

- The challenges and ambitions set out by the latest MTS, including the Healthy Streets approach and Vision Zero Action Plan
- The summary of the local transport challenges and opportunities
- The local policy context as defined by the Hounslow Corporate Plan, Community Plan, Hounslow's Air Quality Action Plan, Hounslow Joint Health and Wellbeing Strategy, Local Plan and supplementary planning documents
- Findings and feedback from the SEA and EQIA process
- Wider sources such as The London Plan and National Planning Policy Framework.

The council's objectives are for a transport network that is:

Healthy, Clean and Green
This will be achieved by reducing transport related emissions; improving the quality and accessibility of the public realm and maximising the opportunity for the transport system to improve health outcomes by removing barriers to the uptake of active travel.

Safe
This will be achieved by reducing the number of people killed and seriously injured on our roads, contributing to the Mayor's Vision Zero target.

Efficient
This will be achieved by ensuring that the transport network operates in an efficient manner facilitating economic growth in the borough and unlocks space for new homes and jobs for all users, particularly through a shift from private to public transport.

[16] Requirement R10: Boroughs are required to set objectives that explicitly assist with meeting the Mayor's Transport Strategy aim of increasing the sustainable travel mode share.

3. Mayor's Transport Strategy Outcomes

This section describes the locally relevant challenges and opportunities for the borough under each of the nine desired outcomes listed in the MTS. For each outcome, in-depth analysis of selected topic areas is also presented which has been used to refine the challenges and the subsequent list of objectives which detail how the outcomes will be achieved.

3.1. Outcome 1: London's streets will be healthy and more Londoners will travel actively

Active travel (walking, cycling and scooting) is one of the easiest and cheapest ways of integrating physical activity into a person's daily routine, and it is one of the primary aims of the MTS and the LIP to increase the number of residents completing 20 minutes of active travel per day. The Healthy Streets approach proposes that the best way to increase levels of active travel is to improve the quality of the experience of being on the borough's streets. This LIP therefore focuses on creating streets that are pleasant, safe and attractive whilst also reducing the volume of motorised traffic.

3.1.1. Challenges and Opportunities

	Challenges	Opportunities
1A	Major rail and road links can be slow and difficult for cyclists and pedestrians to cross causing unacceptable severance. The A4/M4 corridor is the worst example, where crossings are multi-stage, widely spaced and operate in a polluted, dirty environment. Rail bridges are also an issue as they narrow the road making providing pedestrian or cycle facilities difficult. Major strategic roads are maintained by TfL or Highways England, so the council does not have full control over improvements.	The introduction of combined pedestrian and cycle crossings and widened or adjacent tag-along bridges can reduce severance. There are several locations along the A4 where severance could be reduced by introducing upgraded crossings, for example in the Gunnersbury Park area[17]. New developments along the A4 corridor will bring funding opportunities for crossing improvements.

[17] More detailed proposals are contained in the Great West Corridor Local Plan Review - https://www.hounslow.gov.uk/info/20167/local_plan/1104/great_west_corridor_local_plan_review

	Challenges	Opportunities
		A closer working relationship with TfL can be secured by gaining their agreement on LIP objectives. TfL is actively seeking local knowledge of issues to be addressed.
1B	The current cycle network is not always contiguous, consistent in approach or of a high quality. Identifying which routes or areas to upgrade first can be uncertain as it requires the council to predict growth in cycling.	TfL data sources now include propensity to cycle data which includes both route demand and attitude data. These datasets can be used to plan network upgrades. Local groups such as the Hounslow Cycling Campaign can provide important knowledge on local demand and suggestions for improvements. The implementation of CS9 would create opportunities for new orbital routes into neighbouring residential areas and transport hubs.
1C	Permeability in and around Heathrow Airport is poor and key routes into the airport are inhospitable to cycling and walking with sub-standard or non-existent cycle provision. Specifically, Waggoners, Henlys and Clockhouse roundabouts have little or no cycle provision. Some roads and roundabouts in this area are not under the council's control.	Work with TfL and Heathrow Airport to develop cycle routes into the airport. Funding is available from Heathrow Airport to part fund improvements. A possible extension of CS9 from Hounslow to the airport could further improve cycle connectivity.
1D	The street environment can be hostile to active travel due to high levels of congestion, high traffic speeds and poorly designed or maintained public realm. Poor maintenance of pavements disproportionately affects those with	Several recent public realm improvement schemes, e.g. Hounslow High Street have demonstrated that high quality public realm combined with low or zero traffic areas can be successful. The

	Challenges	Opportunities
	mobility impairments and acts as a barrier to travel. The poor street environment has particularly affected the number of primary school children walking or cycling to school which has not increased significantly in the last 5 years. Childhood obesity rates are significantly above the London and national average, particularly in the west of the borough.	PFI contract with Hounslow Highways requires a high standard of street maintenance. Wayfinding schemes have been successful across London in helping pedestrians navigate local streets. The STARS[18] programme has been successful in increasing the number of children travelling actively. Active travel is an effective way of integrating physical activity into a daily routine. Hostile street environments around schools can be mitigated using 'School Streets' type closures, 20mph limits and general application of the healthy streets approach to active travel routes from catchment areas.
1E	Convenient, secure cycle parking is not always available in town centres, residential streets or at transport hubs. The lack of lockers and shower facilities can also be a barrier.	Publicly owned buildings such as libraries and leisure centres offer opportunities to expand the number and quality of cycle parking. In the case of leisure centres showers are also available. CCTV can be installed to improve security. On-street storage solutions ('hangars') are available for residential streets. Closer coordination with TfL will ensure that cycle parking matches demand at transport hubs.

[18] STARS – Sustainable Travel: Active, Responsible, Safe. Details at stars.tfl.gov.uk.

	Challenges	Opportunities
1F	Some ethnic groups, which make up a large proportion of the borough's population, are underrepresented in cycling statistics, for example Asian women. Around 80 per cent of cyclists are male, with 70 per cent of these being white British in ethnicity	Previous outreach programmes have demonstrated that targeted training, publicity and events can reach minority groups and that culture need not be a barrier to cycling. Adult cycle training has been particularly successful in the borough with extremely high attendance in 2017/18. There is already demand from adult residents for 'learn to ride' type training.
1G	The car is still seen as the principal mode of transport, particularly for orbital journeys and it will be difficult to change people's mindsets. Safety is the most quoted barrier to cycling.	With targeted delivery of behaviour change programmes, focused on schools and work places, the profile of cycling as a transport mode can be raised and new trips by bike made. A positive cycling initiative at schools and workplaces has been shown to encourage and deliver mode shift towards cycling, as well as other active modes. Safety fears can be addressed not only through training and education but also through engineering schemes designed to improve cyclist safety on the road, particularly at junctions. A Workplace Parking Levy is one example of a scheme that can tip the balance in favour of active travel by charging for parking at work and creating an income stream which can be used to provide better public transport or active travel infrastructure.

	Challenges	Opportunities
1H	On average, journeys in outer London are longer and cover greater distances than those in inner London making active travel less attractive.	Cycling and walking can provide a key link in multi-modal journeys by connecting first and last mile journey stages to underground stations. Working with station operators to ensure high quality and secure cycle parking will work towards encouraging more cycle journey stages by bike. Journey time analysis shows that most in-borough journeys could be completed by bike within 30 minutes (see Appendix C).
1I	Dockless bike hire schemes are unproven in creating mode change and represent a risk of clutter on the footway network if managed poorly.	Data collected as part of the Ealing/Hounslow Mobike trial, active since Feb 2018, will provide evidence for policy decisions. The creation of a dockless bike specific bye law will allow boroughs to manage operators with a permit scheme.

3.1.2 Physical Activity in Hounslow

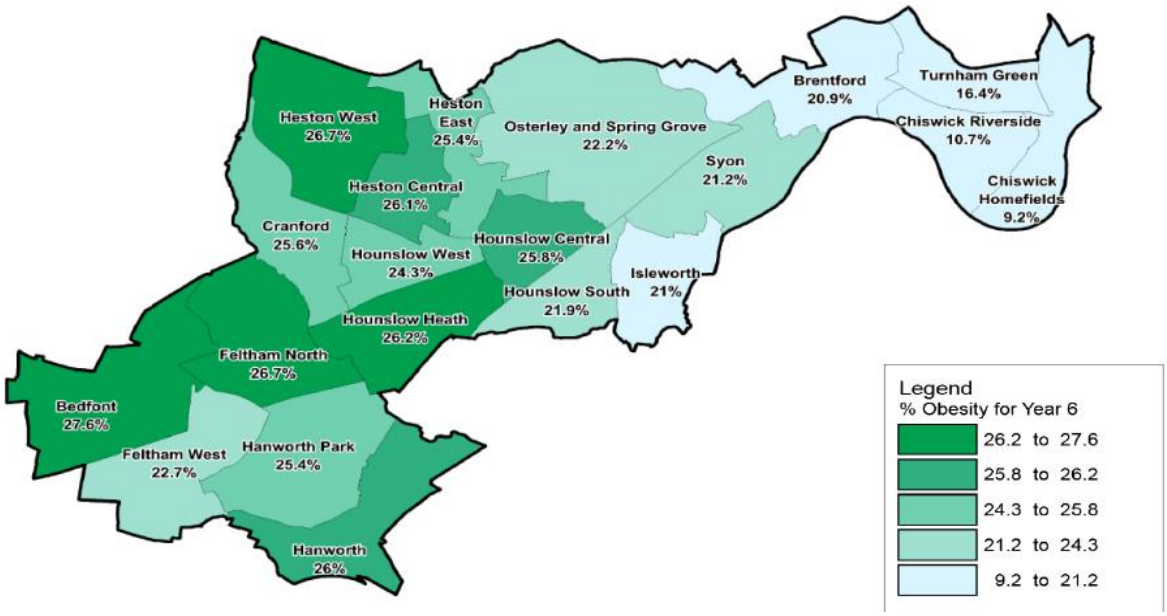
The 2017 Active People Survey[19] from Sport England estimated that approximately 34% of the adult population of the borough are inactive (defined as less than 30 minutes moderate intensity activity per week) compared to the London average of 24%, making the borough one of the most inactive in London. Furthermore, the percentage of residents doing at least 2 x 10 minutes of active travel a day is only 25% compared to an outer London average of 28% and a London-wide average of 33% (TfL, MTS Evidence Base).

[19] https://www.sportengland.org/research/about-our-research/active-people-survey/

Obesity has been highlighted as a priority issue for the borough [20] in both adults and children and is prevalent across most wards. Data from the national child measurement programme for 2017 showed that one quarter of year 6 pupils were obese and 40.1% of year 6 pupils were overweight (including obese), which is higher than both the London (38.5%) and England (34.2%) averages. Records also indicate that there has been no significant progress in reducing excess weight in reception or year 6 since weight measurement began.

In the borough, not all children are affected equally. Statistics show that more boys than girls are obese and black ethnic groups have higher excess weight than white or Asian groups although levels are consistent with the England average. Figure 3-1 illustrates the prevalence of obesity in 10-11 years-olds and demonstrates the correlation between obesity levels and levels of deprivation, which are generally higher in the west of the borough. One way in which the council is seeking to reduce the prevalence of obesity is through the STARS programme (see boxout for details).

Figure 3-1: Prevalence of obesity in LB Hounslow Year 6 classes 2014/15 - 2016/17



[20]LB Hounslow (2017), Joint Strategic Needs Assessment, https://www.hounslow.gov.uk/downloads/file/1042/joint_strategic_needs_assessment_2017_-_this_is_hounslow

STARS – Sustainable Travel: Active Responsible, Safe

STARS is an accreditation scheme for London schools run by TfL with the aim of replacing car-based journeys to and from school with active travel. It has been very successful in the borough with 43 schools achieving accreditation in 2018, of which 24 were at the highest level - Gold. Participating schools report reductions in local congestion and health benefits for their pupils including improved concentration levels.

3.1.3 Walking and Cycling Potential

Both walking and cycling have the potential to create substantial mode shift away from private car use, demonstrated by the fact that only 5% of potentially cyclable trips currently made by bike[21]. Walking is by far the most accessible form of active travel since it needs no special equipment or training and it has been estimated by TfL that there are 80,000 daily trips in the borough made by modes that could be converted to walking, particularly to town centres[22].

Legible London

Visitors unfamiliar with the borough's town centres can feel disoriented when emerging from a rail or tube station for the first time. Legible London pedestrian signs solve this problem by providing intuitive, map-based signs at transport hubs, high streets and along busy walking routes. By including approximate walking times, the signs reduce uncertainty and encourage walking to destinations that may visitors may have thought too far or too difficult to get to.

Signs have already been installed in Brentford, Chiswick and Hounslow town centres, with Feltham due for installation by 2020 to complement the current re-modelling of the town centre.

As with many other outer London boroughs major arterial roads and rail corridors are major barriers to active travel. It can be difficult and expensive to create safe,

[21]A potentially cyclable trip is defined as a trip not already walked or cycled that is less 8km and not made by young children, elderly and disabled people or made at night and not a trip made with heavy or bulky goods. TfL (2017), Strategic Analysis of Cycling Potential, http://content.tfl.gov.uk/analysis-of-cycling-potential-2016.pdf

[22]TfL (2017), Analysis of Walking Potential, http://content.tfl.gov.uk/analysis-of-walking-potential-2016.pdf

segregated active travel facilities or crossing points. However, it has recently become easier to create a business case for these projects since the introduction of the World Health Organisation's Health Economic Assessment (HEAT) tool[23] which allows the full range of health benefits to be quantified.

3.1.4 Propensity to Cycle Tool

To inform the LIP objectives, the national propensity to cycle tool[24] was used to analyse which areas of the borough could see the largest changes under different scenarios. Three scenarios were run: 2011 Census, Government Target and Go Dutch; the results are presented in Appendix D. Since the borough is flat, topography was not a factor in this assessment.

Under the 2011 census scenario, which represents the current situation, the change in reduction in cycling levels from east to west can clearly be seen. The government target scenario shows a very uniform uplift in cycling of 4-5% over the 2011 scenario, following the same geographical east-west pattern. It should be noted that in some areas, due to low existing levels of cycling, it represents a doubling of cycling levels.

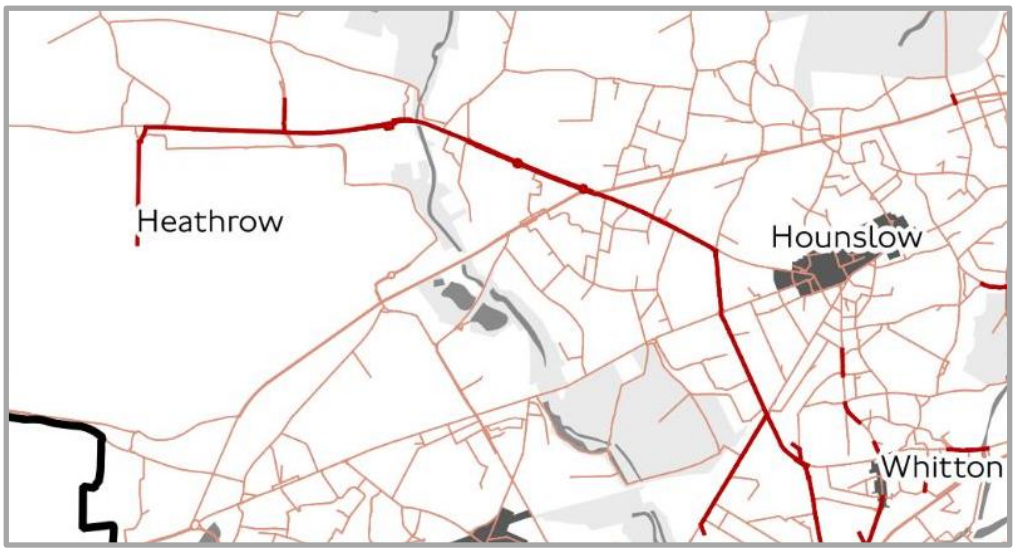
The Go Dutch scenario is more ambitious than these and assumes that infrastructure and cultural barriers have been overcome throughout the borough. It shows that the west of the borough has just as much potential to support high levels of cycling, even a little more in some areas, as the east, however, to unlock this potential, it would be necessary create a comprehensive network of safe routes and make attempts to break down any cultural barriers that currently exist. Since much of the demand comes from Heathrow commuters in the west, prioritising links to the airport has the potential accelerate change.

3.1.5 Heathrow cycle access

Heathrow Airport employs over 76,000 people and 14.6% of these live in the borough[25]. The bike has only a 0.9% mode share for journeys to work, with well over 60% arriving by car. TfL's Strategic Cycling Analysis highlights the cycling flows along the Bath Road approach to Heathrow as carrying the top 20% of flow on the outer London cycling network (Figure 3-2). However, flows through the south-eastern boundary in the Feltham area are low due to poor permeability and a hostile cycling environment preventing several thousand potentially cyclable commuter trips.

[23] http://www.heatwalkingcycling.org/#homepage
[24] www.pct.bike
[25] Heathrow Airport Ltd (2008/09), Heathrow: On-airport Employment Survey, https://www.heathrow.com/file_source/Company/Static/PDF/Communityandenvironment/Employment-survey.pdf

Figure 3-2: Routes carrying top 20% of cycle flow in outer London, Heathrow area (TfL Strategic Cycling Analysis).



3.1.6 Identifying a priority cycle network for the borough

Taking the above analysis into consideration, the following cycle links have been identified and should be considered indicative of the routes that could form the priority network. All routes will be subject to a feasibility assessment and local consultation before implementation. The delivery process for these routes will include an assessment of and if needed, improvement to pedestrian facilities alongside the cycle route. A plan of these routes can be found in Appendix A.

1. Feltham to Heathrow T4/ Feltham to Twickenham (using the Longford and Crane valleys)

A route approximately following the Longford River from Feltham could create a direct link into Heathrow Terminal 4. The majority of the route could be off-highway, greenway facilities already exist through Feltham Arenas and south of Feltham High Street, linking these together and extending the route north of Staines Road would create a 2.5km connection into one of the borough's primary employers. It would require working with Heathrow and TfL as access to T4 is made difficult by the Great South West Road. The environment immediately surrounding T4 is also hostile for cyclists.

2. Feltham to Ashford

A very flat, primarily traffic-free link off route 5 would connect to Ashford town centre in neighbouring Surrey. The route would make use of existing greenways through Bedfont lakes. Challenges include creating a link through 'The Pits' and navigating cyclists across Clockhouse Lane.

3. Hanworth Park to Twickenham via River Crane

This route primarily uses existing shared use paths and greenways, starting in Hanworth Park and on to greenway facilities along the River Crane. Currently, the key barrier is crossing the A312 where a pedestrian and cycle crossing could be introduced to complete the off-highway route towards Twickenham.

4. Hounslow to Hanworth/Hampton

Linking Hounslow town centre to Hanworth and on to Hampton would provide a useful orbital link and take advantage of recently introduced segregated cycle facilities along the A314 in Hanworth. A key challenge in delivering this would be navigating cyclists over the A312 (a TfL road) and managing road space allocation on Hanworth Road. Sections in LB Richmond, notably the rail bridge over the Windsor Lines, also represent significant challenges to a completely segregated route.

5. Hounslow to Feltham town centre

A cycle route from Hounslow to Feltham town centre would connect two major town centres and could serve as a western extension of CS9. Sections of Staines Road already have well-lit and fully segregated cycle facilities. Options for the connection to Feltham off the Staines Road include a direct link on Hounslow Road (B), through Hounslow Heath connecting through Sparrow Farm (C), or heading further west along the A315 and connecting through the Feltham Arena (A). Road narrowing at the Baber Bridge remains a key challenge.

6. Hounslow to Heathrow via Bath Road

The link between Hounslow and Heathrow via Bath Road is highlighted as being in the 20% of potential cycle connections in London[26]. Works to improve cycling facilities on the Bath Road between Hounslow and the A4 are already planned and continuing this across the A4 would be a well-used cycle route connecting key town centre to a primary employer.

7. Hounslow to Southall and Hayes (routes A & B)

Starting at Hounslow town centre, this route comprises of a combined southern section and splits into routes A and B towards Hayes and Southall respectively. Initially passing through Lampton Park and crossing the A4, route A heads west through Cranford on residential roads. It continues using segregated facilities adjacent to junction 3 of the M4 and alongside the A312 towards Hayes. The total route is approximately 7.5km in length.

Route B connects Hounslow to Southall, a route currently only served by the 120 bus route. A cycle route here would enable a quicker and more reliable alternative to the bus.

[26] TfL (2017), Strategic Analysis of Cycling Potential, http://content.tfl.gov.uk/analysis-of-cycling-potential-2016.pdf

As with route A, this route would make use of existing cycle links through Lampton Park and then head north on 20mph zones along Westbrook Road. The main challenge for delivery, as with other cycle routes in this plan, is crossing the A4 at Sutton Lane, a complex and busy junction. Heavily parked residential roads and busy secondary distributors such as New Heston Road also represent challenges.

8. Hounslow to Whitton quietway

Hounslow and Whitton town centres are only 3.5km apart, a journey that could easily be made by bike, particularly given that high levels of traffic congestion often affect bus journey times. The quietway route would run along Central Avenue, following the alignment of route 9, and then head south towards Whitton High Street.

9. Hounslow to Richmond

This route would connect Hounslow and Richmond town centres via predominantly quiet back streets and off carriageway facilities along Central Avenue and Glen Walk. The total length of the route is expected to be 5.5km, with 3km within the London Borough of Hounslow. The westernmost section of this route is not yet defined.

10. Syon Lane to Ealing

This route would connect the future CS9 to Ealing via Osterley on primarily off road or quietway level provision, running parallel to Syon Lane. The route would run through the western extent of the Great West Corridor and continue northward towards Ealing. A key challenge exists in adapting and/or rebuilding the Quaker Lane footbridge over the Piccadilly Line to make it suitable for cyclists.

11. Twickenham to CS9

A link between Twickenham Station and CS9 would connect a major town centre in the neighbouring borough of Richmond upon Thames to CS9. An existing filtered permeability scheme at Church Street along with cycle access through Syon Park make this a good opportunity. The main challenge for delivering this route is navigating cyclists across the A316 at Cole Park Road in Richmond, though the nearby London Road roundabout is under review by TfL and there is potential to introduce a linked crossing for cyclists along the alignment.

12. Boston Manor Road extension to CS9

In 2018, a kilometre of segregated cycle track along Boston Manor Road was completed. This presents an opportunity to connect Brentford High Street and CS9 to Ealing, a connection identified as being in the top 20% of potential cycle connections in

London[27]. There are several possible alignments that will be investigated for example the use of Boston Manor Road (route A), Windmill Rd or Clayponds Lane/Ave (route B), where there is an existing shared use bridge that crosses the rail line. Addressing A4 severance will be a key factor in the success of this route and improved surface crossings for pedestrians and cyclists will be a key requirement.

13. Chiswick Bridge link to CS9 via Grove Park.

This connection is not yet defined as a specific route; however, it is identified as a key desire line linking cyclists from Twickenham across Chiswick Bridge, through Grove Park along quietway level provision and towards CS9 along Sutton Court Road.

14. Chiswick CS9 to Acton

Chiswick is a major town centre with a vibrant night time economy and a varied retail offering. It also has good rail connections to central London with a mainline station and tube stations on the Piccadilly and District lines. A 10-minute cycle to the north are Acton and the suburbs of Shepherds Bush, well within Chiswick's catchment. Existing modal filters already give cyclists more convenient and direct routes between Chiswick and Acton on quiet residential roads. The area has a good propensity for cycling with people largely falling into the market segment groups of urban living and high earning professionals. There is scope to make an attractive route, potentially using Fisher's Lane, though several options exist.

15. Chiswick Bridge to CS9 via Dukes Meadows

The Thames Path is an attractive leisure route that serves as a parallel, off highway link up to CS9 from Twickenham. Chiswick bridge is shared use and if the signals at the A316 junction with Dan Mason Drive were converted to a pedestrian and cycle crossing, a coherent route along the Thames would connect cyclists up to Chiswick Mall through Dukes Meadows. Options exist for crossing the A4 via shared use subways and quietway options through 20mph roads south of Chiswick High Road would allow the route to link up to CS9.

3.1.7 Borough Objectives

The overall aim for this outcome is to make Hounslow's streets safe, accessible and attractive places whilst creating active travel routes that connect residential areas to high streets and services; employees to their workplaces and pupils to their schools. Objectives for outcome 1 are:

[27] TfL (2017), Strategic Analysis of Cycling Potential, http://content.tfl.gov.uk/analysis-of-cycling-potential-2016.pdf

01a. To continue to improve provision of active travel infrastructure by implementing the Hounslow Priority Cycle Network. Consultation on first tranche of routes is expected to start in 2019/20.

01b. To use Liveable Neighbourhoods or similar funding to improve the attractiveness of active travel in areas with a high potential for change.

01c. To support TfL in delivering a segregated cycle facility between Chiswick, Brentford and Hounslow Town Centre (CS9) by 2022.

01d. To improve the accessibility of our streets for pedestrians, particularly for those with mobility or sight impairments, through our 'better streets' programme and de-cluttering policy.

01e. To install pedestrian countdown at all town centre located controlled crossings by 2022 (subject to relevant controller upgrades being progressed by TfL).

01f. To expand the Legible London pedestrian sign programme to cover Hounslow, Brentford, Chiswick and Feltham town centres by 2020.

01g. To further reduce the impact of severance on communities, working with Transport for London, Highways England and Network Rail to investigate new opportunities.

01h. To ensure that everyone cycling to school, the high street, leisure centre or library can park their bike securely and that those without space inside their home have an option for on-street storage.

01i. To continue to assess the benefits of a dockless bike scheme for residents and visitors.

01j. To continue to maintain and where possible enhance the Strategic Walking Network (Thames Path, London Loop, Capital Ring).

01k. To reduce the prevalence of obesity in school age children by increasing the number of schools accredited under the STARS programme by 5% per year.

01l. To challenge misconceptions about active travel and overcome perceived barriers, particularly through the provision of cycle training.

01m. To enhance public realm design and appraisal processes using the Healthy Streets Framework so that Hounslow's streets better support active travel, improve the townscape and enhance the built and historic environment.

01n. To work with Hounslow Highways to improve existing cycle facilities by ensuring they are cleaned and maintained to a high standard.

3.2 Outcome 2: London's streets will be safe and secure

Feeling safe whilst on the street can influence travel choices and contribute or detract from people's well-being. For cyclists and pedestrians, the perception of safety is often affected by the presence of fast-moving traffic and the availability of dedicated crossing facilities. Areas that are dominated by wide, fast roads are generally the most unwelcoming. Personal safety is also impacted by the fear of crime, an issue that is felt most acutely by vulnerable users, particularly at night.

3.2.2 Challenges and Opportunities

	Challenges	Opportunities
2A	The number of children involved in collisions on the road has not reached the 40% target set in the last LIP (see Appendix F). The number of complaints around unsafe parent parking around schools has been increasing.	A number of recent trials in London have yielded positive results and could be applied in the Borough: ▪ 'School Streets' – closing off roads during pick up and drop off times (including one trial in Hounslow) ▪ Increased parking enforcement around school gates ▪ New types of traffic calming under the healthy streets approach ▪ Reducing car use generally to reduce traffic volume
2B	Although much improved compared to the levels seen 10 years ago, the number of people killed or seriously injured (KSIs) has started to increase again in the last 3 years. The prevalence of collisions between cyclists and large vehicles continues to be an issue across London.	The Mayor's Vision Zero strategy will create a framework with which to tackle KSIs. The aim of Vision Zero is the elimination of all KSIs on London's transport system by 2041. Safe Urban Driving (SUD) courses have been successful in increasing awareness of goods vehicle drivers of vulnerable road users. Targeting young people through initiatives such as Safe Drive Stay Alive can reinforce the consequences of unsafe driving.
2C	Cycling within the borough can be perceived as dangerous.	Segregated cycling facilities, particularly off road, combined with cycle training are known to improve the perceived safety of cycling.

	Challenges	Opportunities
		If implemented, CS9 would improve safety for cyclists on a busy and popular route linking town centres, resident and business areas
2D	Residents can be discouraged from making short journeys on foot due to fear of crime and road safety.	Consideration of the Healthy Streets approach during design stage can increase perception of safety (e.g. through better street lighting, improved visibility, CCTV, 20mph zones). Patrols by Community Support Officers can be targeted at known problem areas. Consideration of 'Secure by Design' principles and early consultation with the MET can help to 'design out crime' and produce safer public realm spaces. These principles are included in a Healthy Streets audit.

3.2.3 Road Safety and Vision Zero

A key road safety indicator used across London is the number of people killed or seriously injured (KSI) on the highway. LB Hounslow shares the Mayor's desire for the elimination of all KSIs on London's streets, also known as 'Vision Zero' and accepts that although the target is challenging, no level of casualties should be considered acceptable. The publication of the Vision Zero Action Plan[28] creates a framework of measures to achieve this, centred around four topics: safe speeds, streets, vehicles and behaviours.

Figure 3-3 shows that the number of KSIs has halved on the borough's roads (including TfL maintained roads) since 2003, however there has been a slight increase in recent years although it is too early to conclude if this is a trend or a levelling off with some natural variability. The number of slight road collisions on minor roads however has been increasing in the last 10 years (Appendix F) and collision reports suggest that this is attributable to conflicts on residential roads associated with 'rat running' when major routes are congested.

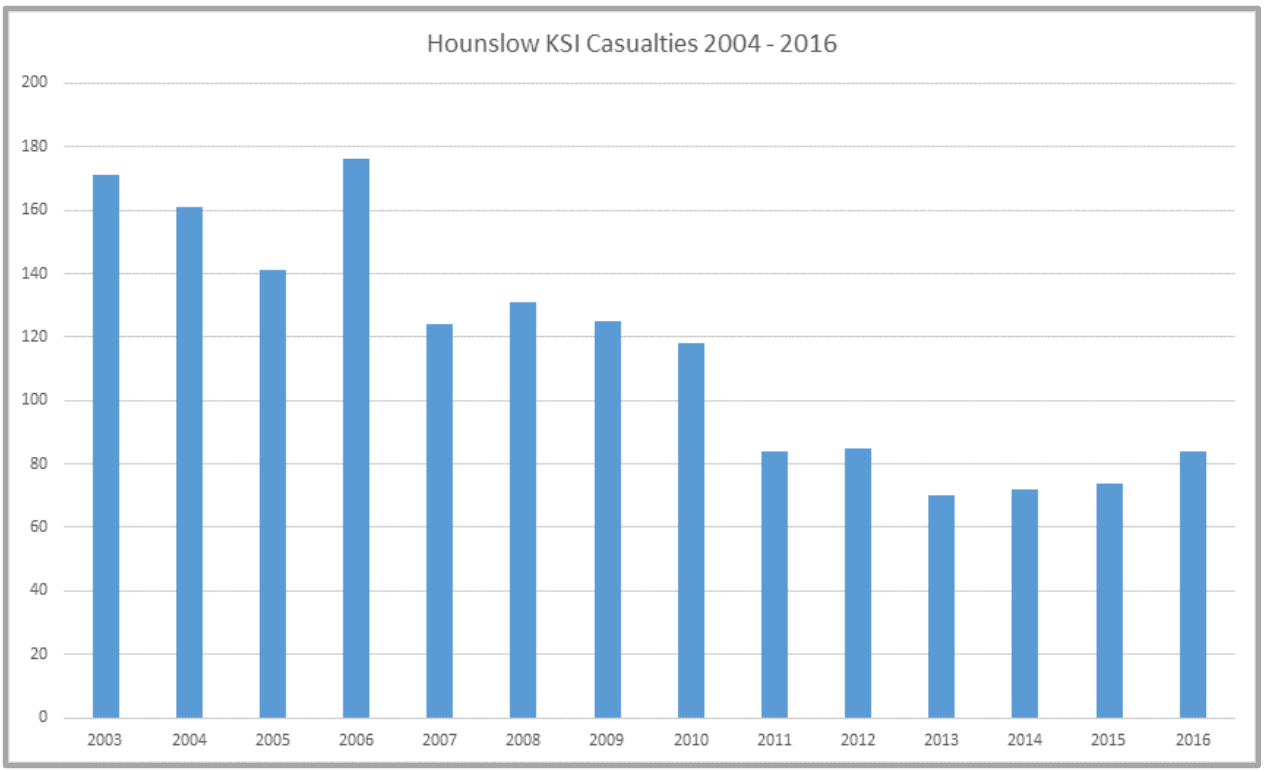
Whilst the absolute number of collisions in the borough is high compared to other London boroughs, the all casualty rate per million vehicle kilometres for 2016, a

[28] TfL (2018), Vision Zero Action Plan, http://content.tfl.gov.uk/vision-zero-action-plan.pdf

measure that takes into account the high number of km driven on Hounslow's roads, places Hounslow in the bottom quartile of individual London boroughs.

The last LIP also set a target for a reduction in the number of child (<15 years) casualties on the borough's roads - a 40% reduction on 2005-9 average. Unfortunately, this has not been met and 2016 saw the highest number of child casualties in the last 10 years. Further investigation shows that, whilst the number of children that are killed or seriously injured has remained very low, there has been an increase in slight injuries that merits further analysis. This will be undertaken in 2019.

Figure 3-3: KSI Statistics for LB Hounslow



3.2.4 Safe Urban Driving

Safe Urban Driving courses are designed to provide goods vehicle drivers with a greater awareness of the risks faced by vulnerable road users with a focus on pedestrians and cyclists. The courses consist of a practical module in which drivers exchange places with vulnerable road users (VRUs) to better understand the VRU experience around goods vehicles. The courses also include a theory module where drivers are walked through the changing urban environment, approaches to sharing the road with vulnerable users, as well as effective driving techniques around VRUs.

Feedback from drivers has consistently been that Safe Urban Driving courses greatly improve awareness of the actual and perceived risks when they share the road with vulnerable road users. During the previous LIP period, the council delivered 5 courses a year on average (approximately 120 drivers per annum, including Hounslow Highways fleet drivers).

3.2.5 Borough Objectives

The council is fully committed to improving the safety of everyone using the transport network. Objectives for outcome 2 are:

- 02a. To reverse the recent increase in KSIs by 2020 and in the longer term fulfil our commitment towards the Mayor's 'Vision Zero' target.
- 02b. To investigate and implement the most effective engineering and education measures to reduce casualties on our roads, particularly those impacting on vulnerable road users and children.
- 02c. To assess the effectiveness of 'schools streets' trials and offer similar schemes to schools where implementation is feasible and safety concerns are high.
- 02d. To complete the 20mph programme in residential streets and consider enhanced speed reduction strategies in streets where there are reports of high speeds or hostile driving and supporting data on collisions.
- 02e. To improve the safety and confidence of all those wishing to travel actively by maximising the take-up of cycle and pedestrian training for children and adults.
- 02f. To improve goods vehicle drivers' awareness of vulnerable road users by offering free Safe Urban Driving courses for all those working or living in Hounslow.
- 02g. To ensure that safety is considered in all public realm projects by embedding the Healthy Streets approach in design processes.
- 02h. To work with TfL and the construction industry to improve road safety around construction sites and reduce the number of collisions involving construction vehicles.

3.3 Outcome 3: London's streets will be used more efficiently and have less traffic on them

Congestion on the borough's roads is obviously a consequence of high levels of car use. However, as described in Chapter 2, the source of this traffic is often not local making it difficult to control or influence. The nature of journeys made in outer London also means that the issue cannot be addressed solely through a shift to active travel; so increasing public transport provision and use on an appropriate scale is a focus for this LIP. Other causes of congestion include the rise in popularity of home deliveries which has increased the number of light goods vehicles on the road network. High car ownership has also created high demand for on-street parking, a problem which was partly addressed in the previous LIP with the introduction of Controlled Parking Zones in affected areas.

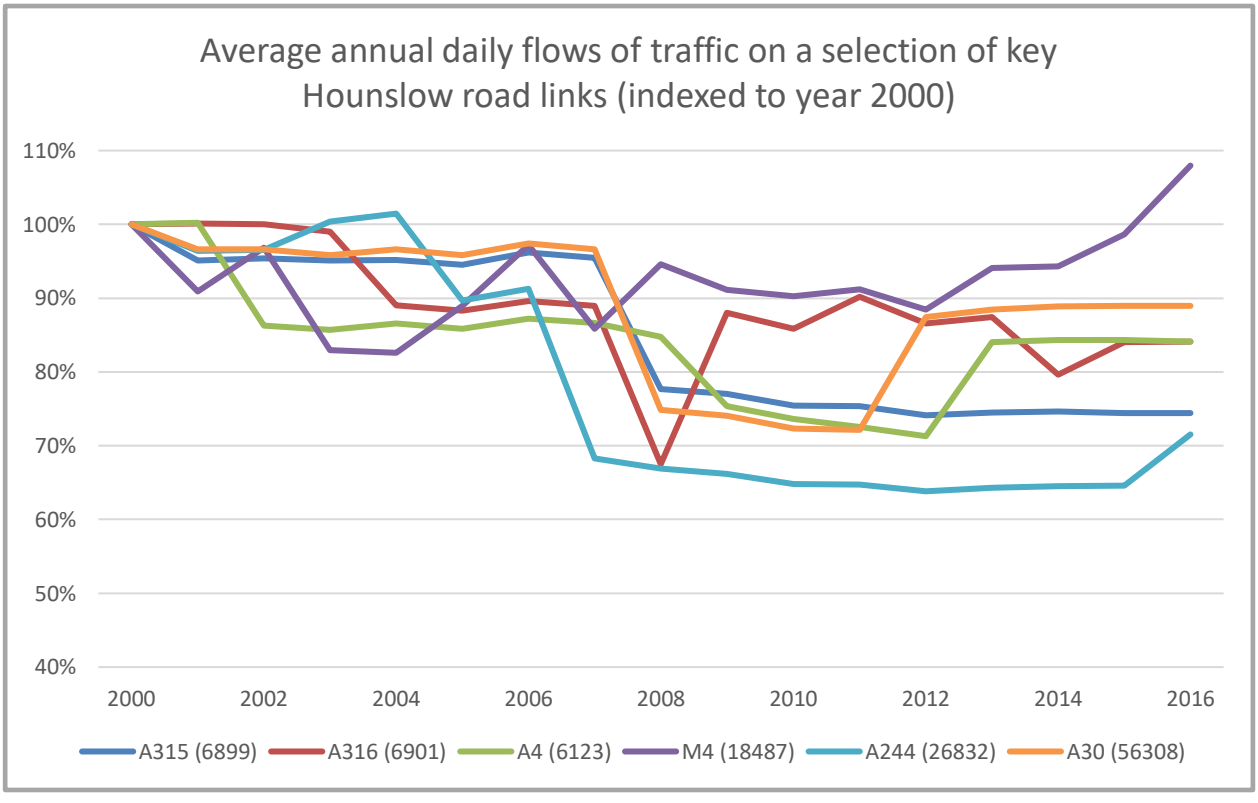
3.3.2 Challenges and Opportunities

	Challenges	Opportunities
3A	A high proportion of vehicles on the strategic road network are through traffic. Hounslow does not have the same level of control or influence over this traffic. When major routes are congested, vehicles often divert onto smaller, residential roads.	Shared objectives and co-ordinated working with neighbouring boroughs, Heathrow Airport, TfL and Highways England could bring about desired change. The local road network is within Hounslow's control and changes will contribute significantly to objectives.
3B	The expansion of Heathrow Airport and the third runway is likely to bring more surface traffic to the major road network.	Heathrow has committed to not increasing surface traffic as a result of expansion. LB Hounslow can contribute to mitigation ideas through continued engagement.
3C	Without significant new public transport infrastructure, the high proportion of commuter trips by car will remain at over 50%.	Significant new public transport infrastructure is planned (see Chapter 2 Hounslow – Local Context).
3D	Car ownership is seen as necessary, desirable and is embedded culturally. Cars are convenient for longer weekend journeys even if not used for commuting.	The link between air quality and car use is now well publicised and could be used as the basis for promotion and campaigns, as can the pressing need to increase physical activity levels and so tackle obesity.

	Challenges	Opportunities
		Car clubs are a cost-effective option for those who only need access to a car occasionally.
3E	The amount of freight traffic, specifically light goods vehicles, is growing. There is little free land for reducing freight traffic via freight consolidation centres.	Last mile delivery consolidation using sustainable modes is still possible. There may be scope to re-time some deliveries to off-peak periods. Work with the construction industry to consolidate construction traffic movements and to re-time deliveries to avoid peak hours.

3.3.3 Congestion on The Road Network

Figure 3-4: Illustrative traffic flows on major roads in LB Hounslow



Source: DfT AADF 2000-2016, www.dft.gov.uk/traffic-counts/ (Count point IDs shown in brackets)

Traffic count data (Figure 3-4) shows that there was little variation in number of vehicles on most of the borough's major roads until a rapid decline in 2007/8 caused by the recession and that only on some roads have traffic levels returned to pre-recession

levels. This may reflect the national trend that the numbers of journeys per person are decreasing (National Travel Survey, 2016) combined with a general shift in London towards active travel modes.

In contrast, the number of vehicles on the M4 seemed unaffected by the recession and has been increasing rapidly in recent years, reaching a new peak in 2016. The majority of this is through traffic accessing Heathrow airport, central London and destinations outside of the M25.

TfL's congestion mapping (Appendix H) shows how the road network struggles to cope with peak time traffic – this is especially noticeable on some of the orbital north/south routes where the volume of traffic (in part caused by the lack of alternative transport mode choice) coupled with a lower road capacity can cause severe delays. Hotspots include the A4 between Brentford and Kew Bridge, A315 between Hounslow and Isleworth, Feltham town centre and the A310 (Twickenham Rd) between Isleworth and Twickenham.

Connected and Autonomous Vehicles (CAVs)

One new innovation which could help to make better use of existing road space is the CAV. Capable of driving without a human operator, the CAV also senses and communicates with the world around it, including with other vehicles and the internet.

DfT statistics show that human error is the most common cause of the majority of accidents[29] and it is thought that CAVs have the potential to reduce not only collisions but congestion and emissions too through smoother, safer driving. Changes to the highway may be necessary and whilst these infrastructure changes are not fully understood, they may include different or clearer road markings, more signalised junctions and real time communications about nearby roadworks[30].

Image: Copyright UK Autodrive

3.3.4 Borough Objectives

The reduction in traffic on the borough's roads will be key in achieving improvements in sustainable mode share, however objectives in other sections around supporting active

[29] DfT (2017), Contributory factors for reported road accidents, https://www.gov.uk/government/statistical-data-sets/ras50-contributory-factors
[30] UK Autodrive (2018), Paving the way, building the road infrastructure of the future for connected and autonomous vehicles.

travel (Outcome 1) and low car parking in new developments (Outcome 8) also contribute to this area. Objectives for Outcome 3 are:

03a. To respond efficiently to resident demand for Controlled Parking Zones (CPZs).

03b. To support residents in investigating and implementing measures to reduce through traffic on local roads.

03c. To review our approach to the provision and charging of car parking across the borough in order to ensure this is aligned with the LIP objective to reduce traffic where possible, and support a shift towards lower emission vehicles (link to Outcome 4)

03d. To inform and support proposed improvements to the bus, rail and tube network (see Outcome 9 for details).

03e. To expand car club provision across the borough, providing an option for residents who only need occasional access to a vehicle.

03f. To continuously monitor new technological developments and adapt the LIP as needed to maximise the beneficial impact of new innovations.

03g. To assess the feasibility of introducing last mile delivery schemes using active travel modes.

03h. To use the planning system to encourage consolidation and re-timing of deliveries, including to and from construction sites, especially in areas subject to high levels of development, for example Opportunity Areas.

03i. To continue to engage with Heathrow Airport and provide feedback on the expected impacts of expansion and proposed surface transport mitigation measures.

3.4 Outcome 4: London's streets will be clean and green

Enhancing the borough's streets will bring benefits for users of the entire transport network, regardless of their mode of travel. Poor air quality is a London-wide issue which requires both local and regional solutions, and addressing the large contribution of road transport emissions, including those from public transport, to the problem is a focus for this LIP. At the same time, the interventions proposed seek to reduce transport related carbon emissions and hence contribute to climate change mitigation. Local factors such as noise and the quality of the green environment affect how people perceive their surroundings and a positive experience makes active travel choices more likely.

3.4.2 Challenges and Opportunities

	Challenges	Opportunities
4A	Motorised transport is responsible for over 50% of the major air pollutants (e.g. particulates, NO_x) and around 33% of carbon emissions[31].	Mode shift to active travel and public transport will reduce the number of vehicle trips. New technologies and policies (e.g. emissions standards, ultra-low emission vehicles) are expected to result in significant improvements to air quality and carbon emissions although it will take time before vehicle fleets are replaced. Measures implemented to reduce congestion can also help to decrease 'stop-start' activity which is more polluting than smooth flow.
4B	Air quality exceedances cluster around the major road network and are therefore out of Hounslow's control.	ULEZ and other regional measures will bring London-wide decreases in air pollutants.
4C	Some schools are sited close to major roads and therefore exposed to poor air quality regularly. Parents also contribute to this issue through idling behaviour outside schools.	Mayor's air quality audits recommended a range of options for reducing pupil's exposure to pollutants.

[31] Department for Business, Energy and Industrial Strategy, 2016, https://www.gov.uk/government/statistics/uk-local-authority-and-regional-carbon-dioxide-emissions-national-statistics-2005-2016

	Challenges	Opportunities
		Reducing the number of pupils being dropped off by car can reduce emissions in the vicinity of schools. Anti-idle campaigns have proven effective in other boroughs.
4D	Rapid electric vehicle charging infrastructure can be difficult to site due to high energy requirements and size.	Hounslow has a proven technology for delivering fast charging for residents via lamppost chargers. Rapid chargers can be sited on private or TfL owned land.
4E	Buses contribute a high proportion of pollutants in high street areas such as Chiswick and Hounslow. The outer London bus fleet will not be converted to hybrid/electric as quickly as that in inner/central London.	Work with TfL to introduce hybrid buses in areas where sensitive receptors such as schools are affected by emissions or where exposure is high e.g. High Sts. Cleaner buses will also result in significant reductions in localised carbon emissions.
4F	Heavy Goods Vehicles contribute a high proportion of pollutants.	Sustainable Urban Driving (SUD) and eco driving courses can educate drivers on methods of reducing emissions. Re-timing of deliveries to outside peak hours will help to reduce the amount of time spent idling in congestion.
4G	A high proportion of impermeable surfaces in an area can increase flood risk, reduce biodiversity and increase the volume of contaminated surface run-off entering the soil/watercourse if drainage is insufficient.	Sustainable Urban Drainage systems (SuDS) can mitigate flood risk, increase green habitat area and reduce surface run-off.
4H	Noise pollution can reduce the quality of life of residents by disturbing sleep patterns and increasing stress levels. The main sources of noise are road traffic and aircraft noise from Heathrow.	Implementation of 20mph zones and a shift to electric vehicles can reduce road traffic noise. Upcoming consultations related to the Heathrow Airport expansion provide the opportunity to influence flight path choice and night flight limits.

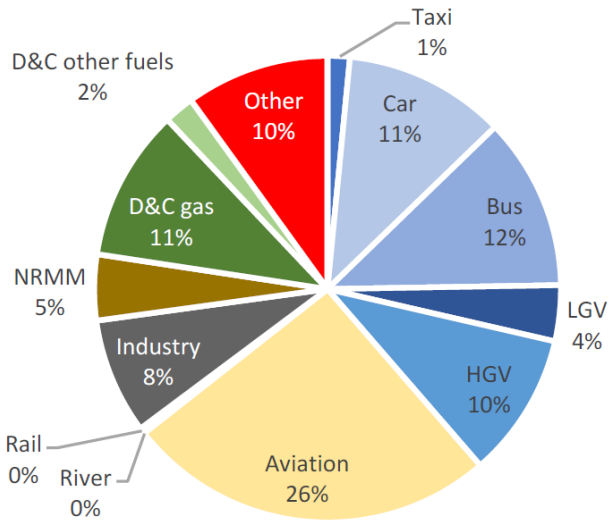
	Challenges	Opportunities
		Heathrow's pledge to have zero additional road traffic will limit road noise impact.

3.4.3 Air Quality and Hounslow's Air Quality Action Plan[32]

Overcoming poor air quality at a borough level is an ongoing challenge for the Council, with the entire borough first declared as an Air Quality Management Area (AQMA) in 2002, and then again in 2006 after reassessment.

The council is currently meeting all National Air Quality Strategy (AQS) Objectives, with the exception of Nitrogen Dioxide (NO_2). Despite undertaking a number of measures with the aim of reducing the emission of air pollutants, NO_2 values were found to be above statutory limits at four locations across the borough (>40 μgm^{-3}). Major hotspot areas for NO_2 exceedance are associated with the major road network and Heathrow Airport, both of which present challenges for the borough to manage as they lie outside of the council's direct control. Figure 3-5 shows that road transport accounts for 38% of total NO_x emissions with car, bus and HGVs contributing almost equally. Measures that address the emission from all three of these vehicle types will need to be considered to successfully improve air quality.

Fig 3-5: Share of emissions of NOx in LB Hounslow in 2013, by source (GLA, London Air Quality Dataset).



[32] Hounslow AQAP (2018). https://democraticservices.hounslow.gov.uk/documents/s144632/Draft%20AQAP%20Report%20v%204.12.pdf

Although the borough is meeting current objectives for both $PM_{2.5}$ and PM_{10} (particulate matter), this remains a pollutant of concern as it is damaging to health at any level and it is estimated that over 100 deaths annually are linked to fine particle exposure[33]. Particulates have a diverse range of adverse effects on health, and can particularly affect certain high-risk groups, including children, the elderly and those living with long-term respiratory conditions. The Hounslow Air Quality Action Plan (AQAP) outlines the actions that the Council will take to improve the borough's air quality from 2018 to 2023, and proposes a set of mitigation measures targeted at the transport network, including:

- *Measures to support active travel including improved infrastructure and the exploration of street closures or access restrictions.*
- *Continuing to support installations of residential Electric Vehicle (EV) charge points and rapid charging for taxis.*
- *The staged conversion of the Hounslow vehicle fleet to electric vehicles.*
- *Increasing the number of schools participating in the STARS programme.*
- *Anti-idle enforcement around sensitive areas e.g. schools.*

Due to the focus on transport, the LIP is a key delivery mechanism for the AQAP and there is therefore a high degree of consistency between the AQAP mitigation measures and the LIP delivery plan.

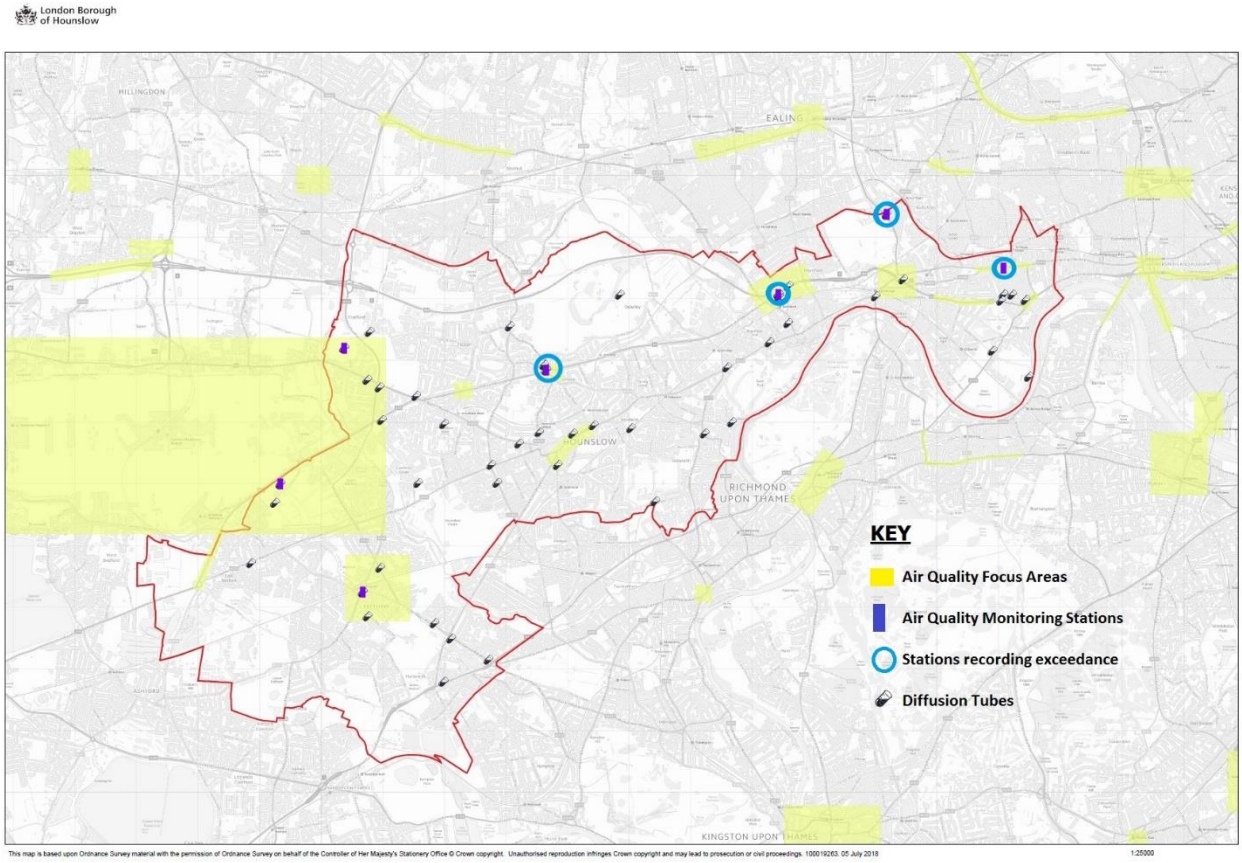
3.4.4 Air Quality Monitoring

Figure 3-6 shows the locations of air quality monitoring stations in the borough and the TfL defined focus areas where high human exposure is considered likely. Monitoring stations are generally clustered around transport corridors but are also found in town centres such as Feltham, so that the exposure of residents in those areas can be monitored. The figure shows that exceedances in NO_2 levels are all located in areas adjacent to major roads such as the A4/M4 corridor or are within the influence of Heathrow.

The MTS commits to working with boroughs on the creation of zero emission zones in town centres starting in 2020 as a step towards 'zero emission transport'. Although one exceedance was recorded in a town centre location in Chiswick, it is expected to benefit significantly from the introduction of the ULEZ in 2021. The case for the introduction of these zones will require further investigation of the potential benefits of such a scheme and continued monitoring of town centre locations to determine location priorities.

[33] Walton et al (2015) Understanding the Health Impacts of Air Pollution in London. https://www.london.gov.uk/sites/default/files/hiainlondon_kingsreport_14072015_final.pdf

Fig 3-6: Air Quality Monitoring Stations and focus areas in LB Hounslow



3.4.5 Noise Pollution and Heathrow Expansion

Road traffic and aircraft are the two largest contributors to noise pollution in the borough. New technologies such as hybrid and electric vehicles offer some potential for road noise reduction however, they do little to reduce tyre noise. Lower speeds (*Objective O2d*) and the re-routing of larger vehicles away from sensitive areas (*Objective O3b*) can significantly improve noise impacts in residential areas.

A key new development that may take place over the period of this LIP is the confirmation of the expansion of Heathrow Airport. The council's long-held position is for a 'better, not bigger' Heathrow and it has expressed concern about the effects of a third runway on the quality of life for communities around the airport[34].

The council aims to work with the airport and partners to ensure that airport related development, air and noise pollution from aircraft movements, the airport's infrastructure

34 https://www.hounslow.gov.uk/news/article/445/hounslow_council_issues_response_to_consultations_on_proposed_heathrow_expansion

and transport to and from the airport limit adverse impacts on the borough and that sustainable travel is at the core of the expansion. Objectives related to working with Heathrow are included under outcome 8.

3.4.6 Borough Objectives

The objectives listed under outcome 1, which are designed to increase active travel participation, will also have a beneficial effect on air quality. Additional objectives under outcome 4 are:

- 04a. To work with TfL to investigate the benefits of introducing zero emission zones in town centres.
- 04b. To continue to lobby for the expansion of the Ultra-Low Emission Zone to cover, in some form, the entire area within the M25 (the existing Low Emission Zone).
- 04c. To support TfL's proposal for a new Low Emission Bus Corridor along Chiswick High Road and lobby for an accelerated rate of bus improvements in other 'air quality focus areas'[35] and particularly around the airport.
- 04d. To expand the provision of lamppost EV charging and Source London public charging throughout the borough and support TfL to install at least 10 rapid chargers in the borough by 2020.
- 04e. To increase the number of ULEVs in the council's fleet.
- 04f. To support schools in raising awareness of the health impacts of poor air quality amongst pupils and parents including through the STARS programme or its successors.
- 04g. To reduce the amount of unnecessary idling in the borough through the implementation of an anti-idling Traffic Management Order in 2019 and targeted enforcement activity.
- 04h. To use contract renewals to ensure car clubs adopt zero emission vehicles as quickly as possible, while using our procurement powers to encourage suppliers to the council to do the same.
- 04i. To encourage the take up of cleaner, quieter vehicles by offering free or discounted residential parking permits for ULEVs and surcharges on diesel vehicles below Euro 6 standard.
- 04j. Work with Highways England and Heathrow Airport Ltd to reduce current and future exceedances and mitigate adverse effects of NO_2 and PM.
- 04k. To integrate Sustainable Drainage Systems (SuDS) into the design of public realm schemes and new developments wherever practicable.

[35]See action number 38 of Hounslow Air Quality Action Plan.

3.5 Outcome 5: The public transport network will meet the needs of a growing London

In addition to the background growth expected as London's population grows to over 9 million by 2021, the latest London Plan designates two opportunity areas in the borough where even higher levels of growth are expected. At least 10,000 net additional homes are to be delivered in the Heathrow Opportunity Area[36] shared between the boroughs of Hillingdon and Hounslow and 7,500 new homes and 14,000 new jobs are planned for the Great West Corridor Opportunity Area. In addition, the likely expansion of Heathrow Airport in the form of a 3rd runway will bring a significant uplift in the number of employees and passengers travelling to the airport.

These levels of development will have both positive and negative effects on the health and quality of life of people who work and live in the borough. The positive effects being from the generation of employment and economic benefits and the negatives from pressure on the transport network and accompanying air and noise pollution.

To support this development whilst meeting the overarching mode share aim of the MTS, public transport provision must be expanded to meet demand without unacceptable overcrowding. To ensure lower levels of car use it is vital that bus services are reliable and journey times comparable to or better than those of the private car, hence the greatest threat to the attractiveness of bus services is congestion on the road network.

New and better rail and tube services will be just as important for those travelling longer distances and must also have increased capacity as the population grows. This will help to ensure that borough residents have easy access to jobs in other parts of London and that businesses in the borough can attract high quality employees from out of the borough. Better rail and tube services will also improve passenger access to Heathrow Airport.

3.5.2 Challenges and Opportunities

	Challenges	Opportunities
5A	Public transport accessibility levels (PTAL) are very low in some areas, including the new opportunity areas where growth could be stifled as a result.	The introduction of new rail links can increase public transport capacity in growth areas e.g. Brentford-Southall Link for the Great West Corridor.

[36] For more details see https://www.london.gov.uk/sites/default/files/the_london_plan_malp_march_2016_-_annex_1_-_opportunity_intensification_areas.pdf

	Challenges	Opportunities
		Increases in bus frequency and changes to routes can improve PTAL. Cycling provides an alternative mode for those able to ride a bike in low PTAL areas. Cycling also serves as a first and last mile option which increases the radius of available public transport.
5B	The tube is not an option for most Hounslow residents due to the location of stations.	Increase in capacity of the Piccadilly and District Lines in the next 3 years creates the opportunity to expand bus links and active travel infrastructure to stations. Liveable Neighbourhoods funding specifically targets connections between residential areas and transport hubs.
5C	The current route network does not always serve the destinations that people require. Access to health services such as West Middlesex Hospital are a particular concern amongst the borough's residents. The only rail and tube links are east to west and serve narrow corridors. North to south orbital links are generally poor in frequency and reliability compared to radial links into London. Changing between buses or trains can put people off using public transport for some trips.	New orbital rail links such as the West London Orbital and Southall to Brentford could provide much needed capacity for 'north-south' travellers. The Elizabeth Line (due 2019) offers opportunities for new bus connections from the borough and a new link for Heathrow employees (who receive a discount on these services). Southern rail access to Heathrow Airport via Bedfont would provide a fast rail link to the airport from areas where none currently exists and allow for substantial further growth. Bus routes are not static and can be altered to suit new demand. By working with TfL and using developer contributions, north-south bus routes can be improved. Heathrow expansion brings further funding opportunities for new routes.

	Challenges	Opportunities
5D	New development and population growth will create additional demand on services that are already crowded. The aspiration for no additional highway trips as a result of the Heathrow Airport expansion would result in a 210% increase in public transport trips[37] compared to today, putting strain on the borough's public transport network.	New 'low car' development creates demand for public transport hence additional services can be provided by TfL. Similarly, new infrastructure can only be provided if demand is likely to increase. Heathrow's expansion will bring new funding sources as part of a £2.6bn mitigation package. New western and southern rail links to Heathrow will mitigate pressure on Hounslow's highway network. It is expected that there will be a gradual transfer of buses from central to outer London as more people in central/inner areas use new rail services e.g. Crossrail.
5E	The car is traditionally seen as the principal mode of transport, particularly for orbital journeys. It will be difficult to change people's mindset.	The potential for mode shift is greatest in outer London due to a low baseline of sustainable modes. The application of 'smarter choices' such as education, training and publicity can lead to behaviour change. Harder measures such as better public transport and cycle infrastructure will help to make sustainable options the easy choice. "Low car" developments will help to reduce car dependency (see Outcome 8)
5F	On average, journeys in outer London are longer and cover greater distances.	For longer journeys, there is an opportunity to introduce express buses or reduced stopping services. New rail routes could cover longer distances quickly.

[37] TfL (2018), Heathrow third runway: Surface access analysis (Technical Note), http://content.tfl.gov.uk/tfl-surface-access-analysis-note-17-01-15.pdf

3.5.3 Public Transport Accessibility Level (PTAL)

One of the most important determinants of the number of people using public transport is how accessible it is to them. In London this is measured by the TfL PTAL indicator[38] which quantifies, on a scale of 1-6, how well connected an area is by public transport. PTALs in the borough are on average lower than inner or central London, with cold spots where PTAL drops to 1 or 0 reflecting extremely limited connectivity. At these levels, public transport is not an attractive option since the number of services is limited and the nearest bus stops or stations are likely to be outside of a comfortable walking distance for many.

Figure 3-7: Public Transport Accessibility Levels in LB Hounslow (PTAL 2014)

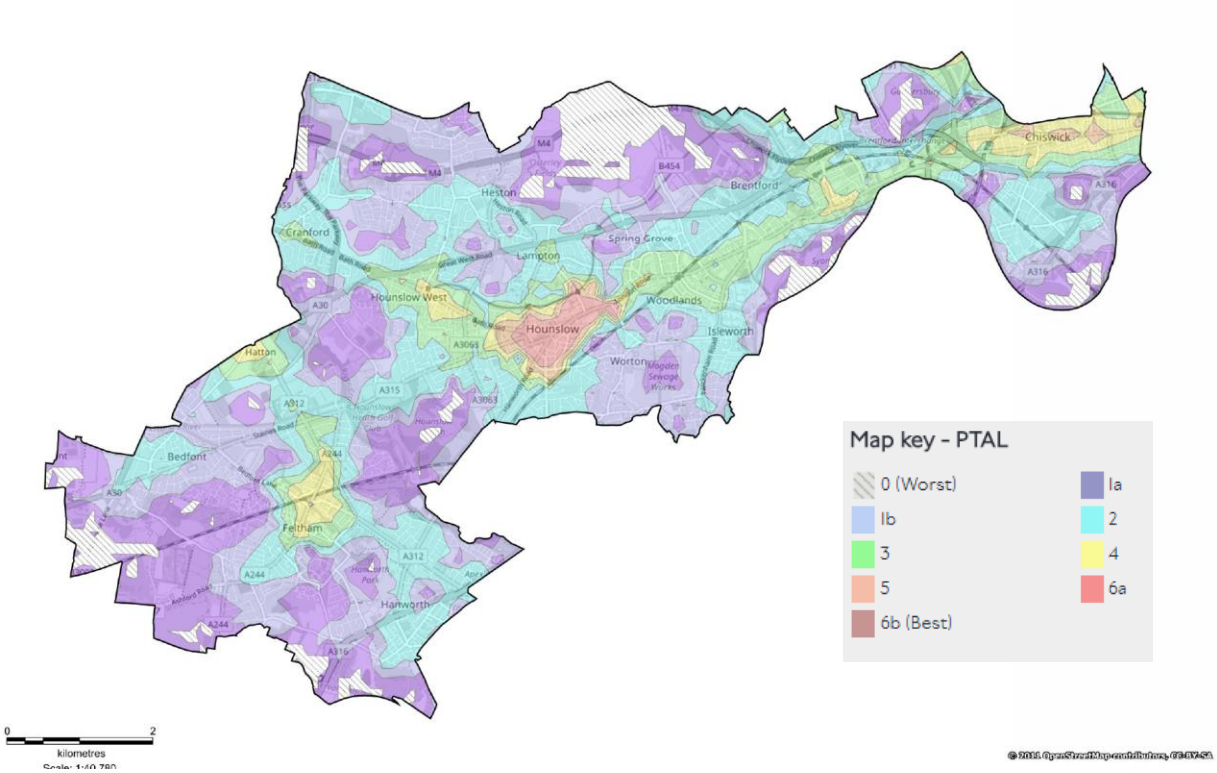


Figure 3-7 shows that the highest PTALs are found in the borough's town centres, along the borough's central corridor, with Hounslow town centre standing out as the only area with a PTAL of 6 due to its three closely spaced tube stations, extensive bus network and train station with frequent connections to central London. The lowest PTAL levels are generally found in areas of low population density e.g. Osterley Park and Hounslow Heath, however there are exceptions in areas such as Lower Feltham (1b), Heston and

[38] PTAL is a measure of connectivity with a high PTAL indicating good connectivity to the public transport network. PTAL values are influenced by the walking distance to nearby stations and stops, and by the frequency of services at these stations and stops. More details at: https://tfl.gov.uk/info-for/urban-planning-and-construction/planning-with-webcat

Cranford (1b, 2) and the Golden Mile, north of the A4 (1a - 1b) where employment and residential areas are poorly served by public transport.

Equally as concerning are the more densely populated areas at PTAL level 2 such as sections of Isleworth, Grove Park (Chiswick) and North Feltham. These areas are outside walking distance of rail or underground station and rely on a very limited or even single bus route for connectivity.

Another measure that can be used to illustrate public transport accessibility is Travel Time Analysis. The figures in Appendix G shows that the whole borough can be accessed from Hounslow town centre in less than 45minutes but that it can take up to an hour to travel from Cranford to the employment hubs in Brentford using public transport. For the less well-connected areas, this is a significant barrier to persuading people to change modes.

The role of good quality, attractive walking and cycling facilities in increasing access to public transport can also not be ignored. Cycling in particular can increase the accessibility of public transport if good parking facilities are provided close to the station or bus stop.

3.5.4 Borough Objectives

To avoid increasing dependence on the private car, the public transport system must meet the needs of the borough's residents and businesses as they grow. Objectives for promoting reduced car use in new developments can be found in Objective 8. Objectives for strategic improvements such as new rail links can be found under Outcome 9. Outcome 1 objectives will also increase the accessibility of transport hubs by active travel modes. The following objectives are proposed under Outcome 5:

- 05a. To work with TfL and other transport operators to improve bus and rail connectivity in those areas with the lowest PTAL and those with the highest potential for growth.
- 05b. To work with TfL to improve bus connections to new strategic infrastructure such as the Crossrail (Elizabeth Line).
- 05c. To work with TfL to enhance orbital and cross-borough bus services that provide residents access to employment and local services, including to Heathrow and health facilities, in a way that is competitive with the private car.
- 05d. To work with train operators to ensure that the frequencies of services meet demand without excessive crowding.

3.6 Outcome 6: Public transport will be safe, affordable and accessible to all

Ensuring that all the borough's residents and visitors can access public transport easily and quickly is a key priority for the LIP. The variation in accessibility standards currently found across tube and rail stations in the borough creates uncertainty for those with physical impairments and often means planning a journey well in advance or using a longer, more complex route. Delivering step free access at stations which do not currently offer it will improve inclusivity and give everyone the same travel choices.

Buses are a convenient and affordable mode of public transport for many without a car in the borough. They offer a high degree of accessibility onboard, particularly now that all buses have provision for wheelchair access and serve a more diverse range of destinations than rail or tube. It is important however that the boarding process is also considered as well as the complete range of needs of users.

3.6.2 Challenges and Opportunities

	Challenges	Opportunities
6A	The approaches to and entry/exit areas of transport hubs are not always easily accessible by those with mobility impairments and the visually impaired. Full step free access is only available at Hounslow East Piccadilly Line station and at selected rail stations. Hounslow West has been identified as being particularly difficult to access for those with mobility impairments. As a result, journeys that require a step free route often take longer than those that do not.	Already a priority within the MTS, Osterley station is due to be step free in 2019/20 and feasibility has started on Boston Manor station. There is an opportunity to engage with TfL on other stations, particularly if match funding is available from developers. As part of this strategy the council has committed to working towards step free access at all stations on the Hounslow loop. There is potential to make public realm improvements at Hounslow bus station and rail stations.
6B	The cost of using public transport can be a significant deterrent, especially for young workers.	Promoting discounted fares using channels more likely to be read by young people. The Mayor has frozen fares until 2020 to make travel more affordable. The 'Hopper Fare' was extended in January 2018, allowing customers to

	Challenges	Opportunities
		make unlimited bus or tram transfers within the hour. This also makes travel bus or tram more competitive compared to journeys by car.
6C	Accessibility needs are not uniform and require consideration of a range of physical and mental impairments.	Close working with the Hounslow Disability Community Forum will ensure the needs of many different groups are considered.
6D	Uneven pavements can make boarding buses very difficult for those with physical impairments. In particular, wheelchair users find access over protruding tree roots impossible and bus ramps can get snagged on raised paving slabs. Street furniture can also block access to bus doors.	The PFI contract with Hounslow Highways requires a high standard of maintenance. The council can ensure standards relating asset maintenance and placement of street furniture are applied. Opportunity for increased promotion of online 'report it' service for residents.
6E	Bus drivers are not always fully aware of the needs of those with physical impairments during boarding and whilst on board.	TfL's 'accessibility forums' help to train drivers in the needs of people with a wide range of impairments. Drivers are now encouraged to make on board announcements to help passengers.
6F	An aging population means that unsatisfactory facilities will affect the travel behaviour of a greater number of people.	Early planning is needed to adapt to the needs of an aging population. Opportunity to build on Hounslow's dementia friendly work programme and apply to transport. The provision of sheltered seating at bus stops can provide specific benefits for the elderly.

3.6.3 Bus Stop and Rail Station Accessibility

As a result of the measures introduced by the second Local Implementation Plan, 95% of bus stops in the borough have already been upgraded to meet accessibility guidelines. Opportunities remain however for further improvement by providing real time information and better seating, some of which is not suitable for the elderly or those with mobility impairments.

The approaches to and entry/exit areas of transport hubs are not always easily accessible by those with mobility difficulties and the visually impaired. Full step free access is only available at Hounslow East station on the Piccadilly Line and only at selected rail stations such as Brentford and Feltham. As a result, journeys that require a step free route often take much longer than those that do not. The council is keen to see this situation improved significantly over the next five years.

Demand Responsive Bus Services (DRB)

Many of the borough's residents rely on buses to travel to work and for leisure purposes, however, there are areas of the borough where services are infrequent or too far from people's homes. A demand responsive model of bus services could offer the flexibility to serve areas where a regular route would not be financially viable. The council is supportive of the DRB trials which are currently taking place in London and will monitor the development of this new approach to bus services and adapt this strategy to accommodate them as required.

3.6.4 Borough Objectives

To improve accessibility across the network, the following objectives are proposed under outcome 6. Since this area is linked to the future development of the borough, they should be read in conjunction with the objectives under Outcomes 9.

06a. To improve public transport accessibility by making public realm improvements at transport hubs and bus stops
06b. To work with Hounslow Highways to ensure public realm assets are maintained to the standards set in the PFI contract.
06c. To work with partners to implement step free access at all stations on the Hounslow Loop during the lifetime of this LIP. Facilities will be maintained to a high standard and repaired as quickly as possible if not working
06d. To work with TfL to provide step free access at Hounslow West, Gunnersbury, and other tube stations.
06e. To work with TfL to improve bus driver's awareness of accessibility issues including through accessibility forum training.

06f. To ensure 95%of all bus stops in Hounslow continue to meet accessibility guidelines and that other improvements such as seating and real-time information for passengers is provided where the need is greatest.

06g. To support TfL with the potential introduction of Demand Responsive Bus Services to London.

3.7 Outcome 7: Journeys by public transport will be pleasant, fast and reliable

To be attractive, public transport must provide a realistic alternative to the private car by being reliable, comfortable, convenient and affordable. Congestion at peak times causes frustration for bus users who find that they cannot rely on services to get them to their destination on time and makes a swap back to the car more likely. Overcrowding is an issue on routes into London and on orbital routes that provide access to many of Hounslow's key services such as hospitals and schools.

3.7.2 Challenges and Opportunities

	Challenges	Opportunities
7A	Congested routes such as Chiswick High Road cause delays and reduce the reliability of buses. This results in journey times that are uncompetitive with the private car.	Increasing demand for buses will reduce the number of private vehicles on the road, creating more road capacity for buses. The introduction of limited stop or express routes for buses could reduce journey times. Bus priority or traffic signal schemes along selected corridors can improve bus reliability and decrease journey times (see page 163 of the MTS for Chiswick proposals). The MTS identifies potential routes through the borough to be radial express and/or limited stop corridors. Parking restrictions around bus stops can reduce stopping time and treatments at junctions can make it easier for buses to manoeuvre.
7B	Overcrowding on radial services into central London, exacerbated by employment growth in central London.	Employment growth will bring demand for new services or an increase in frequency which will relieve overcrowding. Capacity increases to routes, including the opening of Elizabeth Line and HS2, will reduce overcrowding on existing links.

	Challenges	Opportunities
7C	Areas around transport hubs can be difficult to navigate, cluttered and lacking in cycle parking.	Improvements to the public realm around stations and walking/cycling facilities can make active travel more attractive. Legible London can improve pedestrian wayfinding in built up areas.
7D	Residents accustomed to travelling by car can be unaware of improvements to public transport options and may not consider using them.	Information provision can be effective in changing travel habits when combined with infrastructure improvements and promotional activities.

3.7.3 Borough Objectives

Objectives under outcome 7 are intended to improve the public transport experience and:

- 07a. To work in partnership with TfL to improve bus journey times through active or passive bus priority measures.
- 07b. To review kerbside waiting and loading restrictions and alter them where it improves bus reliability.
- 07c. To investigate, in partnership with TfL, the feasibility of a Bus Rapid Transit scheme along the A4 corridor between Heathrow Airport and Chiswick roundabout.
- 07d. To increase residents' awareness of transport information sources e.g. journey planners.

3.8 Outcome 8: Active, efficient and sustainable travel will be the best option in new developments

During the lifetime of this LIP, the demand for new developments is expected to be extremely high in the borough. Not only does the new London Plan[39] set ambitious targets for new housing, but the possible expansion of Heathrow Airport will also lead to further demand for development in the borough. In order that new developments do not contribute significantly to existing congestion and air quality issues, sustainable transport must be the best option for new residents and employees.

3.8.2 Challenges and opportunities

	Challenges	Opportunities
8A	Trying to meet the demands for new housing and new jobs whilst ensuring there is no significant impact on the transport network.	Develop strategies and incentives to promote walking, cycling and public transport use and ensure that this is embedded in planning policy.
8B	Balancing demands for car ownership and car use against the need to manage and reduce congestion.	Around 70% of households in the borough have access to a car but this means that 30% of households do not, which gives a good platform to build on.
8C	Many developers see the provision of car parking as a way to sell their developments to future occupiers.	The new London Plan sets standards ensure that new developments provide appropriate levels of car parking relative to their location and public transport accessibility, minimising parking provision in areas of high public transport accessibility and town centres. Low car developments can incorporate car clubs and car sharing schemes. Car ownership is falling in London and people are learning to drive when they are older.

[39] https://www.london.gov.uk/what-we-do/planning/london-plan/new-london-plan

	Challenges	Opportunities
		Where car use provision required, the installation of charging facilities can increase the adoption of electric vehicles.
8D	Many people complain that they need to own and use a car in their everyday lives.	The planning process can be used to provide incentives that will deter private car ownership and encourage public transport use in all new developments.
8E	Some developers only see cycle parking as an afterthought and tuck it away in insecure or inaccessible locations.	Use the London Cycle Design Guide and other appropriate guidance to ensure that developers provide high quality cycle parking and infrastructure in accordance with London Plan standards.
8F	In the past many developments have been internally focussed and not looked to ensure that they link effectively with their surroundings. This includes a lack of cycling and pedestrian permeability which can discourage people to walk and cycle shorter trips.	Using the Healthy Streets approach and good design guidance will ensure that developments are permeable and welcoming to pedestrians and cyclists. Design of new developments can promote active travel through application of government guidance: “Building the foundations: Tackling obesity through planning and development”. Ensure that planning policy promotes good design guidance and that developments are fully integrated into their surroundings

3.8.3 Growth and New Development

The growing number of people who will be coming to the borough to live or work means the delivery of a sustainable transport network is crucial to enable all those who live in or visit the area to travel safely and conveniently, whilst supporting environmentally sustainable economic growth and improving health.

The Hounslow Local Plan[40] and the London Plan both set out planning policies to reduce car use and ensure that developments are appropriately located. The LIP builds on these policies and ensures that appropriate infrastructure is in place so that developers see the benefits of promoting active and sustainable travel, and that residents and businesses can be confident that appropriate alternatives are available.

The longer-term delivery plan in this document identifies schemes that will provide better, quicker, and safer alternatives to using a car especially for commuter trips. At the same time, however, the need to provide for leisure, retail and school related trips must be remembered and alternatives to the car for these trips also provided otherwise the objective of reducing car ownership may not be met.

The proposals for new jobs and homes set out in the London Plan will lead to more frequent traffic congestion unless development includes travel management considerations. The council requires developers to provide travel plans and works with WestTrans[41] to monitor these. All new and expanded schools are required to provide detailed travel plans aimed at addressing congestion, safety and air quality issues associated with the school run.

The council has developed an extremely successful and popular cycle training programme for both adults and children and it is essential that the future delivery plan builds upon this success so that residents and employees of new developments see cycling as the most efficient and healthiest way to travel.

3.8.4 Designing New Developments for Sustainable Travel

Developers will need to play an essential role in delivering sustainable and active travel by contributing towards infrastructure both within and around their sites, ensuring they are linked to cycle routes, public transport nodes, and essential services. This will include, where appropriate, reducing the severing effect of existing transport infrastructure such as major roads and railway lines.

It will not be enough however, just to promote active and sustainable travel and developments must be designed so that they promote walking and cycling. There are many case studies available for the design of a ‘permeable’ site and the healthy streets principles can also be used to plan a new development around walking and cycling.

Managing car parking is also essential since the provision of high-levels of parking can act to encourage car ownership even where good public transport options exist. The

[40] https://www.hounslow.gov.uk/info/20167/local_plan/1108/local_plan/1

[41] http://www.westtrans.org/

council recognises the London Plan maximum car parking standards when considering planning applications and works to ensure that parking is minimised as far as practicable in all new developments and that car free developments are promoted in town centres and areas of high public transport accessibility. The council has an adopted planning policy that can prevent residents of new developments from obtaining parking permits for CPZs thus minimising the impact of low car developments on existing residents and streets.

Overall, the council aims to create a better environment for active travel, and even where cars still have a dominant role, the promotion of car sharing, electric vehicles and improvements to the highway network will improve efficiency and environmental outcomes.

3.8.5 Borough Objectives

Objectives under outcome 8 are:

- 08a. To use the planning system to ensure new developments incorporate the healthy streets principles into their designs, in line with policy T2 of the London Plan.
- 08b. To use the planning system to promote car-free and low-car developments.
- 08c. To use the planning system to ensure new developments provide high quality cycle parking in line with London Plan standards.
- 08d. To secure s106 and CIL[42] contributions so that developers mitigate any significant impacts on the transport network and contribute to LIP objectives.
- 08e. To ensure developer Travel Plans are prepared in accordance with latest guidance from Transport for London and the council's '10 Point Guide'.
- 08f. To support businesses and developers with implementing and monitoring their travel plan commitments.
- 08g. To use developer funding to minimise any increase in noise or reduction in air quality as a result of new development.
- 08h. To promote increased surface access provision to Heathrow Airport by working with partners to improve public transport connections and cycle infrastructure.
- 08i. To work with Heathrow Airport to avoid increased levels of noise and air pollution as a result of aircraft movements.

[42] Financial contributions made by a developer to mitigate the impact of the development on the community and transport network.

3.9 Outcome 9: Transport investment will unlock the delivery of new homes and jobs' (strategic transport)

The draft London Plan has identified that the borough needs to accommodate around 22,000 new homes over the next 10 years. It also designates two Opportunity Areas (OAs), already described under Outcome 5, where a significant proportion of this growth could take place if transport infrastructure were upgraded. In these areas, this cannot be limited to active travel due to the distance of journeys likely to be undertaken and significant improvements to public transport will be required to ensure people have a realistic choice of travel mode. The council is currently developing Local Plan Reviews to cover these areas and to ensure that developments brought forward are high density, mixed use and designed around sustainable transport.

3.9.2 Challenges and opportunities

	Challenges	Opportunities
9A	Hounslow needs to accommodate around almost 22,000 new homes in the next ten years as set out in the London Plan.	Close working with TfL and other service providers can ensure that new homes are linked to jobs by high quality public transport services and active travel infrastructure.
9B	Many areas targeted for development suffer from poor public transport accessibility (PTAL).	Transport accessibility in key areas within the borough can be improved by working in partnership with TfL and ensuring that new developments are appropriately located.
9C	Hounslow has two Opportunity Areas (OAs) identified in the London Plan which will concentrate development and demand for transport services.	Designation as an opportunity area brings funding opportunities for transport improvements. Investigations into high quality bus and rail links within the OAs are already underway and will provide an evidence base for improvements.
9F	Strategic transport links are expensive and ways in which significant investment can be obtained are limited.	Innovative new ways to fund strategic transport links can be considered, for example, workplace parking levy and private borrowing.
9H	Existing public transport services and stations are reaching capacity and are not fully accessible. Without expansion, growth will bring additional pressure.	Early planning with transport operators and developers will improve services, station capacity, and ensure all stations in the borough are fully accessible.

3.9.3 Unlocking Growth Potential in Opportunity Areas

The provision of significant new transport infrastructure will be required to support development in the OAs, which suffer from very poor public transport accessibility in places. New infrastructure to support OAs includes the rail extension from Brentford (Golden Mile) to Southall, the West London Orbital and improved bus services, described in more detail below.

Great West Corridor OA

The Great West Corridor OA is characterised by low public transport accessibility particularly in the west, high traffic flow and congestion on the A4 and other roads leading to severance and poor air quality, and lack of connectivity to local town centres. To realise the high levels of growth planned (over 14,000 new jobs and 7,500 new homes), significant new public transport infrastructure will be needed

There are opportunities, however to improve connectivity. The Elizabeth Line is less than 3 miles to the north with the nearest station at Southall which is itself is in an opportunity area. An existing freight line (see Appendix B) could be converted to provide a regular shuttle service from the OA which will increase the PTAL of the area and provide a quick link to central London. This would require a new station to be built in the Golden Mile and the council is already working with Network Rail to bring this to reality.

Workplace Parking Levy (WPL)

A WPL is a charge made by a local authority on employers within a defined area who provide workplace parking for their employees. It is an annual charge based on the number of employee-occupied parking spaces on site, the proceeds of which are ring-fenced for local transport improvements. There is currently only one live scheme in operation in the UK, in Nottingham.

The introduction of a WPL is being investigated as one way in which the Southall rail link and new Golden Mile station could be funded. In addition to this this rail link, the charge could also fund improved bus services to and along the Great West Road, including a potential express service between Osterley and Gunnersbury stations, improved walking and cycling access and better public realm along the corridor.

The cost of all these improvements is substantial, potentially over £100m. There is limited public sector funding available for these improvements and that which there is, generally takes the form of a loan which requires repaying. Through a WPL, the council is looking to secure an ongoing revenue income to service that financing.

It is also expected that the scheme will have a significant positive impact on air quality in the area. By providing new sustainable transport infrastructure, the introduction of a WPL will decrease emissions of pollutants by enabling a shift away from the private car to public transport, walking and cycling. Fewer vehicles on the road at peak times will also ease congestion and reduce stationary traffic.

The West London Alliance[43] (of which the council is a member) is working with TfL and Network Rail to deliver the "West London Orbital" rail link which would connect Brentford to West Hampstead/Cricklewood. This will provide access to HS2 and areas of employment including the Old Oak Common OA without having to travel into central London. A plan of the proposed route can be found in Appendix B and the scheme is included in the MTS.

The council will work with TfL and South Western Railways to deliver improvements to Gunnersbury and Kew Bridge stations to provide step free access and capacity improvements. This will help to maximise development in the eastern end of the OA.

There is also a need to improve bus services in the area, particularly on orbital routes to Ealing and Brentford town centres. Better connections on these routes would make accessing local services easier for residents and also improve access to local employment opportunities.

Heathrow OA

The Heathrow OA will lead to new development primarily around Feltham where there are already concerns about traffic levels. Feltham is also a Housing Zone and it is predicted that 7,000 new dwellings will be delivered there over the coming years. Whilst there are proposed improvements in frequency and capacity of trains eastbound to Waterloo (and in reverse to Reading and Windsor) from Feltham, public transport improvements currently being explored for the OA have tended to be based around enhancements to the bus service which can have limited impact on unlocking growth.

The proposed Third Runway at Heathrow would lead to new jobs but also increased traffic movements. There is a need to reduce the number of car-borne trips by staff and visitors and new public transport infrastructure to accommodate these trips will be essential. The council is promoting a new Southern Rail Access to Heathrow (Appendix B) with a spur to the west of Feltham although government has yet to commit to a preferred route. This would allow a new station and development to be provided in Bedfont, serving the airport but also delivering as significant amount of new housing and employment space locally. This development would also be linked to the airport by a new southern road tunnel to provide improved bus access particularly for employees.

3.9.4 Improving All Modes

Growth is not just going to occur in OAs and unlocking new homes and jobs across the borough will require a holistic approach to planning improvements that considers all modes of travel. The council will work with existing providers, including TfL and South

[43] http://www.wla.london/

Western Railways, to deliver improvements to existing infrastructure including planned improvements to Piccadilly and District Lines services.

Whilst the council fully supports active and sustainable travel there will remain a need for some journeys to be made by car, especially in areas of poor public transport accessibility in the west of the borough. The council will therefore promote highway improvements where appropriate to reduce congestion hot spots; remove severance; improve facilities for buses, cyclists and pedestrians; and improve air quality and public realm.

The Local Plan[44] sets out the council's planning policy with regard to new developments and the need to use the planning system to ensure car parking provision in new developments is limited and that provision is made for public transport and active travel infrastructure. This LIP complements the planning strategy to ensure a joined-up approach by setting objectives to unlock the growth required.

3.9.5 Borough Objectives

It is the overarching aim of the council under this outcome to ensure that areas that will see high levels of development are served by appropriate levels of public transport options and have access to high quality walking and cycling networks linking to essential services. Other objectives such as 5 and 6 are also relevant to this outcome:

09a. To further promote and support the development of new rail links from Brentford to Southall (to connect with the Elizabeth Line) and Brentford to Cricklewood/West Hampstead (the West London Orbital Route).
09b. To investigate the potential of a charge on workplace parking to fund major public transport improvements, with a particular focus in the Great West Corridor.
09c. To support improved access to Heathrow Airport and the Heathrow Opportunity Area through new southern rail access.
09d. To support TfL in delivering planned upgrades to the Piccadilly and District lines and promote the introduction of a permanent stop at Turnham Green.
09e. To work with local landowners, TfL and Network Rail to deliver improved capacity to rail stations where issues already exist such as at Gunnersbury.
09f. To provide support to TfL in delivering improved bus services to growth areas such as the Great West Corridor and Heathrow Opportunity Areas.
09g. To support TfL with the potential introduction of Demand Responsive Bus Services to London

[44] LB Hounslow (2015), Hounslow Local Plan, https://www.hounslow.gov.uk/info/20167/local_plan/1108/local_plan/1

09h. To work with TfL to increase rail station capacity in growth and improve active travel links between stations, employment centres and residential areas.
09i. To utilise developer funding to carry out improvements to the highway network to best facilitate sustainable modes and reduce congestion.
09j. To support initiatives that reduce the impact of road infrastructure in the built environment.

3.10 Other Mayoral Strategies[45]

The following Mayoral Strategies have been reviewed to give regard to policies and objectives that may impact or have relevance to the LIP.

3.10.2 Environment Strategy for London

The Mayor's Environmental Strategy for London describes London's present environment both in terms of progress that has been made since the 1950s and problems that remain to be solved such as those surrounding air quality, climate change, green infrastructure, waste and noise. It outlines four strategic approaches; the low carbon circular economy, the smart digital city, the green infrastructure/natural capital accounting and the healthy streets approach. These are to be used to address the identified problems and outlines bespoke policies to reach 2050 targets. It describes measures such as the Ultra-Low Emissions Zone, zero emission bus and taxi fleets and measures to support non-diesel vehicle ownership.

The LIP will support the Mayor's Environmental Strategy by breaking down infrastructure, informational and behavioural barriers to active and sustainable travel. The LIP also supports TfL and/or operators' improvements which will serve growth areas such as the Great West Corridor.

3.10.3 The London Plan

The draft London Plan 2017 focuses on building strong and inclusive communities by lowering barriers to participation and delivering better and fairer services. The Mayor's target is that by 2041, 80% of trips will be made by foot, cycle or public transport. New development, transit provision and transport behaviour change policies will be key to achieving this. The Plan requires developments to be densely organised, with walkability designed in from inception and should focus on mitigating any negative impact on the existing transport network. Public transport access must be increased, services operated more effectively and connect more effectively to wider strategic networks such as the south east. Cycling must be promoted with cycle parking built-in

[45] Requirement R12: Other Mayoral strategies are also relevant to LIPs, and boroughs should have regard to these as they are published.

and private vehicle ownership discouraged, whilst promoting public transport use in its place.

In the borough of Hounslow, most development will be focussed in the two Opportunity Areas and will be served by high quality public transport such as the upgraded Piccadilly Line, Heathrow Southern Rail Access, Southall Rail Link, West London Orbital and new bus services. These developments will be linked to new or existing walking and cycle networks and cycle parking will be expanded, particularly at transport interchanges. The council will continue to promote travel behaviour change through schemes such as 20mph zones, Bikeability training and STARS, among others.

3.10.4 Housing Strategy

The draft version of the Mayor's 2018 Housing Strategy focusses on how London will deliver a larger and more affordable housing stock over the next decade while preserving the city's green belt and open spaces, supporting low-carbon homes, diversifying the homebuilding industry and improving industry skills and capacity.

New housing generates additional trips which will need to be accounted for when projecting traffic, ridership and cycle/walking forecasts. Locally, new developments will continue to need transport assessments to assess their impact on the network, whilst investment in new transport schemes will be targeted to support development of housing in areas of high public transport accessibility.

The largest economic opportunity area in the borough lies in the Heathrow Opportunity Area, which encompasses communities such as Feltham, Hatton, and Cranford and these areas already suffer from issues with airport-related traffic. The potential third runway and associated supporting developments in this OA means that the borough will investigate new bus services as well as a Southern Rail connection through Bedfont and Feltham to the airport to provide better access for existing and additional employees. Additionally, the arrival of HS2 and Crossrail at Old Oak Common to the northeast will generate many trips that may require changes and enhancements to the public transport network in the borough (e.g. enhanced orbital services). The West London Orbital rail link will provide access to new employment areas for residents of the borough.

3.10.5 Economic Development Strategy

The December 2017 consultation draft of the Mayor's Economic Development Strategy for London focusses on creating a fairer, more inclusive economy in the nation's capital. The GLA has identified issues such as unequal opportunities, the high cost of living, poor health and unsafe communities as areas for improvement. Notably for the LIP these will be improved by increasing office and retails space provision and providing more affordable transport options.

Economic growth and transport are intrinsically linked and access to employment sites is imperative for growth. This Strategy therefore aims to decrease the costs of transport to help attract and retain employees, whilst increasing public transport capacity through new/improved provisions and supporting non-motorised travel. Many of London's economic drivers, including tourism, will also benefit from improved transport options.

Major capacity increases will come with the opening of the Elizabeth Line in 2019 as well as upgraded trains on the Piccadilly Line in 2023. Potential later developments of connections between Brentford/Southall, Feltham/Heathrow and Hounslow/Brentford/Old Oak Common will also increase capacity, as will increased bus services to areas such as the Golden Mile and Heathrow airport. These will provide much improved access to areas of employment for residents of the borough and provide businesses within the borough access to wider catchment areas. Otherwise, increased and improved provision of cycle/pedestrian infrastructure and programmes (specifically in low-PTAL areas) will help unlock more low-cost modes for people of all backgrounds.

3.10.6 Health Inequalities Strategy

Currently in draft, the 2018 Mayor's Health Inequalities Strategy outlines five main goals for London – namely Healthy Children, Minds, Places, Communities and Living.

The STARS programme is currently marketed to schools around the year, and School Streets, increased parking enforcement around schools and new traffic calming may be introduced. Healthy Streets is another main scheme to create "Healthy Places" in the borough and will likely have a knock-on effect on mental health, drug and alcohol use and community cohesion. Finally, numerous programmes dis-incentivising car use (such as 20-mph zones, the widened LEZ, and air quality awareness campaigns) aim to address several health-related goals.

3.10.7 Culture Strategy

The Mayor's Draft Culture Strategy published in March 2018 focusses on four main priorities: helping more people experience and create culture in the city, supporting cultural spaces and places, investing in a diverse creative workforce and maintaining London as a global powerhouse post-Brexit. It aims to improve community involvement in, and accessibility of, cultural events and hopes to expand the city's impressive museum and arts offerings. Transport serves directly serves the culture sector connecting people to places of cultural interest.

The West London Orbital will secure access to new visitor attractions and increased capacity elsewhere will allow faster and more comfortable travel into other culturally significant areas of London.

4. The Delivery Plan

4.1. Introduction

This chapter sets out our Delivery Plan for achieving the objectives of the LIP. It includes:

- Linkages to Mayor's Transport Strategy priorities;
- A list of potential funding sources for the period 2019/20 to 2021/22;
- Long-term interventions to 2041;
- A three-year indicative Programme of Investment for period 2019/20 to 2021/22; and
- A detailed annual programme for 2019/20.

The projects and programmes presented in this section have been chosen because of their potential to address the challenges and opportunities presented in the previous chapter. They also consider the local context of the borough outlined in chapter 1 and the framework provided by the MTS to form a work programme that is customised and has the greatest chance of success.

4.2. Linkages to the Mayor's Transport Strategy priorities[46]

The Delivery Plan was developed to align the borough's projects and programmes with the policy framework of the MTS, the overarching mode share aim, each of the nine outcomes, and the relevant policies and proposals.

[46] Requirement R13: Boroughs are required to outline projects and programmes that contribute to the delivery of the Mayor's Transport Strategy – including the overarching mode share aim, each of the nine outcomes and the relevant policies and proposals – in preparing a Delivery Plan.

TABLE 4.1 - Linkages between LIP projects and programmes and the Mayor's Transport Strategy outcomes

Project / Programme		MTS mode share	MTS outcomes							
		Improving active, efficient and sustainable mode share	No 1: - Active	No 2: - Safe	No 3: - Efficient	No 4: - Clean & Green	No 5: - Connected	No 6: - Accessible	No 7: - Quality	Nos 8 & 9 Sustainable Growth/Unlocking
	Safe - Road Danger Reduction	✓	✓	✓		✓				✓
1	Completing borough-wide implementation of 20mph limit on all residential roads and town centre links.	✓	✓	✓		✓				✓
2	Review of casualty data, with a focus on child casualties, and implementation of targeted engineering improvements to the road network.	✓		✓		✓				
	Safe – Road Safety Education, Training & Publicity (ETP)	✓	✓	✓	✓					
3	Road Safety ETP for young people to include: primary school pedestrian training, Safe Drive Stay Alive, Car Seat Clinics and Theatre in Education. For goods vehicle drivers, Safe Urban Driving Courses will be offered.	✓	✓	✓	✓					

Project / Programme		MTS mode share	MTS outcomes							
		Improving active, efficient and sustainable mode share	No 1: - Active	No 2: - Safe	No 3: - Efficient	No 4: - Clean & Green	No 5: - Connected	No 6: - Accessible	No 7: - Quality	Nos 8 & 9 Sustainable Growth/Unlocking
4	Expansion of motorcycle ETP to all working or living in Hounslow to include free Bikesafe training, Biker Down (in partnership with London Fire Brigade) and a new project working with delivery riders which will deliver 'safe rider' training.			✓						
5	Adult and pupil cycle training: Bikeability levels 1, 2 and 3, learn to ride and women's cycle club - 'Hounslow Biking Belles'.	✓	✓	✓	✓					
	Healthy, Clean and Green – Travel Demand Management	✓	✓		✓	✓	✓	✓		✓
6	Sustainable Travel in Businesses and Communities. This programme will work with schools, employers and community groups to promote sustainable travel options. Projects include (but not limited to) business travel plan support, Hounslow Travel Active website and social media platforms, delivery of promotional campaigns such as 'Beat the Street', public transport promotions, anti-idle and air	✓	✓		✓	✓	✓	✓		✓

Project / Programme		MTS mode share	MTS outcomes							
		Improving active, efficient and sustainable mode share	No 1: - Active	No 2: - Safe	No 3: - Efficient	No 4: - Clean & Green	No 5: - Connected	No 6: - Accessible	No 7: - Quality	Nos 8 & 9 Sustainable Growth/Unlocking
	other quality campaigns, 'small grant' fund for onsite improvements e.g. cycle parking. Promotion of TfL STARS and associated projects e.g. Youth Travel Ambassadors, provision of a support officer and grants package for STARS activities.									
	Healthy, Clean and Green – Asset Maintenance	✓	✓			✓		✓		✓
7	Ensure the innovative Highways PFI arrangement delivers on requirements to maintain a robust highways asset with appropriate levels of street cleanliness. **This is funded through the PFI arrangement and receives no allocation from TfL.**	✓	✓	✓	✓	✓			✓	
	Healthy, Clean and Green – Better, more accessible streets	✓	✓	✓	✓	✓	✓	✓	✓	✓
8	Funding available to elected members to bid for annually to deliver targeted improvements. Scheme will support interventions to promote accessibility (e.g. through	✓	✓	✓	✓	✓	✓	✓	✓	✓

Project / Programme		MTS mode share	MTS outcomes							
		Improving active, efficient and sustainable mode share	No 1: - Active	No 2: - Safe	No 3: - Efficient	No 4: - Clean & Green	No 5: - Connected	No 6: - Accessible	No 7: - Quality	Nos 8 & 9 Sustainable Growth/Unlocking
	implementing drop kerbs, tactile paving, signage), sustainable transport uptake and improved public realm.									
9	Provision of on and off-street, residential cycle parking (e.g. Bike Hangers) across the borough plus a review and upgrade of facilities in town centres and at public buildings.	✓	✓	✓		✓				✓
10	LIP funding to support delivery of Feltham Town Centre Major Scheme. Includes provision of Legible London signage.	✓	✓	✓	✓	✓	✓	✓	✓	✓
11	Submission of Liveable Neighbourhoods bids for Dukes Meadows and Feltham Town Centre, centred around the Healthy Streets approach.	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Healthy, Clean and Green – Developing a Hounslow active travel network	✓	✓	✓	✓	✓				✓
12	Feasibility and outline design for Hounslow Priority Cycle Network. Developing a series of cycle routes linking the	✓	✓	✓	✓	✓				✓

Project / Programme		MTS mode share	MTS outcomes							
		Improving active, efficient and sustainable mode share	No 1: - Active	No 2: - Safe	No 3: - Efficient	No 4: - Clean & Green	No 5: - Connected	No 6: - Accessible	No 7: - Quality	Nos 8 & 9 Sustainable Growth/Unlocking
	borough's town centres, neighbouring borough town centres and key employment sites, including Heathrow Airport and transport hubs. Developing proposals with our partners for improving access to rail and tube stations by foot, bike and for the mobility impaired.									
13	Implementation of Hounslow Priority Cycle Route 1 - route to be determined by feasibility project above. Completion of current town centre cycle corridor programme including Staines Rd, Hounslow Rd and Bath Rd.	✓	✓	✓	✓	✓				✓
	Works Efficiently, Unlocks Growth – Bus network improvements	✓			✓		✓	✓	✓	✓
14	Implementation of measures that improve bus journey time reliability (for example through new or enhanced bus lanes,	✓			✓		✓	✓	✓	✓

Project / Programme		MTS mode share	MTS outcomes							
		Improving active, efficient and sustainable mode share	No 1: - Active	No 2: - Safe	No 3: - Efficient	No 4: - Clean & Green	No 5: - Connected	No 6: - Accessible	No 7: - Quality	Nos 8 & 9 Sustainable Growth/Unlocking
	targeted parking restrictions on bus routes etc) and also bus stop accessibility.									
	Works Efficiently, Unlocks Growth – Rail enhancement programme.	✓	✓	✓	✓	✓	✓	✓	✓	✓
15	Funding to progress development of strategic transport schemes on and around the 'Great West Corridor' and 'West of Borough' opportunity areas, for example the proposed Golden Mile rail station, and to support step free access at stations generally. A key aspect of this wok will be supporting the development of the Local Plan Reviews for the two areas to ensure transport challenges and requirements remain at the heart of the planning process.	✓	✓	✓	✓	✓	✓	✓	✓	✓
	Works Efficiently, Unlocks Growth – Encouraging Efficient Car Use	✓	✓	✓	✓	✓	✓			✓
16	Identification, development and implementation of new Controlled Parking Zones. Monitoring and evaluation of current zones. Support for traffic restrictions on residential	✓	✓		✓					

Project / Programme		MTS mode share	MTS outcomes							
		Improving active, efficient and sustainable mode share	No 1: - Active	No 2: - Safe	No 3: - Efficient	No 4: - Clean & Green	No 5: - Connected	No 6: - Accessible	No 7: - Quality	Nos 8 & 9 Sustainable Growth/Unlocking
	roads. Formalisation of footway parking restrictions and junction protection via waiting/loading restrictions.									
17	Supporting uptake of Electric and other low emission vehicles in line with the Air Quality Action Plan. Projects include: continuation of resident EV lamppost charging scheme, working with TfL to introduce on-street rapid charging, further expansion of car club provision, promotion of eco-driving, promotion of car sharing, promotion of electric vehicles/low emission vehicles etc. Support for air quality monitoring of schemes as required.	✓				✓				✓
18	Creation of a business case, including full public consultation to assess the potential for a Workplace Parking Levy in the Great West Corridor.	✓	✓	✓	✓	✓	✓			

4.3. TfL Business Plan[47]

In developing and preparing the borough's programme of works (as outlined in the Delivery Plan), the borough has considered the Mayor's aspiration to deliver the major projects in TfL's Business Plan and the milestones associated with these projects – including major infrastructure associated with Growth Areas and Opportunity Areas.

The following TfL projects have implications for the borough.

4.3.1. Projects

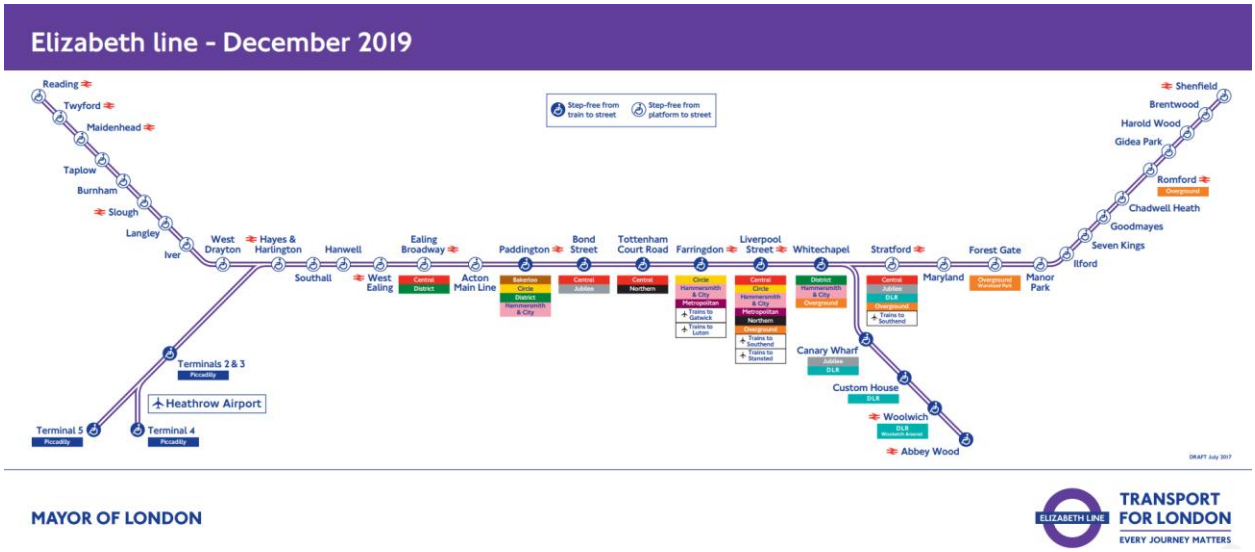
TABLE 4.2 – TfL Business Plan Projects

Project	Description	Expected Delivery/Opening
Elizabeth Line	The Elizabeth line will serve 41 stations and stretch more than 60 miles from Reading and Heathrow in the west through tunnels in central London to Shenfield and Abbey Wood in the east. It will increase rail capacity in London by 10 per cent and provide a safe, reliable, accessible public transport option for more than 200 million people each year. The line will dramatically reduce journey times across central London.	Phased opening – recent delays have pushed opening of central section between Paddington and Abbey Wood to autumn 2019 with services west of Paddington, extended to Heathrow T5 and Reading expected soon after.
Cycle Superhighway 9	A new on and off-road cycle link connecting Brentford to Hammersmith (phase 1) with potential for expansion to Hounslow town centre.	Second public consultation in 2019, if approved could open 2020/21. Public consultation on Hounslow extension expected 2019/20.
Old Oak Common (HS2 and Crossrail station)	Two new stations at Old Oak Common will support an ambitious redevelopment of the area and	Estimated 2026

[47] Requirement R14: When preparing their LIPs, boroughs are required to take into account the major projects and investment in all modes of transport, as well as the investment in the road network that may impact on their borough, as set out in the TfL Business Plan.

Project	Description	Expected Delivery/Opening
	connect it to the Elizabeth Line and the HS2 rail projects.	
Bus fleet modernisation	Entire London bus fleet converted to meet Euro VI emissions standard by September 2020 and designation of Low Emission Bus Zones in some of the worst pollution hotspots (including Chiswick High Road). Gradual replacement of diesel buses by electric/hydrogen.	2020 2037
Gunnersbury Ave – Walking and Cycling Improvements	Changes on A406 Gunnersbury Avenue between Chiswick roundabout and Popes Lane to improve the safety of drivers, cyclists and pedestrians including speed reduction to 30mph and segregated cycle facilities.	Works expected to start autumn 2018.
Bulls Bridge Roundabout	Improvements in traffic flow and pedestrian facilities at Bulls Bridge Roundabout.	2021
Piccadilly Line Improvements	Signalling improvements and new stock will allow faster trains, increasing capacity and frequency.	2023
ULEZ Expansion to North Circular	The Ultra-Low Emission Zone will expand to the edge of the North Circular, enveloping most of Chiswick apart from a spur shaped exemption covering the A4 to Hogarth Roundabout. From 2020, the Euro VI standard for heavy vehicles will apply London wide.	2021
Four-line modernisation (surface tube lines)	Up to 32 trains per hour on Circle, District, Hammersmith & City and Metropolitan lines.	By 2022

Fig 4.1: Elizabeth Line Route



4.3.2. Implications for the borough

Elizabeth Line

Although it does not directly serve any stations within the borough, the Elizabeth Line skirts the northern border, calling at four stations which are easily accessible. The closest station, Southall, is only a mile from the borough boundary, whilst Hanwell, West Ealing and Ealing Broadway are served by frequent bus services from Hounslow and Brentford.

This new, very fast service into central London and Heathrow will make it more attractive for those living in the north of the borough to use the line. Additional demand is expected on the already crowded bus services to Ealing and there may be slightly reduced demand on the Piccadilly line and east-west bus routes close to that line. As a result, bus route and frequency changes will need to be made to better serve stations such as Ealing Broadway and West Ealing (recently the subject of a TfL consultation).

The introduction of the Elizabeth Line strengthens the case for a new rail link from Brentford and the GWC Opportunity Area to Southall. Investigations by Network Rail on behalf of LB Hounslow have shown that the connection is technically feasible and further assessment of the options is planned for this LIP period. There will also be opportunities to improve cycle and pedestrian routes to the four stations. Southall in particular can easily be cycled from Hounslow town centre and the residential areas of Heston and Osterley.

Cycle Superhighway 9

If approved, CS9 will provide a safe and convenient cycle route between Hammersmith, Chiswick and Brentford Town Centres, connecting the many businesses and transport hubs along the A315. In common with other cycle superhighways, it is expected to encourage higher levels of cycling within its zone of influence. There will however be a reduction in highway capacity for vehicles on the A315 along some sections with the

possibility of displaced traffic if motorists choose to use another route. Overall however, a modal shift away from the car is expected as a result.

There will be additional opportunities to connect CS9 to neighbouring residential areas, town centres and transport hubs with improved cycling infrastructure. For example, a new facility heading north from Brentford High Street could connect Brentford's residential areas, large employers such as GSK and Brentford Rail station to CS9.

Gunnersbury Avenue – Walking and Cycling Improvements

This project is expected to reduce the number and severity of collisions on Gunnersbury Avenue and provide more attractive walking and cycling infrastructure along the section of the A406 to Chiswick roundabout. This will bring a much more attractive active travel route to Acton Town Station (Piccadilly and District) potentially increasing its popularity and reducing car trips in the local area.

Bus fleet modernisation

Buses are the most popular form of public transport in the borough but they also contribute to poor air quality and noise pollution. Fleet modernisation will bring immediate air quality benefits to any area where cleaner vehicles are introduced. There are several locations that would benefit from designation as low emission bus zones including Chiswick High Road and Feltham and Hounslow town centres.

Ultra-Low Emission Zone (ULEZ) Expansion

It is expected that this will bring air quality benefits for the entire borough, reducing total NO_X emissions by 23% by 2025 and the proportion of road lengths exceeding the NO_2 limit value by 32%. The effect on particulate emissions is expected to be more modest however, with a forecast reduction in PM10 total emissions of 2% by 2025[48]. The effects on traffic at the edge of the zone are still uncertain, particularly in the Kew Bridge area, and will need to be monitored to ascertain if further mitigations are required due to increased traffic flow.

4.3.3. Complementary works to be carried out by the borough

Complementary works include:

- As part of the Hounslow Priority Cycle Network programme, the route of the CS9 will be analysed with the aim of providing connecting routes north into Brentford and Chiswick residential areas and on to Ealing. The project will also ensure that cyclists can join CS9 safely and quickly.

[48] TfL, ULEZ Expansion Consultation 2017, Appendix C, Impact of proposals by borough

- Also, as part of the Hounslow Priority Cycle Network, it is the intention to improve the cycle route to Southall (and the Elizabeth Line) from Hounslow town centre.

4.4. Sources of funding[49]

Table 4.4 below identifies potential funding sources for implementation of the LIP, including LIP funding allocation from TfL, contributions from the borough's own funds, and funding from other sources.

The key source of funding is the borough's LIP allocation. Figures provide by TfL indicate that the borough will receive £2.36m/yr from 2019/20 – 2021/22. This is a reduction of around £300,000 from the 2018/19 level of resource.

TABLE 4.4 - Potential funding for LIP delivery

Funding source	2019/20	2020/21	2021/22	Total
	£000k	£000k	£000k	£000k
TfL/GLA funding				
LIP Formula funding –Corridors & Supporting Measures	2,366	2,366	2,366	7,098
Discretionary funding[50] – Major Schemes	4,424			4,424
Discretionary funding – Liveable Neighbourhoods (two bids)	0	2,600	2,600	5,200
Strategic funding – TfL Quietways Fund (Twickenham – Brentford)	100	900	0	1,000

[49] Requirement R15: Boroughs are required to identify all interventions that are intended to be wholly or partly funded using LIP funding in the borough's Programme of Investment. Boroughs should identify the proposed funding source for each of these interventions, ie how much is from LIP funding allocations and how much comes from other sources (for example, the council's own capital and revenue sources, Section 106/CIL contributions, or other sources of TfL/GLA funding, such as Growth Areas).

[50] Note: The borough does not receive asset maintenance funding from TfL as a consequence of the DfT part-funded PFI arrangement

Funding source	2019/20	2020/21	2021/22	Total
	£000k	£000k	£000k	£000k
Strategic funding - Go Ultra Low City Scheme and OLEV (estimated, not secured)	50	100	100	250
Strategic funding - Mayors Air Quality Fund (not secured, application Jan 2019)	50	50	50	150
Strategic funding – Low Emission Neighbourhoods (not secured)	100	150	200	450
Strategic funding – Bus Priority The borough has benefited from bus priority funding in 2018/19 for projects to improve bus service reliability and speed, notably for schemes on Hayes Road and for further modelling on interventions for Twickenham Road. Further bids are being developed in partnership with for future years.	500	500	500	1,500
GLA funding The borough accesses funding through GLA's Housing Zone and Good Growth fund however this has not to date been secured directly for public realm or transport improvements (though the GLA have provided an enhanced contingency pot for the Feltham Major Scheme). Future bids may include funding for transport improvements.	-	-	-	
Sub-total	7,590	6,666	5,816	20,072

Funding source	2019/20	2020/21	2021/22	Total
	£000k	£000k	£000k	£000k
Borough funding				
Capital funding The borough provides a small amount of money for capital schemes which enhance amenity and improve air quality through the leader's green fund.	50	50	50	150
Revenue funding – The borough provides a contribution of around £0.6m to cover statutory functions undertaken by the Traffic, Transport & Environmental Strategy service. The total highways maintenance budget is around £20m/year inclusive of the highways PFI grant from the DfT.	20,600	20,600	20,600	61,800
Parking revenue (estimated)	10	10	10	30
Workplace parking levy	0	0	1,000	1,000
Sub-total	20,660	20,660	21,660	62,980
Other sources of funding				
S106	800	700	500	2,000
Strategic CIL + Local CIL	1,100	1,100	1,100	3,300

Funding source	2019/20	2020/21	2021/22	Total
	£000k	£000k	£000k	£000k
European funding	0	0	0	0
Heathrow Public Transport Levy (indicative amount based on previous awards)	250	250	250	750
Strategic Investment Pot (Business rates pool) The borough will work with the West London Alliance to develop a proposal for complementary public realm improvement measures around proposed WLO stations in 2019/20	-	-	-	-
Sub-total	2,150	2,050	1,850	6,050
Total	30,200	29,376	29,326	89,102

In addition to the above, the borough will receive £4,424,000 from TfL in 2019/20 for Feltham Major Scheme. The borough intends to bid for two liveable neighbourhood schemes for 2019/20 totalling c£2-3m each for the following:

a. *Feltham Town Centre*
b. *Dukes Meadows*

The borough also uses its own resources as well as resources from developers to pursue local objectives and ensure that the road network remains in a safe and serviceable condition.

S106 contributions are taken for site specific investment to allow for a proposal to be acceptable in transport terms. The amount of s106 secured has declined significantly in recent years since the Community Infrastructure Levy has been implemented. In effect this means that s106 contributions are mainly historic and a diminishing resource. Some key s106 allocations include:

Table 4.5 – S106 contribution details		
Scheme	**Allocation £,000**	**Expected delivery date**
Gunnersbury station improvements	700	2019/20
Windmill Road, Brentford Public Realm improvements	100	2019/20
Isleworth Ward Public Realm Improvement	100	2020/21
Gillette Corner Improvements	100	2019/20 (feasibility only)
CS9 complementary measures in Isleworth & Brentford	300	2020/21
Bulls bridge Roundabout Improvements	500	2021 (indicative)
Cranford High St/Southall Lane Improvements	300	2020/21
Staines Road/Hospital Road Junction	140	2020/21
Improving parking wayfinding in Hounslow Town Centre	100	2021/22
Controlled Parking around new Brentford Stadium	200	2020/21
Improvements to Brentford High Street	1000	2020/21

The amount of s106 the council spends each year on transport improvements varies significantly and would be impacted to a large extent by the year in which larger schemes (e.g. a step free access project) come to fruition. Historically, the council delivers improvements totalling around c£600k-800k per year of such contributions however as noted above this would be expected to reduce over time to be replaced by CIL.

4.4.1. Strategic CIL

The council uses strategic CIL for projects on its infrastructure delivery plan which is currently being revised in respect to the Local Plan reviews for the Great West Corridor and West of Borough. Details can be found in the draft Hounslow Infrastructure Delivery Plan[51].

For 2018/19 allocations were made for delivering step free access at Syon Lane station and also as a further contribution for works at Feltham. Further applications are proposed for 2019/20 and beyond as set out in the schedule below. These are subject

[51] Available at https://hounslow.app.box.com/s/tje731bcuoid12gvp0hlw7fkl4s6s0if

to political approval on an annual basis and the availability of match funding is a key consideration alongside whether the scheme unlocks growth. The exact annual allocation of strategic CIL to transport depends on the sums received from development and the priority given to transport schemes over other infrastructure requirements (schools, health etc), however, a figure of £1m/year is considered plausible.

TABLE 4.6 – CIL Contributions

Funding year	Scheme									Total
	Feltham Major Scheme LIP Contribution (including Victoria Road)	Southall – Brentford Railway	Hounslow - Old Oak Common (Lionel Road Station)	Southern Rail Access (Station at Bedfont)	Syon Lane Step Free Access	Kew Bridge Step Free Access	Isleworth Station Step Free Access	Hounslow Step Free Access (Feasibility Only)	Chiswick Step Free Access (Feasibility Only)	
2018/19	542				500					1042
2019/20	600					200	250	50		1100
2020/21	650	500				200	500			1850
2021/22	350	500					500		50	1400
2022/23	350	500	500				500			1850

4.4.2. Local CIL

A small amount of CIL funding (normally 15% of the total) received from developments is set aside for allocating locally. The council has determined that this will relate to Area Forum boundaries. 15% of the CIL accrued from developments within each Area Forum is consulted on with elected members and residents for ideas of how to spend it. These range from both capital and revenue schemes and can include transport and public realm expenditure. Schemes such as non-safety critical crossing improvements and public realm enhancements have been funded out of this pot in recent years. Whilst the exact sum will vary depending on need and the political approval process, around £100,000/year is spent on transport improvements funded by local CIL.

4.4.3. Heathrow Airport

The airport has a significant impact on the transport network in the borough. As a consequence, the current operators have been willing to fund improvements on the council's highway network that helps mitigate the impact of their operations and improves access to the airport site for passengers and colleagues. In 2018/19 this included a £540,000 contribution towards the Feltham Major Scheme from their public transport levy. Further bids are anticipated in 2019/20 for cycle improvements in the Feltham area with an aspiration of securing funding of up to £250,000/year. The prospect of expansion clearly offers the opportunity of securing substantial additional sums up front for mitigation and for enhancing the ongoing support provided by the airport to neighbouring authorities for developing their networks.

4.4.4. Strategic Investment Pot (Business Rates Pool)

This is a funding stream made available to sub-regions and can be used to bid for transport infrastructure. In 2018/19 the borough bid for £2m, as part of a larger West London Alliance bid, for improvements to stations (and their surrounds) that will form part of the West London Orbital rail service. Whilst this was not successful it was favourably reviewed and an updated bid is likely in 2019.

4.4.5. Tax Increment Financing/Prudential borrowing

For the larger strategic transport schemes such as the Brentford-Southall rail link and Southern Rail Access to Heathrow, the borough is exploring how the schemes could be funded using a form of tax increment financing. This would see the borough borrow monies from the public works loans board (or successor agency) or private sources such as pension funds to be repaid against proceeds from the new development such infrastructure unlocks. Sources could include CIL/s106, additional business rates from existing users re-evaluated given increased land values resulting from improved connectivity and from new businesses moving into the area.

4.4.6. Workplace Parking levy (WPL)

A WPL is one option for funding currently being investigated by LB Hounslow to fund the transport improvements described under Outcome 9 and especially the Brentford-Southall rail link. Its development and implementation is specifically supported by the MTS (Proposal 23). The revenue raised would enable the prudential borrowing required or reduce the amount required to be borrowed. Initial estimates show that over a 25-year period, between £40m and £90m could be raised, depending on the charge level and scheme parameters. A first phase public consultation is planned for 2018, after which, should the decision to proceed be made to proceed, a detailed business case will be prepared, with a view to obtaining Mayoral approval in 2021.

4.5. Long-Term interventions to 2041[52]

In the medium to long-term, the borough believes that a number of significant, but currently unfunded, investments will be required to ensure the economic and social vitality of the borough. These are shown in Table 4.7 below with indicative funding and indicative, but uncommitted, timescales.

TABLE 4.7 - Long-term interventions up to 2041

Project	Approx. date	Indicative cost	Likely funding source	Comments
Southall – Brentford rail link and A4 public realm improvements	2020-2025	£100m	LB Hounslow, DfT, TfL and developer contribution	Facilitate improved access between Great West Corridor Opportunity Area and Elizabeth Line. Improved pedestrian and cycle facilities on and over the A4.
West London Orbital rail link	2020-2025	£400m	LB Hounslow, West London Alliance (WLA), TfL and developer contribution	Proposal 88 in MTS for delivering a new London Overground link between Hounslow & Cricklewood/West Hampstead via Old Oak Common.
Southern Rail Access to Heathrow inclusive of a station at Bedfont	2020-2025	£1000m	LB Hounslow, DfT, TfL, developer contributions and private financing	LB Hounslow's proposal also delivers a new station in Bedfont which will unlock significant regeneration opportunity

[52] Requirement R16: Boroughs are required to provide a list of potential schemes up until 2041, together with a short explanation of the reasons for their inclusion in the Delivery Plan.

Project	Approx. date	Indicative cost	Likely funding source	Comments
Jolly Waggoners roundabout improvements/grade separation	2025-2030	£25.0m	LB Hounslow, TfL and developer contribution	Reduce congestion and improve safety at key junction of A4/A312.
Severance reduction programme – bridge enhancements to facilitate improved ped and cycle access: • Clockhouse Road bridge • Whitton Road • Hounslow Road (LB Richmond) • Baber Bridge • Barnes Bridge Walkway • Windmill Lane • Boston Manor Station – Golden Mile green link	2020-2041	£30m	LB Hounslow, TfL and developer contribution	Remove severance impact of major roads and railway which acts as an impediment to delivering active travel corridors.
Step free access (SFA) – SFA at train & tube stations within the borough. Particular focus on Kew Bridge, Isleworth, Turnham Green; Gunnersbury; Hounslow West; Hounslow Mainline; Chiswick.	2021-2041	£30m	LB Hounslow, TfL and developer contribution	Improved access to the public transport network for all. Will also deliver improved capacity for non-mobility impaired people, helping to facilitate patronage increases.

Project	Approx. date	Indicative cost	Likely funding source	Comments
Improvement schemes likely linked to Heathrow Expansion Turn up and go bus service for all airport bus routes. Euro VI minimum fleet Expansion of free fare zone M4 J1-3 smart motorway Bus priority to link to a new restricted access southern road tunnel to the Central Terminal Area Junction optimisation at over saturated junctions in west area • Clockhouse Grade separation, Heathrow sustainable access enhancement (southern road tunnel) • Lower Feltham junction optimisation • Bedfont Lane/A315 junction optimisation • A312/A315/ • A244 triangle junction optimisation	2020-2041	£100-200m	Heathrow, LB Hounslow, TfL and developer contributions	Schemes likely to be necessary to achieve 'no more cars on the road pledge' and accommodate changes in distribution of highway trips.

Project	Approx. date	Indicative cost	Likely funding source	Comments
• A312/A314 junction optimisation • A312/Cranford High Street junction optimisation • A3063 optimisation (Wellington Road orbital route				

4.6. Three-year indicative Programme of Investment[53]

The Three-Year Indicative Programme of Investment has been completed in the table 4.8 below with further details presented in Appendix J.. The table summarises, at a programme level, the borough's proposals for the use of TfL borough funding in the period 2019/20 – 2021/22.

TABLE 4.8 - Three-year indicative programme of investment for the period 2019/20 to 2021/22

London Borough of Hounslow TfL BOROUGH FUNDING 2019/20 TO 2021/22	Programme budget		
	Allocated 2019/20	Indicative 2020/21	Indicative 2021/22
Local transport initiatives	100	100	100
CORRIDOR, NEIGHBOURHOODS & SUPPORTING MEASURES	£k	£k	£k
As set out in programme of investment (Appendix J)	2,266	2,266	2,266
Sub-total	2,366	2,366	2,366
DISCRETIONARY FUNDING	£k	£k	£k
Liveable Neighbourhoods – two bids to be made for 2019/20.	0	2,600	2,600
Major Schemes	4,442	0	0
Principal road renewal[54]	0	0	0

[53] Requirement R17: Boroughs are required to produce a costed and funded high-level indicative Programme of Investment that covers, by year, the three-year period 2019/20 to 2021/22.

[54] LBH not eligible for this funding as a consequence of DfT funding from Highways PFI.

Bridge strengthening[29]	0	0	0
Sub-total	4,442	2,600	2,600
STRATEGIC FUNDING	£k	£k	£k
Bus Priority (bids in preparation)	500	500	500
Borough cycling programme	100	900	0
London cycle grid	0	0	0
Crossrail complementary works	0	0	0
Mayor's Air Quality Fund/ Low Emission Neighbourhoods /GULCS	200	250	250
Sub-total	800	1,650	750
All TfL borough funding	7,608	6,616	5,716

4.7. Supporting commentary for the three-year programme[55]

The three-year programme of investment 2019/20 – 2021-22 represents an evolution of the delivery plan from LIP 2. That plan focussed funding on the council's 'Network 2020' programme which aimed to upgrade the highway to improve safety, better facilitate sustainable modes and reduce congestion in tandem with asset renewal activity undertaken through the council's Highways PFI Core Investment Period (which ran from 2013-2018).

A range of factors are taken into account for the prioritisation of schemes. These include a needs-based assessment, public support and consultation results, safety data (e.g.

[55] Requirement R18: Boroughs are required to provide supporting commentary on: a. How the three-year Programme of Investment has been derived, including how potential interventions have been identified and prioritised, and practical considerations relating to timescales, capacity and consultation b. The role of revenue-based investment, policy decisions, and third-party actions (including commitments outlined in TfL's Business Plan and investment programme) in delivering the borough's LIP objectives c. How the delivery of the Mayor's priorities will be supported at a local level.

collisions), funding availability and the likelihood and scope of benefits realisation. The council does however aim to achieve a balance of investments across the borough.

Network 2020 has delivered improvements along several stretches of highway e.g. Boston Manor Road, Staines Road, Hounslow Road (Hanworth) and Bath Road outside Hounslow West. In addition, there are a range of Network 2020 projects which remain in the pipeline for Bath Road and Staines Road which are now programmed for completion over the next three years.

The LIP 3 delivery plan replaces Network 2020 with a Corridors and Network programme that a) seeks to complete the works planned in LIP 2 to Bath Road and Staines Road and then b) tie the improvements together into a more cohesive network (particularly for cyclists) with best practice wayfinding. For the first two years of the plan this will look to complete the planned projects in Staines Road, Bath Road and Hounslow Road Hanworth and then develop and implement a priority cycle route network that links our town centres with neighbouring authority centres and other trip ends such as business parks and transport gateways.

The proposed delivery plan also sets out allocations for:

- Delivering a programme of targeted road safety engineering, and completing the borough wide 20mph programme for all residential roads and links with high pedestrian footfall
- Provide funding for the council's Road Safety Education, Training and Publicity and sustainable transport promotion/travel demand management activities. This includes activities such as drink driving campaigns, adult and child cycle training and school travel planning. It also funds partnership projects with Public Health to promote active travel.
- Funding to progress strategic transport schemes in the borough's two opportunity areas and to support step free access schemes at stations.
- Funding for our parking management programme and to better support charging facilities for Electric Vehicles.
- The continuation of the council's street improvement fund which seeks nominations for projects to improve pedestrian accessibility, cycle facilities or public realm generally from elected members with an aim to implement one scheme per ward each year
- An ongoing contribution towards improvements in Feltham associated with the Major Scheme and Liveable Neighbourhood applications.

For 2019/20 two liveable neighbourhood applications are to be submitted, one for Feltham and one for Dukes Meadows. In coming years, further liveable neighbourhood schemes will be developed to support the aspirations of the transport strategy. These will be subject to further discussions however are likely to include schemes to tackle severance and support sustainable access to our town centres. The council will also work with TfL to develop bids for bus priority and reliability improvements and for schemes that improve air quality using the Mayor's Air Quality Fund (MAQF).

A key decision to be made during this delivery plan will be on Cycle Superhighway 9 (CS9). The borough will formally determine its position on the Chiswick to Brentford section (consulted on in 2017) in Spring 2019 and for Brentford to Hounslow in 2020/21. If this scheme was to proceed this would see significant investment in the highway network, particularly in the east of the borough to support sustainable modes - however it will also bring ongoing requirements to monitor the network impacts and mitigate any issues arising following the changes in road space allocation the scheme would result in.

S106 and CIL funded schemes for implementation during the time covered by this programme of investment are set out in chapter 4 of this document.

The schemes in the programme of investment have been developed following ongoing conversations with communities and elected members and to reflect the strategic priorities of the borough – particularly in respect to improving safety, air quality and developing the transport network to unlock growth in opportunity areas. Whilst the schemes are currently weighted slightly towards the west of the borough this reflects the density of new development pressure expected and also recognising the proposed investment in the highway in Chiswick and Brentford resulting from CS9. In the event that CS9 does not proceed to implementation the delivery plan will be reviewed to allow for more allocation of funding to the east for lighter touch interventions.

In addition to direct capital investment in the network, council policies will also assist in achieving the objectives of the LIP. A good example would be an approach to spatial planning as set out in our Local Plan which is heavily weighted towards directing development to areas of high public transport accessibility and minimising car parking. In addition, the approach the council takes for administering parking controls (e.g. CPZs) and charging for permits will also help influence travel behaviour. This could be a result of removing parking on the highway from use by commuters or by fiscally incentivising residents to purchase a low emission vehicle or issuing surcharges on diesel vehicles.

Taken together, the council is confident that the programme of investment as proposed will contribute towards achieving the objectives and targets of the LIP.

4.8. Risks to the delivery of the three-year programme[56]

Table 4.9 below shows the principal risks associated with delivery of the LIP together with possible mitigation actions for the three-year programme. The risk register summarises the strategic risks identified that could impact on the three-year programme of schemes/initiatives.

[56] Requirement R19: Boroughs are required to include a concise section on risk assessment and mitigation in preparing and considering options for their Delivery Plan.

TABLE 4.9 - LIP Risk Assessment for three-year programme 2019/20-2021/22

Risk	Likelihood			Potential mitigation measures	Impact if not mitigated
	H	M	L		
Financial					
Reduction in annual TfL funding from 2019/20 levels in subsequent years. Liveable Neighbourhood bids unsuccessful. LB Hounslow revenue funding is reduced or withdrawn.	✓	✓	✓	Re-scoping or re-design of projects to account for reduced funding settlements. Partnership working with neighbouring boroughs on engineering schemes to reduce costs. Explore alternative discretionary sources e.g. Greener Cities fund or use of crowdfunding to fill gaps. Ensure council committees are aware of the benefits of transport schemes and commitments to MTS targets.	Projects are likely to be cancelled or curtailed or their effectiveness reduced through partial delivery. Larger more aspirational projects that require certainty of multi-year funding will not commence Areas targeted for Liveable Neighbourhoods funding will not see the associated benefits and MTS targets will not be met. Reduced revenue will lead to a reduction in council staff time to coordinate programmes leading to cancellations or late delivery.

Statutory / Legal					
Workplace Parking Levy legislation not available in time for launch of WPL scheme in Great West Corridor.			✓	Work with TfL to coordinate introduction of secondary legislation with proposed WPL project timetable. Set realistic deadlines based on previous experience in Nottingham.	Delayed implementation of WPL in GWC area.
Third Party					
No buy-in from TfL on public transport projects or those that involve the TLRN.			✓	Ensure TfL communication is open and active from the start of project and that all approvals are obtained.	Projects delayed whilst agreements are obtained and outcomes do not match MTS objectives.
Business opposition to WPL.	✓			Ensure communication of scheme benefits and specific business benefits such as travel planning services. Engage early and use informal meetings to obtain feedback.	Businesses and councillors do not support WPL – unable to implement.
Public / Political					

20mph and CPZ schemes not supported by local residents. Opposition or objections from community or interest groups to active travel related capital schemes. Lack of support from Police and/or Fire Brigade for safety related projects. LIP schemes not approved by Cabinet/Committee.	 ✓	✓	 ✓ ✓	Benefits of 20mph could be achieved through alternative traffic calming measures (e.g. average speed cameras, chicanes). Continue to monitor demand for CPZ schemes. Early engagement with local groups, transparent and well-designed engagement processes to involve groups at an early stage. Re-design schemes to reflect consultation feedback - explore other route alignments for cycle facilities. Improve communication of scheme benefits. Ensure engagement with Police and Fire service during design stage of projects. Integrate their feedback into project design. Ensure lead member for transport supports proposed schemes. Re-design schemes to address committee's concerns. Communicate high levels of community support to members.	20mph borough targets not met, no reduction in traffic speed in target areas. No Police of Fire Brigade presence during safety events – project effectiveness greatly reduced. New active travel infrastructure not able to be implemented due to poor consultation feedback. Sign off for schemes not obtained – delay or cancellation of projects.

Programme & Delivery					
Parking demand restricts ability to reallocate space to deliver healthy streets projects, cycle parking, electric vehicles and car clubs. Severance caused by major road or rail links preventing full continuous active travel routes. Schools already accredited lose interest in STARS programme. Overcoming problems of habit and behavioural inertia related to car ownership and use, particularly amongst segments least likely to change.	 ✓ ✓	✓ ✓		Explore under-utilised or new spaces where possible to provide parking, incentivise local residents to mitigate impact of loss of space. Introduce cyclist phasing in traffic lights where cycle routes cross major roads. Continue to lobby TfL for improved crossings over TLRN roads. Modify STARS programme to better reflect school's requirements and provide support or grants for popular activities. Use travel survey data to target the most popular barriers to sustainable travel. Design improvements based around this and other evidence to ensure most effective schemes are brought forward.	All identified delivery risks would reduce the impact or effectiveness of the projects leading to the missing of targets presented at the end of this chapter.

4.9. Annual programme of schemes and initiatives[57]

The annual programme of schemes has been completed and submitted to TfL via the Borough Portal. A summary of the submission can be found as part of the detailed three-year plan presented in Appendix J. The programme of schemes will be updated annually.

4.10. Supporting commentary for the annual programme[58]

The council has committed to developing in detail a three-year plan in order to provide certainty on delivery of these schemes which always cross financial years, and as such our 19/20 annual spending submission is covered as part of section 4.7 above.

4.11. Risk assessment for the annual programme[59]

A set of short-term risks associated with the 2019-20 programme are presented in Table 4.10 together with possible mitigation actions for the annual programme. Strategic risks for the three-year programme are covered in section 4.8.

[57] Requirement R20: Boroughs are required to provide a detailed and costed programme of schemes and initiatives for the first year of the plan, with the programme to be updated in subsequent years. Boroughs should submit their Programme of Investment using Proforma A (as shown at Part three – Appendix F). Proformas will need to be uploaded to the Borough Portal.

[58] Requirement R21: Boroughs are required to provide supporting commentary on: a. How the annual Programme of Investment has been derived, including how potential interventions have been identified and prioritised, and practical considerations relating to timescales, capacity and consultation b. The role of revenue-based investment, policy decisions, and third-party actions (including commitments outlined in TfL's Business Plan and investment programme) in delivering the borough's LIP objectives c. How the delivery of the Mayor's priorities will be supported at a local level

[59] Requirement R22: Boroughs are required to identify any projects that have significant potential of risk within the planned programme of works and identify any mitigation measures for these high-risk projects.

TABLE 4.10 - LIP Risk Assessment for annual programme - 2019/20

Risk	Likelihood			Potential mitigation measures	Impact if not mitigated
	H	M	L		
Financial					
Cycle training budget insufficient for demand.		✓		Seek additional funding internally and review potential for external grant funding. Keep detailed record of demand to build case for additional funding in following years.	Potential behaviour change targets within LIP and MTS are not fully supported in current and subsequent years.
Priority Cycle Network scheme quotes are above forecast amount.		✓		Review in detail quotes to ensure they are accurate and to specification. Prioritise delivery of most beneficial and/or deliverable schemes.	Overspend on allocation, some schemes may have to be dropped.
Feltham town centre major scheme costs over-budget leading to compromises on cost/quality/time.		✓		Arrange regular finance review with major scheme sponsor. Follow Hounslow project monitoring	Major Scheme not delivered to required standard with road and rail network implications

				procedures and ensure contract adherence.	
Statutory / Legal	**H**	**M**	**L**		
Failing to deliver a dockless bike share operator in accordance with borough and legal requirements.		✓		Operator should be notified and involved with developing solution, legal advice sought and issues raised with TfL if they have London wide relevance.	Potential public and legal challenge raised on legality of use of highway, most likely due to obstruction of public highway.
Third Party	**H**	**M**	**L**		
Met Police do not support proposed schemes			✓	Ensure MET consulted early in design process. Make amendments to scheme design to satisfy police concerns where possible. Review similar locations to establish validity of concerns and involve police with continuing development of scheme.	Weakened relationship with police and potential risk of designing in crime, contravening a legal requirement for local authorities.
Public / Political	**H**	**M**	**L**		
Transport schemes put forward by members do not correlate with MTS or LIP objectives.			✓	Use Hounslow Local Area forums and ad-hoc meetings to brief members on	Time is wasted developing schemes that may not be approved

				LIP and MTS objectives and review objectives of LIP required. Follow Hounslow consultation charter for all schemes. Engage with stakeholders to review scheme and identify measures to alleviate concerns. Understand what may have been missed in consultation and why it was not already identified as a risk.	and/or do not meet mandatory requirements to initiate. Schemes unpopular leading to lack of trust in LIP projects.
Stakeholder or resident backlash following scheme delivery		✓			
Programme & Delivery	**H**	**M**	**L**		
Lack of Police and community support for 20mph programme		✓		Engage with Police and other stakeholders to understand lack of support. There may be need for greater public understanding of reason to introduce so an awareness campaign could be introduced.	Reduced support for continuation of borough wide programme.
Schools with STARS accreditation due to expire in 2020 do not renew.		✓		Schedule meeting early in following Autumn term to re-engage with STARS. Understand school needs and use incentives to encourage participation.	School remains unengaged with reduced positive impact on student and staff travel behaviour.

Police and Fire Brigade unable to assist on road safety education.			✓	Determine level of available resources and redesign education scheme according to available resources. Seek grant funding and alternative resources for additional support.	Level of road safety education is reduced and as a result risk to road users is increased.
Local objections to residential cycle parking.			✓	Review specific locations for alternatives where possible. Establish demand through surveying resident groups and if proven, take forward.	Residents are unable to safely lock cycles and bike ownership and usage is reduced, working against local and mayoral targets.
Feltham town centre project - delay and further disruption.		✓		Ensure best practice methods are used on-site. Regular communications with contractors to spot issues early. Reallocate resources to sensitive locations. Build contingency into project plan.	Additional disruption for residents. Economic impact on local businesses.
Safe Urban Driving courses below 80% capacity.			✓	Contact local and regional fleet management contacts, review internal training needs if not already sought to fill places. Share sessions with other borough contacts.	Poor return on investment in training and fewer trained drivers operating in the borough.

Slow delivery of Hounslow Priority Cycle Network caused by local objections or design difficulties.		✓		Review proposed schemes and resources required to deliver them. There may be a need to prioritise further within programme of works and postpone lower priority schemes to enable completion of higher priority schemes	All schemes are not completed within the allocated time period so none are completed on schedule. Benefit of individual schemes is not realised.
Unable to find space for additional car club cars or space for EV charging facilities.		✓		Maintain record of potential sites and liaise with parking team to identify alternatives / new locations. Liaise with development planning to assess feasibility of private sites to host public access spaces.	Car share and EV uptake is reduced and private car ownership remains at same level.

4.12. Monitoring the delivery of the outcomes of the Mayor's Transport Strategy

4.12.1. Overarching mode-share aim and outcome indicators[60]

Table 4.11 details the indicators and targets that will be used to assess the effectiveness of the delivery plan. The targets that have been set define Hounslow's contribution to the overarching MTS targets whilst taking into account Hounslow's context as an outer London borough. They are ambitious, particularly the 2041 values, and will be challenging to meet given the many external factors in play such as economic conditions (which influence traffic volumes) and weather patterns (which can influence active travel levels). Most are also only partially within the council's control and will be dependent on the success of London-wide measures such as the Ultra-Low Emission Zone, Vision Zero Action Plan and bus, rail and tube upgrades.

4.12.2. Delivery indicators [61]

The council will monitor and record the delivery indicators and report to TfL once a year in June using Proforma C. The purpose of Proforma C is to report on the achievements of Hounslow's various measures and interventions delivered through TfL-funded projects. The details provided then form part of the borough annual report collated by TfL.

4.13. Local targets[62]

Asset management is not covered explicitly by the TfL targets however the condition of the borough's roads and other assets will continue to be monitored under the PFI contract. The contract requires each road to be given a condition performance target score with the aim that across the Highway Project Network, the gap below that target (Network Performance Gap (NPG)) will not exceed 0.67 on average across the network.

In 2013, the NPG was reported to be 4.75 but over £90m worth of investment in five years has reduced the gap of 0.566. This level, below 0.67, must be maintained until end of 2037 by our PFI Contract partner, Ringway Hounslow Highways with a funding commitment from LB Hounslow and the Department for Transport. There are also a number of additional performance targets in the PFI relating to Structures, Bridge Conditions and Lighting Standards.

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[60] Requirement R23: Boroughs are required to set targets against the overarching mode share aim and the nine outcomes using their respective outcome indicators.

[61] Requirement R24: Boroughs are required to collect this information and submit it to TfL using Proforma C on at least an annual basis.

[62] See LIP Guidance p.62, paragraph 3.33.

TABLE 4.11 - Borough outcome indicator targets

Objective	Metric	Borough target	Target year	Additional commentary
Overarching mode share aim – changing the transport mix				
Londoners' trips to be on foot, by cycle or by public transport	Active, efficient and sustainable (walking, cycling and public transport) mode share (by borough resident) based on average daily trips. Base period 2013/14 - 2015/16.	59% 71%	2021 2041	Base year value of 56%. Note that there has been some variability in recent years with no obvious trajectory.
Healthy Streets and healthy people				
Outcome 1: London's streets will be healthy and more Londoners will travel actively				
Londoners to do at least the 20 minutes of active travel they need to stay healthy each day	Proportion of London residents doing at least 2x10 minutes of active travel a day (or a single block of 20 minutes or more).	34% 70%	2021 2041	Base year value of 25%.

Objective	Metric	Borough target	Target year	Additional commentary
Londoners have access to a safe and pleasant cycle network	Proportion of Londoners living within 400m of the London-wide strategic cycle network.	17% 60%	2021 2041	Base year value of 0% since the strategic cycle network does not include local facilities or greenways, only cycle superhighways and TfL designated quietways. CS9 will be the first such strategic link.
Outcome 2: London's streets will be safe and secure				
Deaths and serious injuries from all road collisions to be eliminated from our streets	Deaths and serious injuries (KSIs) from road collisions base year 2010/14.	65 41 0	2022 2030 2041	2010/14 base year observed value of 141.
Outcome 3: London's streets will be used more efficiently and have less traffic on them				
Reduce the volume of traffic in London.	Million vehicle kilometres in given year. Base year 2015. Reduce overall traffic levels by 10-15 per cent.	1498 1423	2021 2041	Base year value of 1524 million vehicle km.

Objective	Metric	Borough target	Target year	Additional commentary
Reduce the number of freight trips in the central London morning peak.	10 per cent reduction in number of freight vehicles crossing into central London in the morning peak period (07:00am - 10:00am) by 2026.	N/A	N/A	N/A to outer London boroughs.
Reduce car ownership in London.	Total cars owned and car ownership per household, borough residents. Quarter of a million fewer cars owned in London. Base period 2013/14 - 2015/16.	99,200 98,900	2021 2041	Base year value of 101,566.
Outcome 4: London's streets will be clean and green				
Reduced CO_2 emissions.	CO_2 emissions (in tonnes) from road transport within the borough. Base year 2015/16.	249,400 77,700	2021 2041	Base year value of 273,000 tonnes.
Reduced NO_x emissions.	NO_X emissions (in tonnes) from road transport within the borough. Base year 2013.	410 50	2021 2041	Base year value of 910 tonnes.

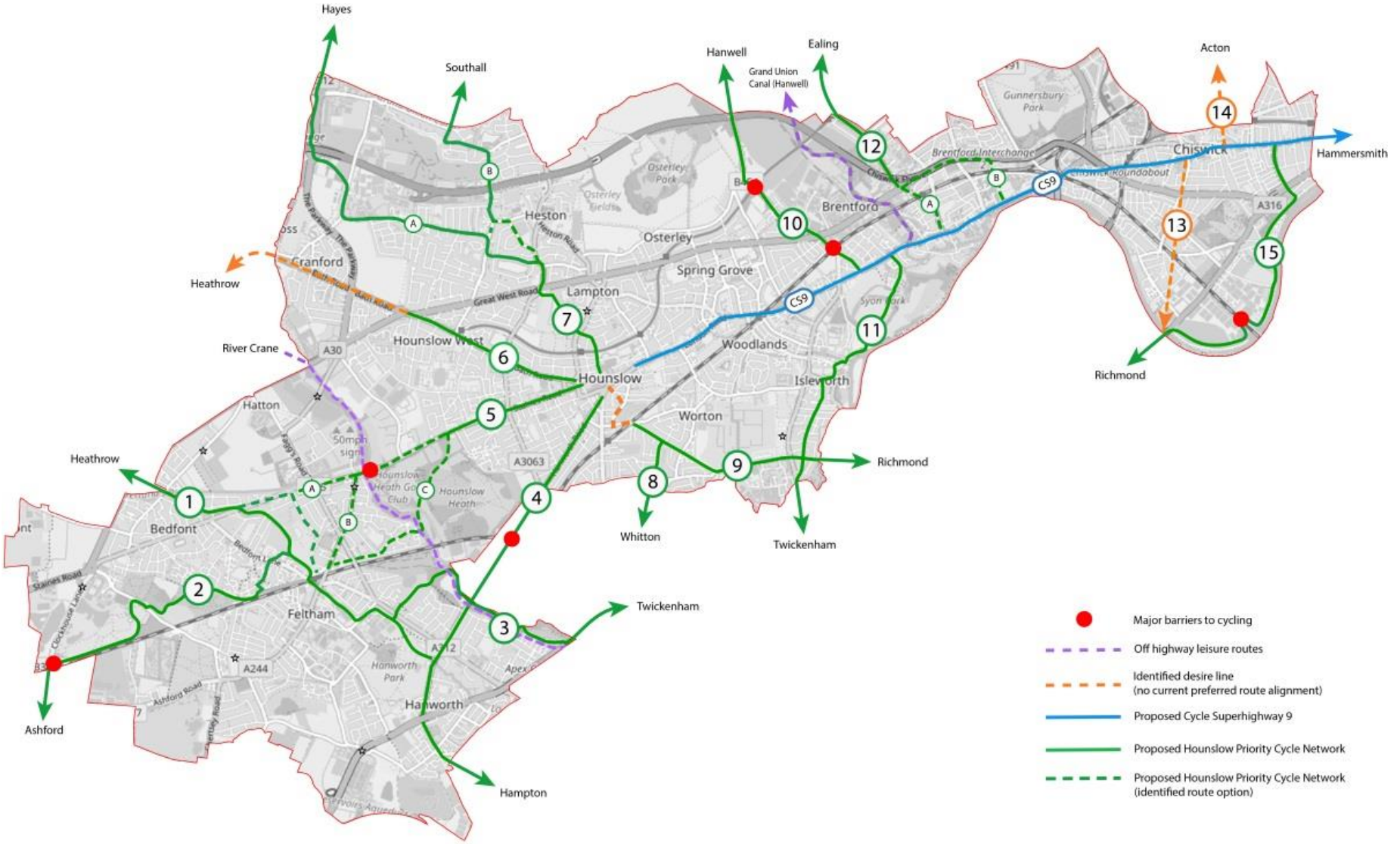
Objective	Metric	Borough target	Target year	Additional commentary
Reduced particulate emissions.	PM_{10} and $PM_{2.5}$ emissions (in tonnes) from road transport within borough. Base year 2013.	PM 10 / PM 2.5 80 / 39 56 / 27	2021 2041	Base year values of 97 tonnes (PM10) and 55 tonnes (PM2.5).
A good public transport experience				
Outcome 5: The public transport network will meet the needs of a growing London				
More trips by public transport - 14-15 million trips made by public transport every day by 2041.	Trips per day by trip origin. Reported as 3yr moving average. Base year 2013/14 - 2015/16.	161,000 224,000	2021 2041	Base year value of 136,000 trips/day.
Outcome 6: Public transport will be safe, affordable and accessible to all				
Everyone will be able to travel	Reduce the difference between total public transport network journey time and total step free public transport network	3 mins	2041	Base year value of 7 minutes.

Objective	Metric	Borough target	Target year	Additional commentary
spontaneously and independently.				
Outcome 7: Journeys by public transport will be pleasant, fast and reliable				
Bus journeys will be quick and reliable, an attractive alternative to the car.	Annualised average bus speeds, base year 2015/16.	10.4 mph 11.5 mph	2021 2041	Based on 15mph target scenario. Base year value of 10mph.
New homes and jobs				
Outcome 8: Active, efficient and sustainable travel will be the best options in new developments **Outcome 9: Transport investment will unlock the delivery of new homes and jobs**				
	Although no borough targets are proposed for outcomes 8 and 9, the objectives set in chapter 3 will ensure that: - All areas where significant development is planned receive			

Objective	Metric	Borough target	Target year	Additional commentary
	appropriate upgrades to public and active travel infrastructure. - Developer funding contributions will be sought wherever applicable and will be used to fund transport network upgrades. - The upgrades will contribute directly to LIP and MTS objectives, including application of the Healthy Streets approach. - Access to Heathrow Airport remains a key focus for the council in the light of the proposed expansion.			

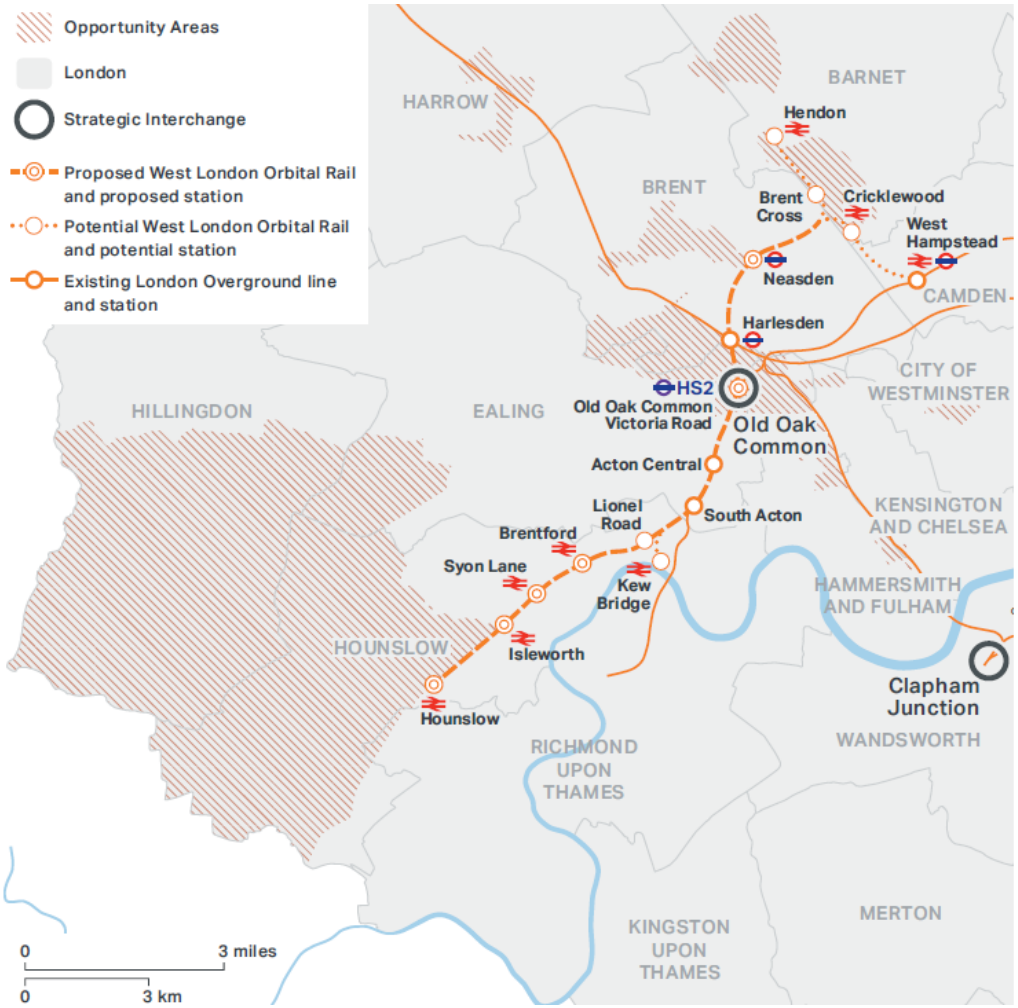
APPENDICES

A. Hounslow Priority Cycle Network Proposals

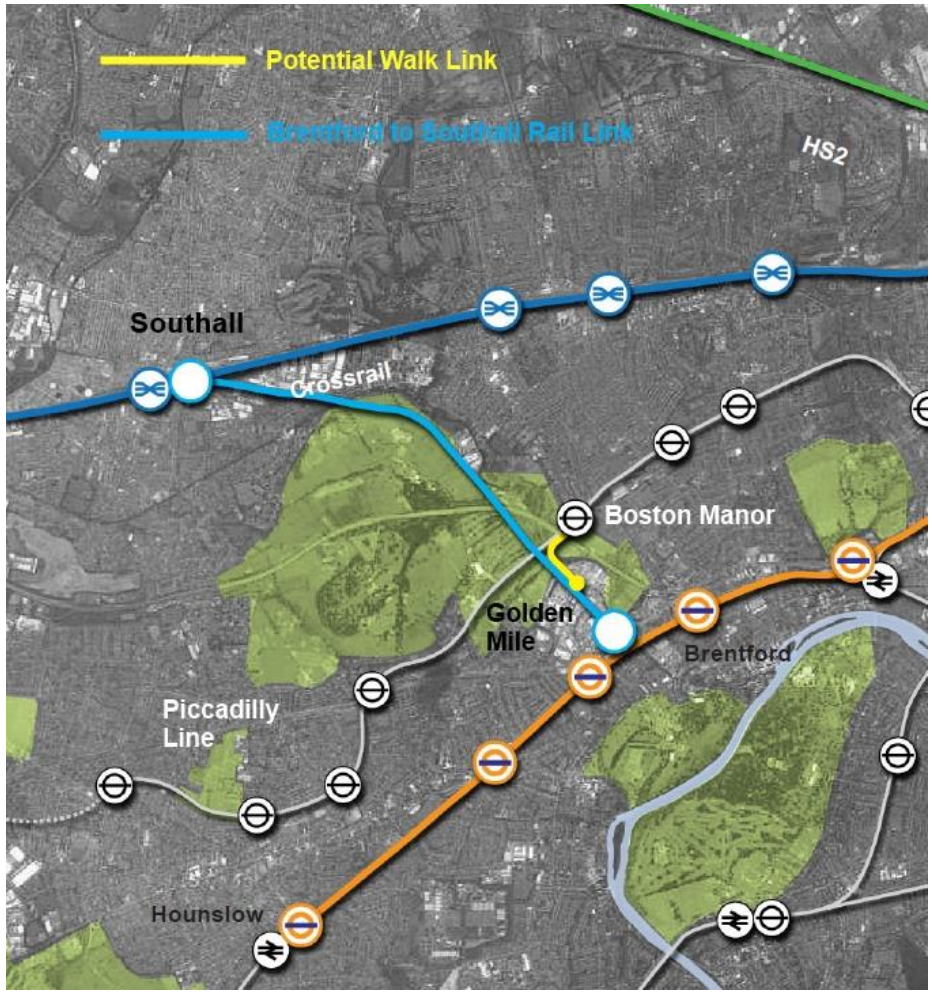


B. Proposed Rail Network Improvements

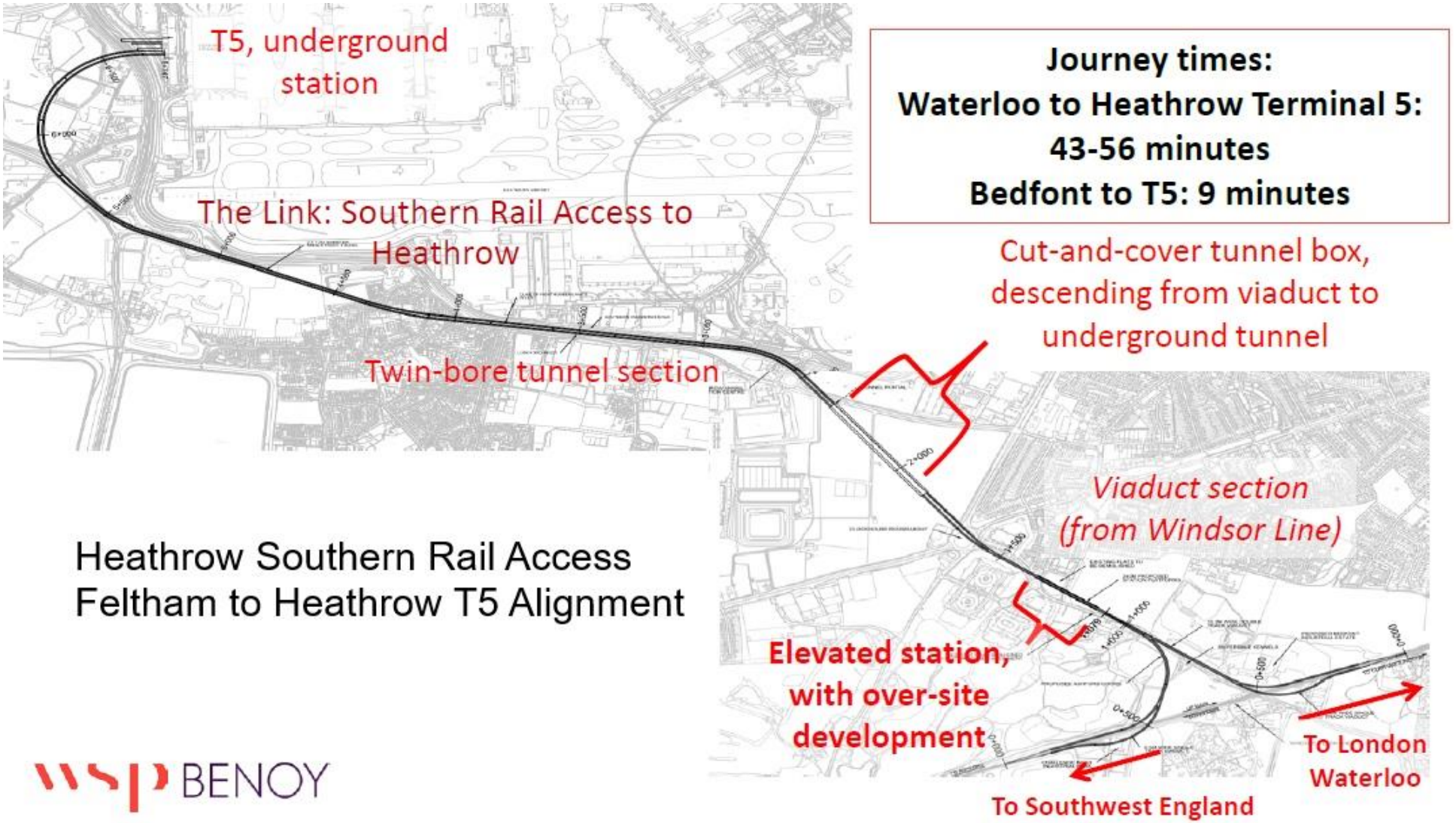
West London Orbital Plan (extract from MTS)



Brentford to Southall (Crossrail)



Southern Rail Access to Heathrow

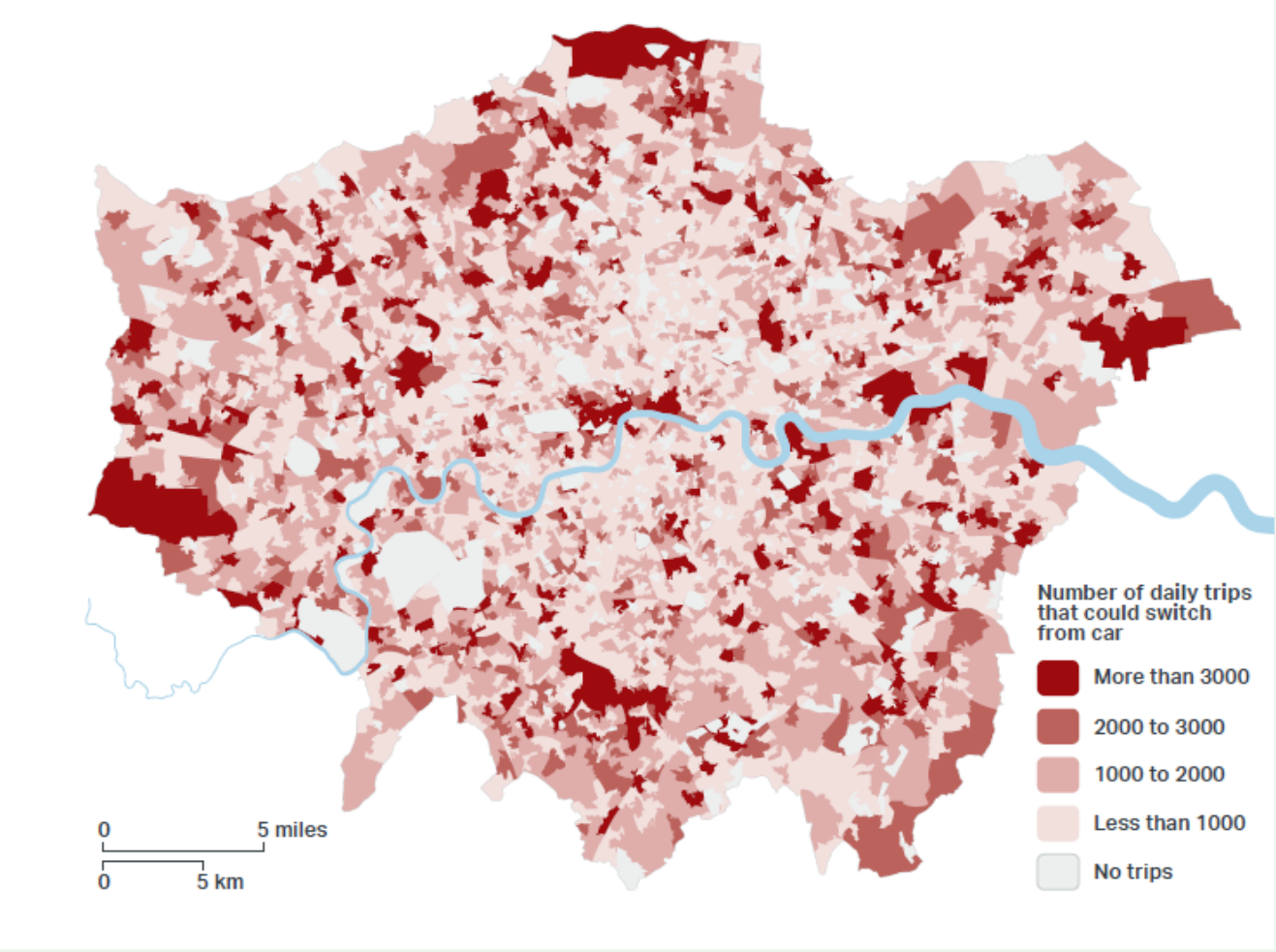


Heathrow Southern Rail Access
Feltham to Heathrow T5 Alignment

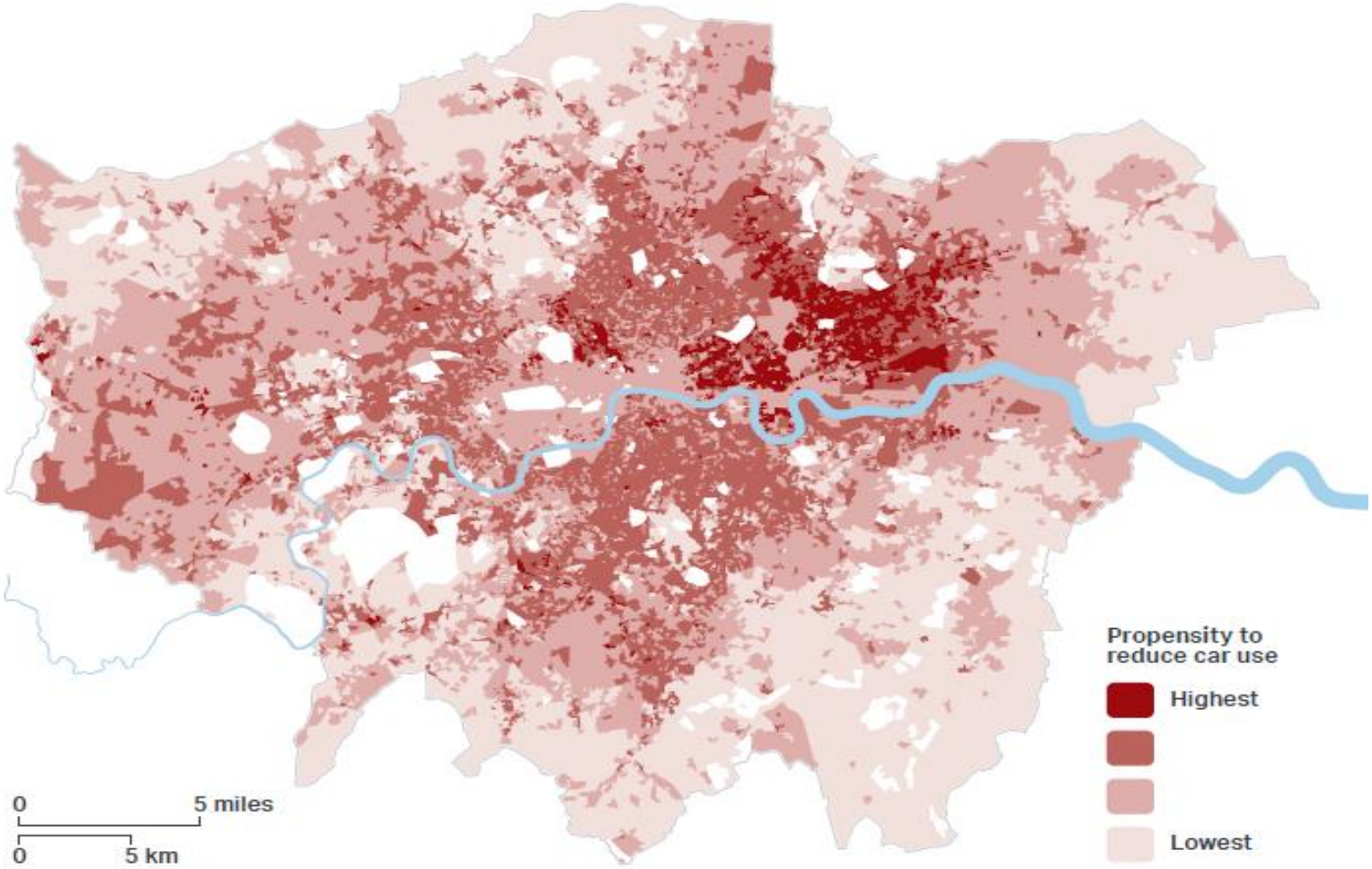
WSP BENOY

C. Potential to reduce car mode share

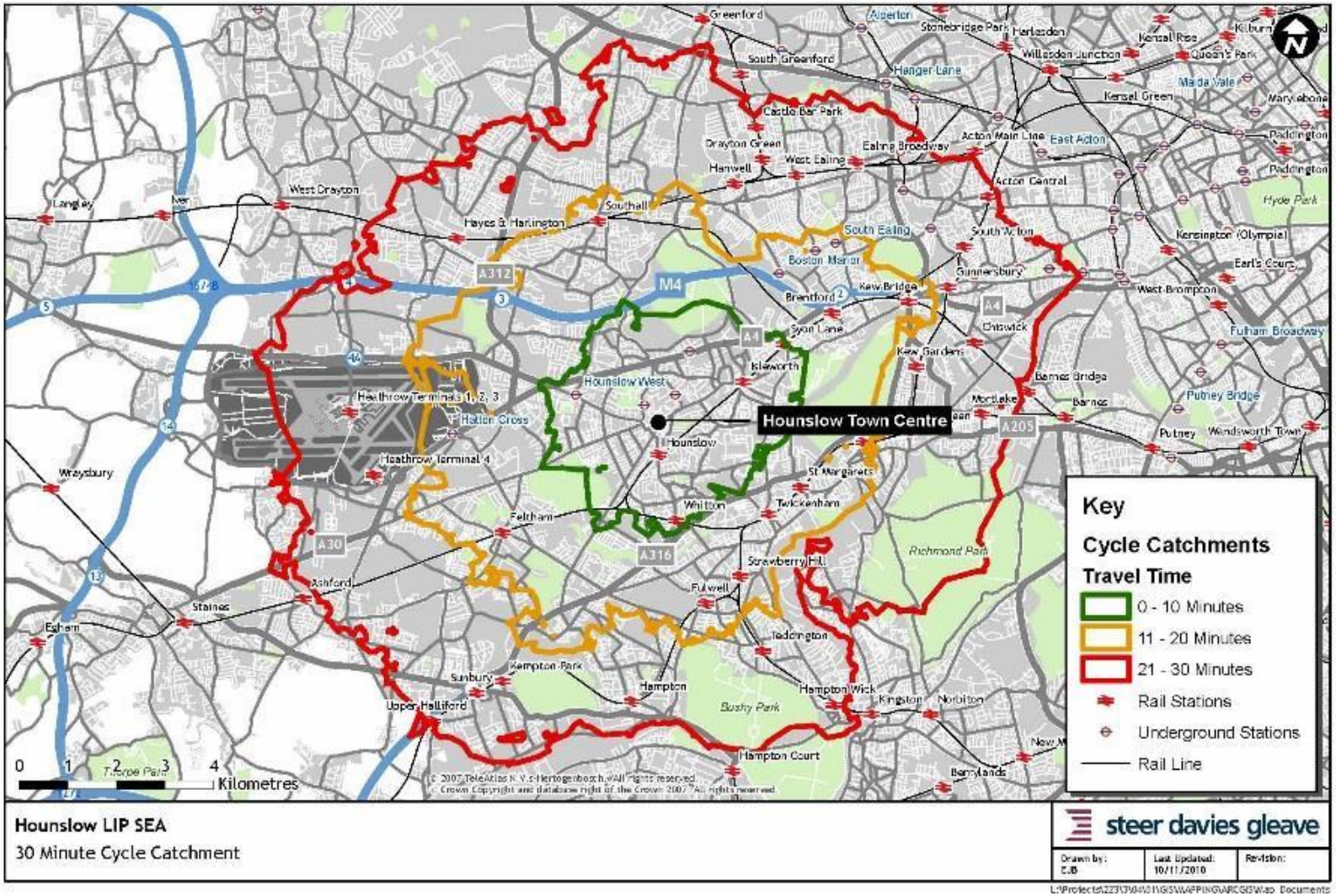
Volume of car trips that could be made by walking, cycling and public transport (extracted from MTS Evidence Base)



London Residents' Willingness to reduce their car use (extracted from MTS Evidence Base)

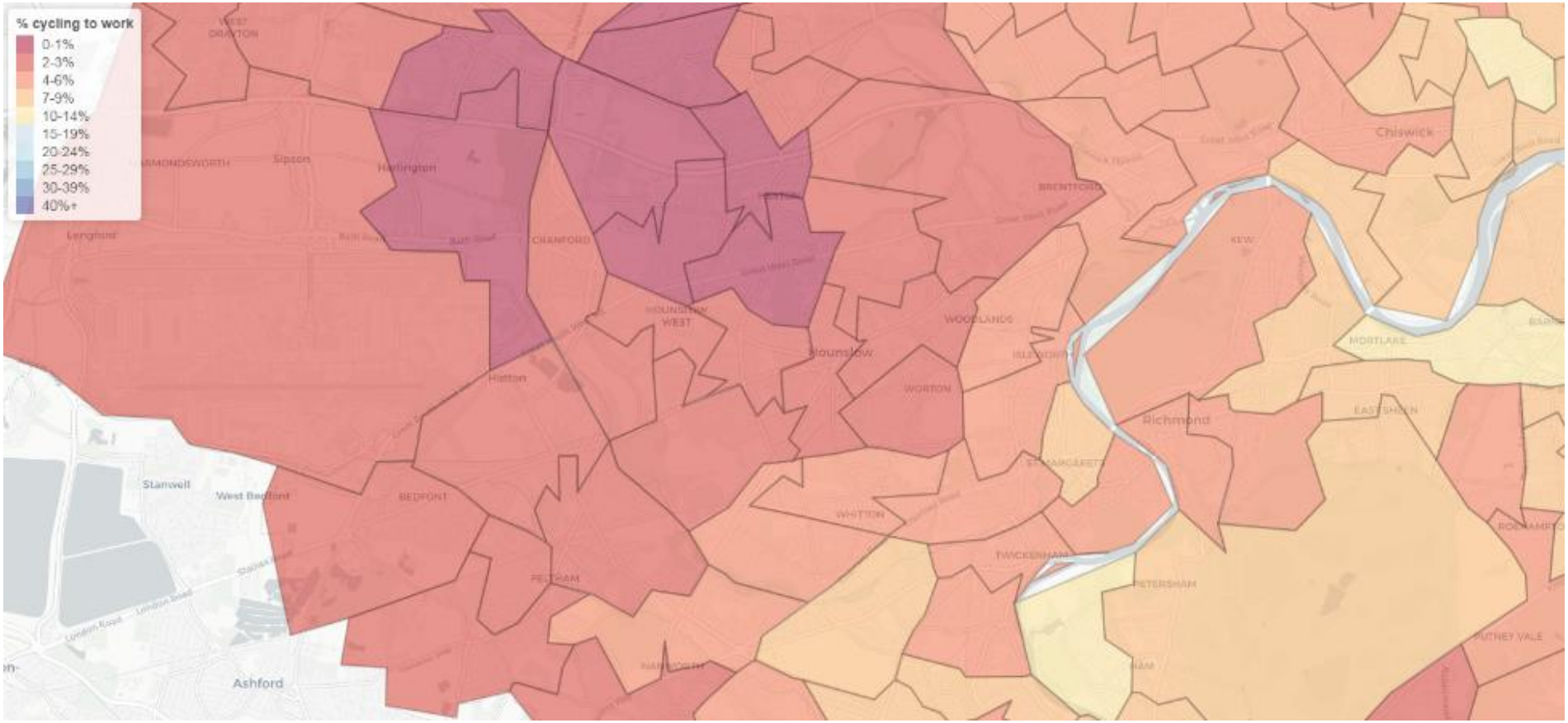


Thirty-minute Journey Time Catchments around Hounslow Town Centre

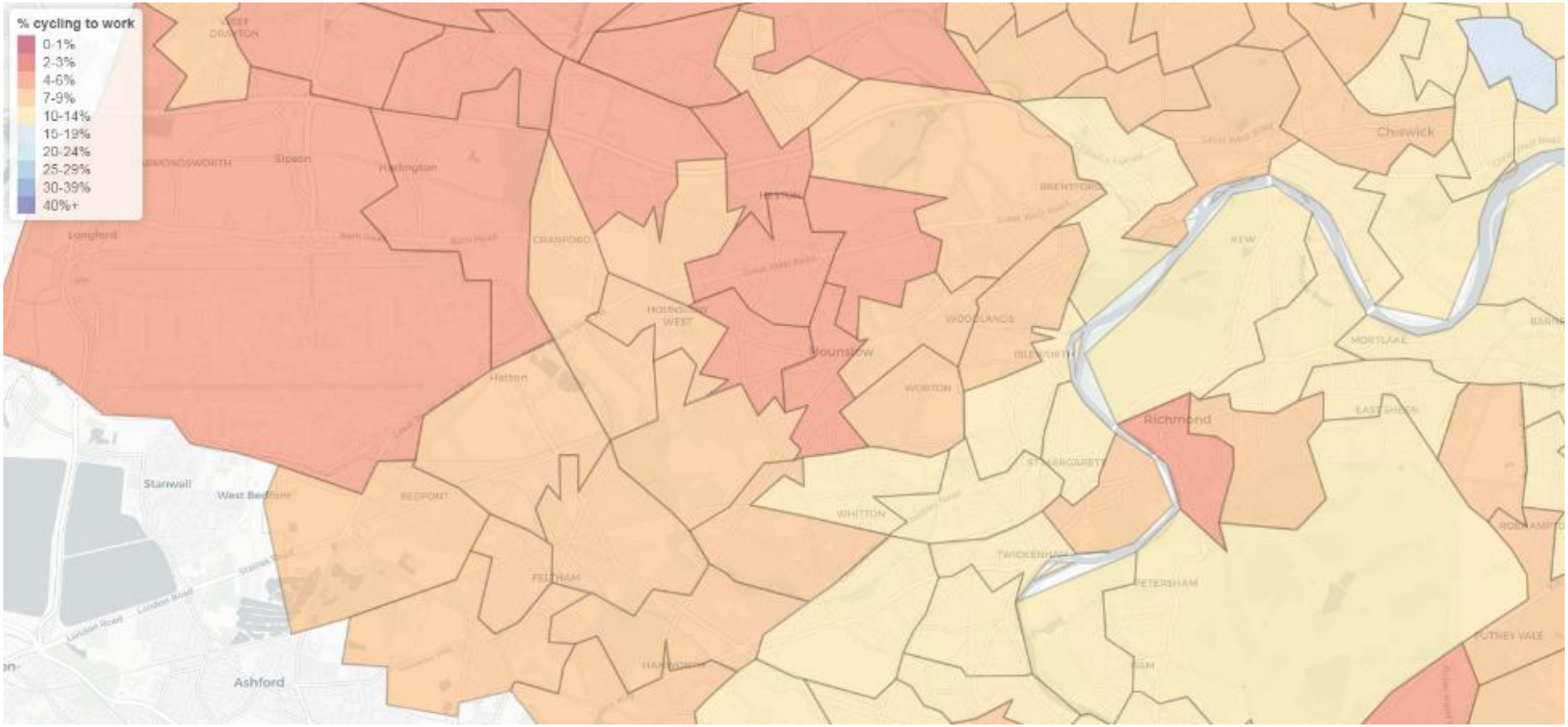


D. Propensity to Cycle Tool Analysis

Census 2011 Scenario

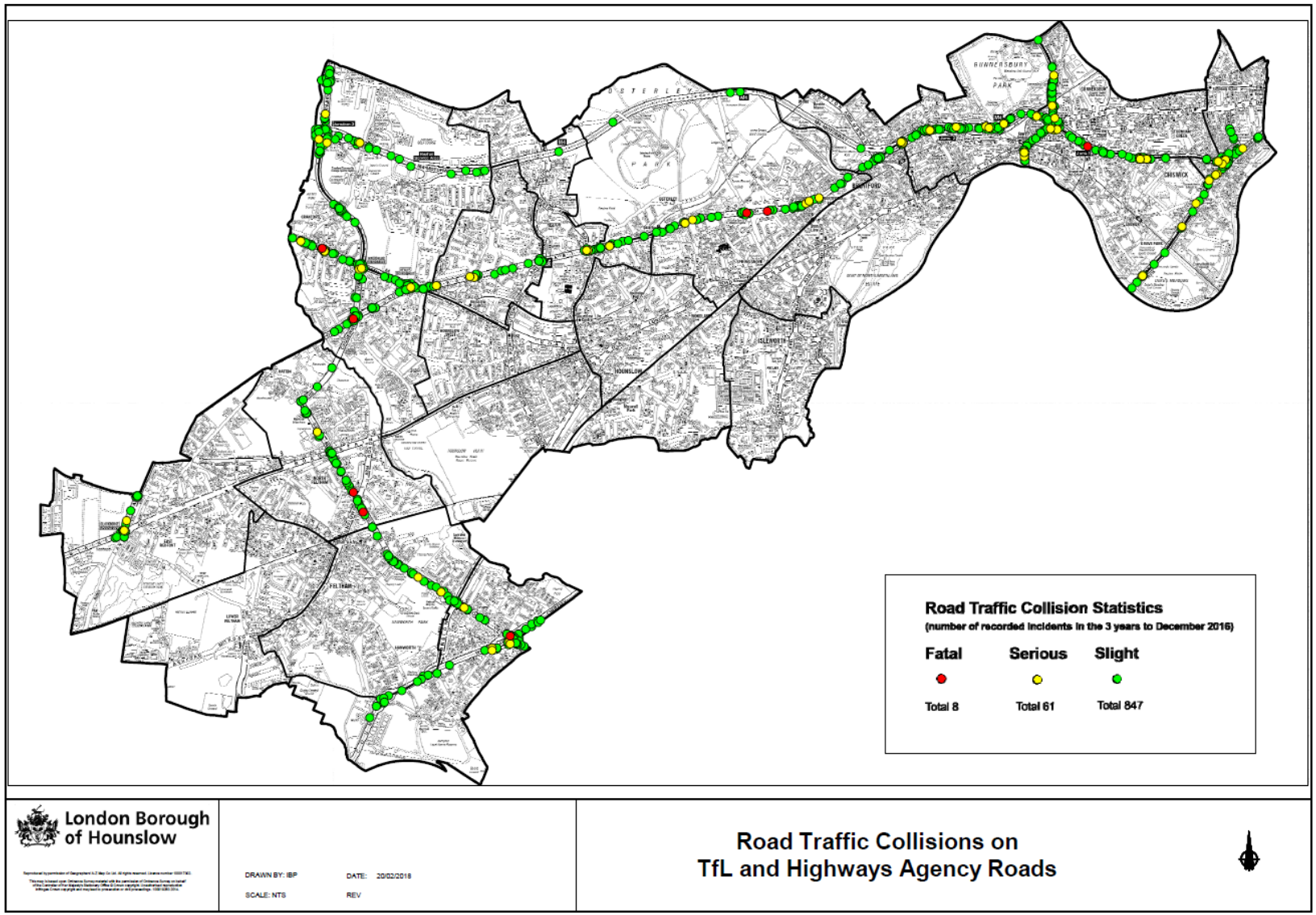


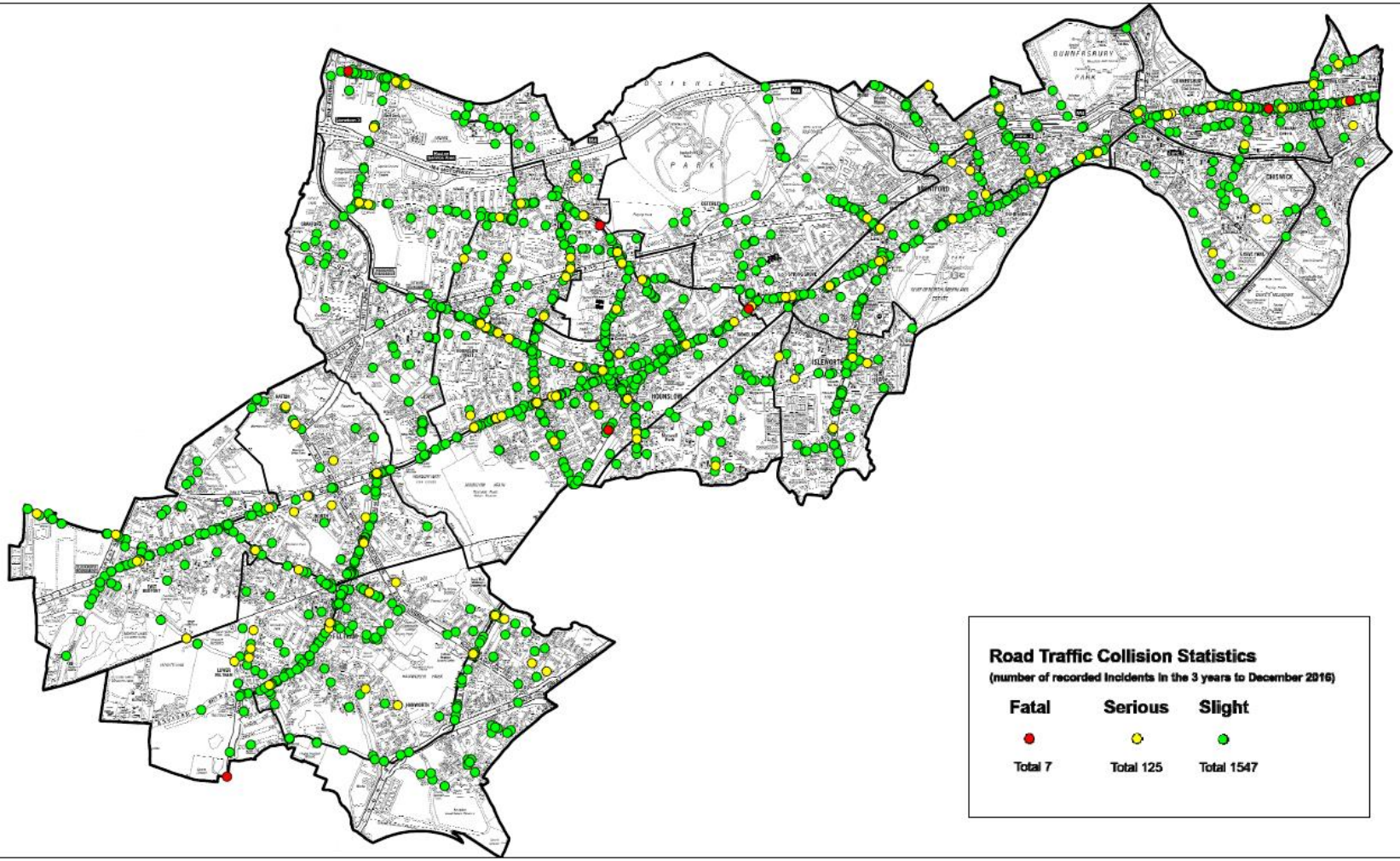
Government Target Scenario



Go Dutch Scenario

E. Location of Road Traffic Collisions in LB Hounslow





London Borough of Hounslow

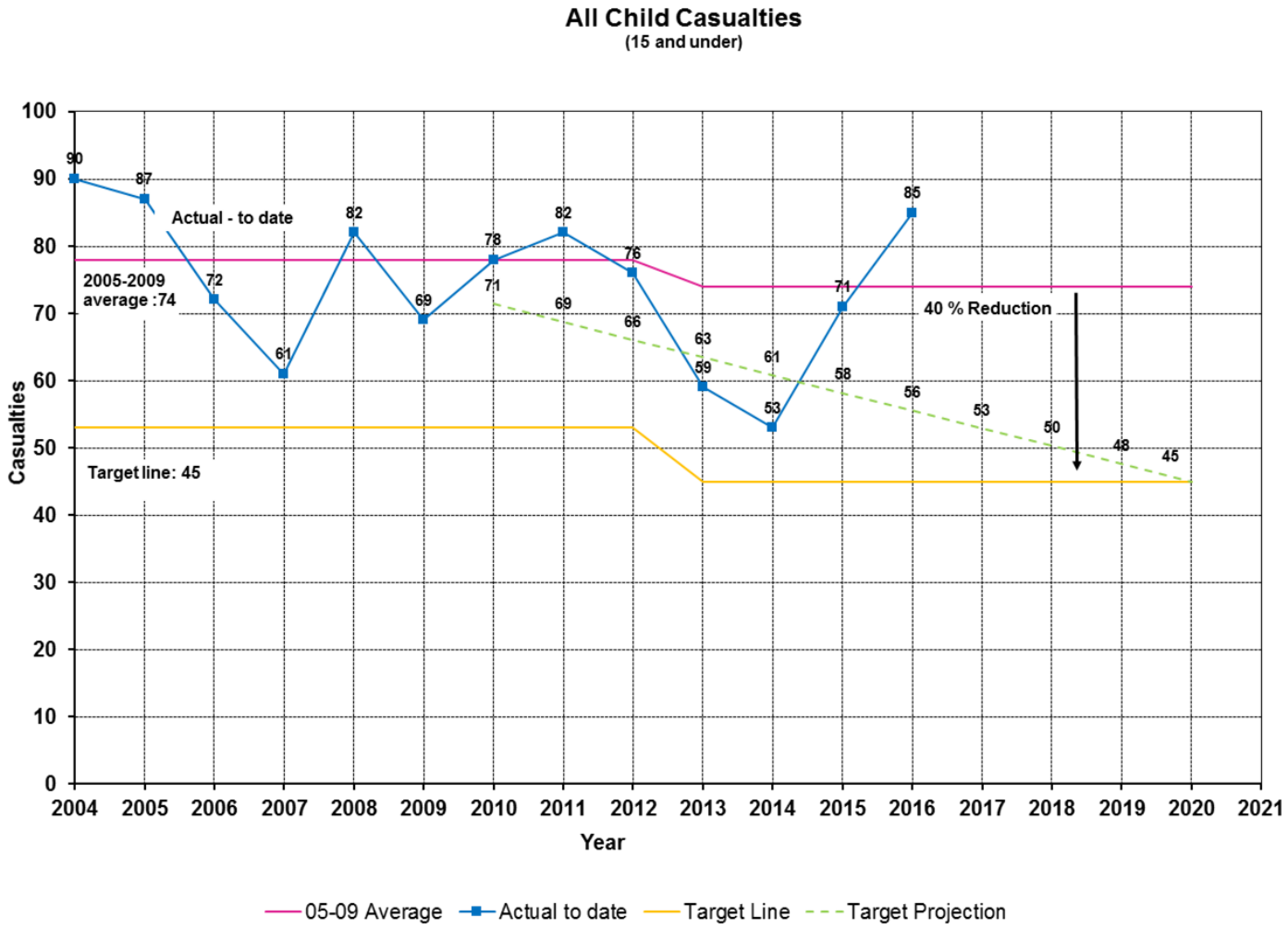
DRAWN BY: IBP DATE: 20/02/2018

SCALE: NTS REV

Road Traffic Collisions on LBH Roads

F. Road Traffic Collisions Data for LB Hounslow

Hounslow Road Collisions											
Slight	Total	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Borough	4349	367	387	385	397	427	400	425	544	500	517
Non-borough	2737	282	262	245	283	289	260	265	289	277	285
Severe	Total	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Borough	456	46	58	52	52	42	45	35	39	33	54
Non-borough	273	39	31	38	31	23	24	26	18	23	20
Fatal	Total	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Borough	23	7	0	3	2	2	1	1	1	6	0
Non-borough	27	2	3	2	5	5	1	1	2	3	3



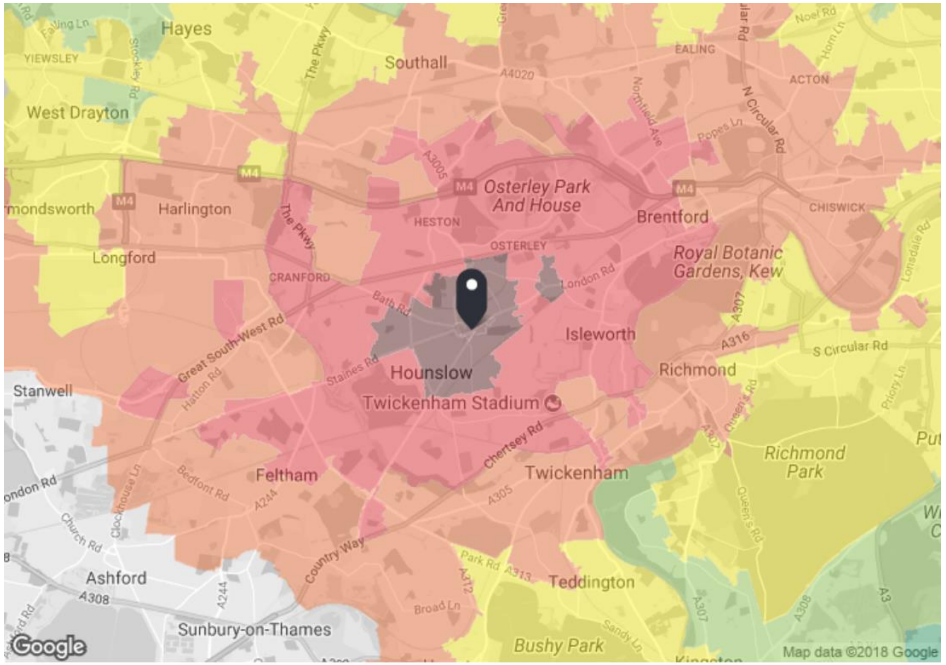
LB Hounslow Child KSI casualties

2013 - 2017 0-15yr

	KSIs (all roads)	Fatal	Serious
2013	4	1	3
2014	5	0	5
2015	6	0	6
2016	1	1	0
2017	10	0	10

G. Travel Time Analysis Diagrams

Travel time analysis for all public transport modes from a) Hounslow Town Centre and b) Cranford Town Centre



TIM output for Base Year

Scenario: Base Year Mode: All public transport modes, Time of day: AM peak, Direction: From location

A315, Hounslow TW3 1UG, UK
Easting: 513840, Northing: 175535

Code: NT086A05A

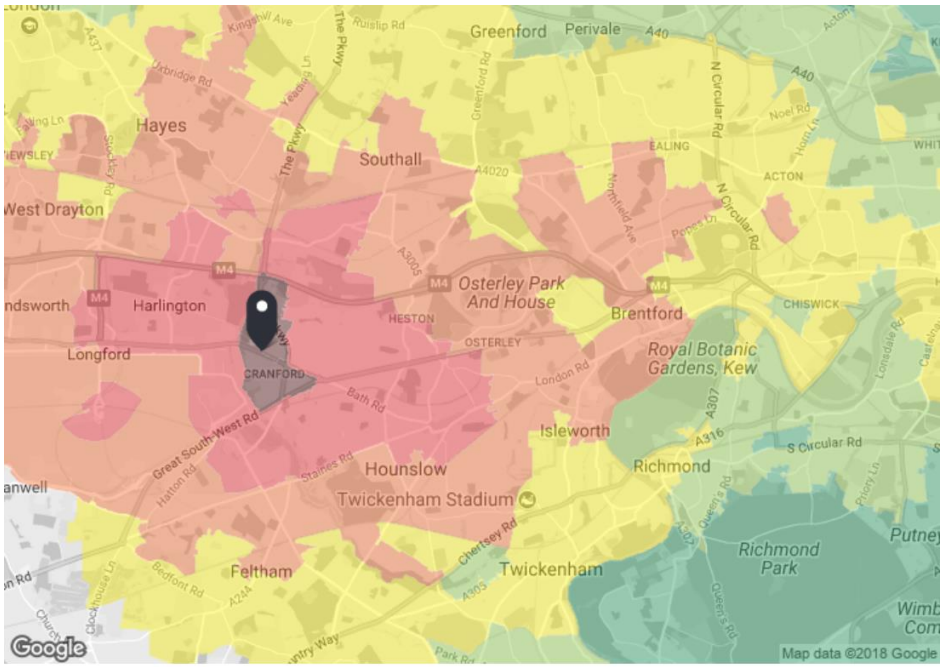
Map key - Travel Time

- < 15 mins
- 15 - 30 mins
- 30 - 45 mins
- 45 - 60 mins
- 60 - 75 mins
- 75 - 90 mins
- 90 - 105 mins
- 105 - 120 mins
- 120 - 135 mins
- 135 - 150 mins

Map layers

Travel Times

TRANSPORT FOR LONDON



TIM output for Base Year

Scenario: Base Year Mode: All public transport modes, Time of day: AM peak, Direction: From location

730-736 A4, Hounslow TW5 9QF, UK
Easting: 510475, Northing: 176808

Code: NT086A05A

Map key - Travel Time

- < 15 mins
- 15 - 30 mins
- 30 - 45 mins
- 45 - 60 mins
- 60 - 75 mins
- 75 - 90 mins
- 90 - 105 mins
- 105 - 120 mins
- 120 - 135 mins
- 135 - 150 mins

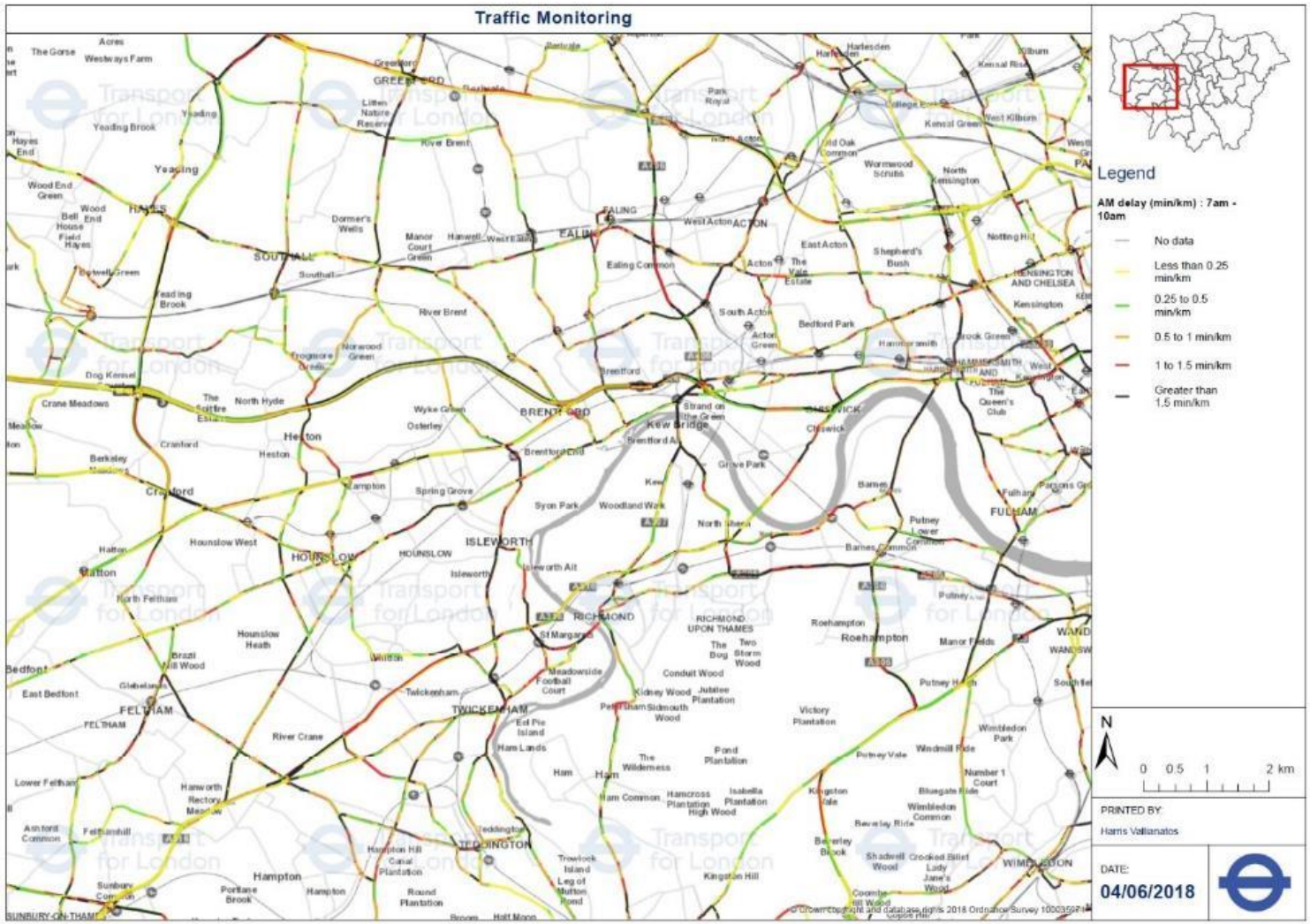
Map layers

Travel Times

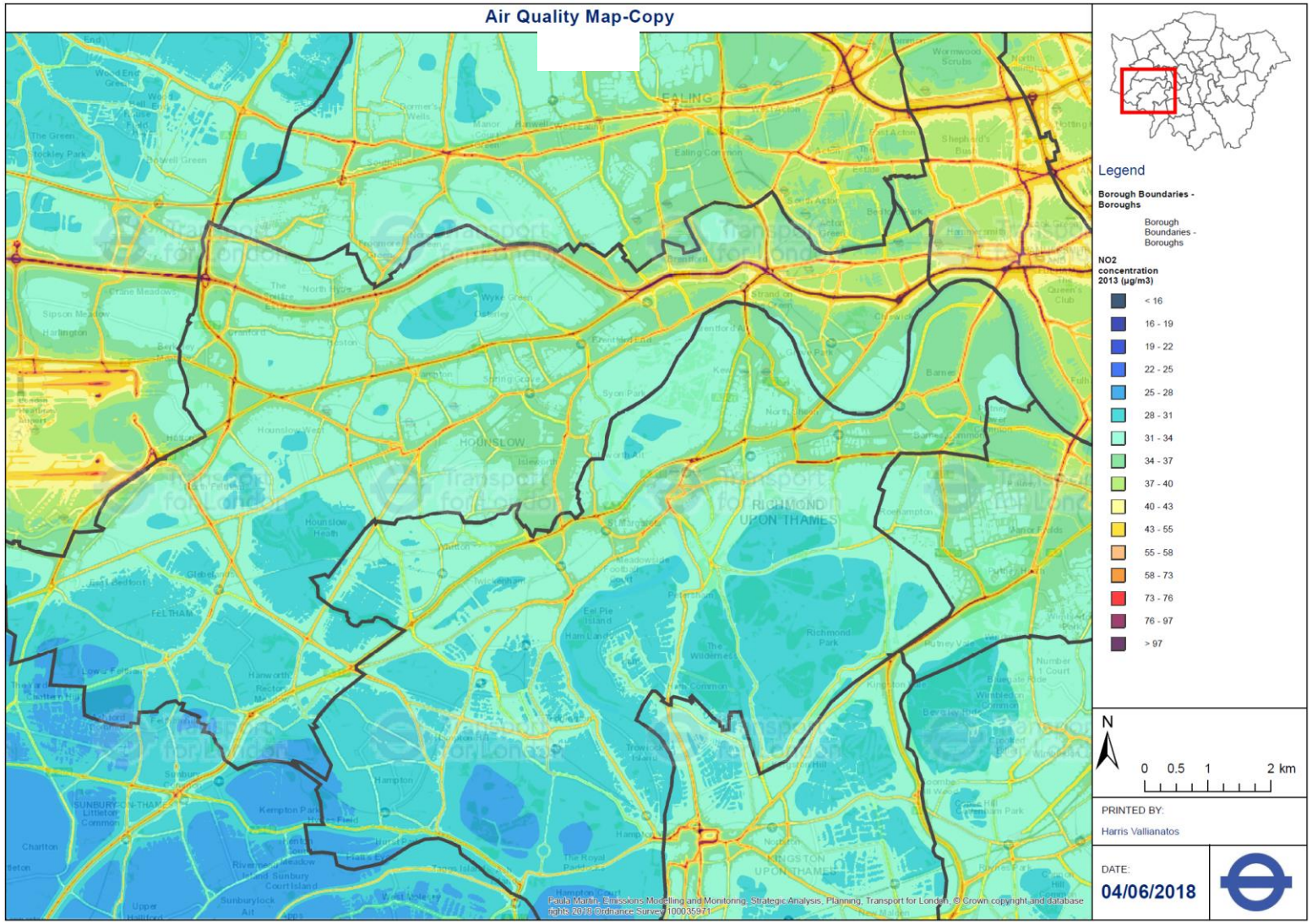
TRANSPORT FOR LONDON

H. TfL Congestion map of LB Hounslow

Congestion on the major road network in LB Hounslow (AM peak)



I. NO_2 Levels across LB Hounslow (LAEI 2013 data)



J. Three Year Programme of Schemes (Summary of Proforma A)

Programme	Scheme Title	Scheme Description	Funding Source	Funding £000's					Outcome Mapping - Healthy Streets Outcomes								
				FY 19/20	FY 20/21	FY 21/22	Sub-Total	Grand Total	Active	Safe	Green	Efficient	Connected PT	Quality PT	Accessible PT	Unlocking	Good Growth
Corridors Neighbourhoods and Supporting Measures	Programme 1: Road Safety Engineering	For 2019/20 and 2020/21 focus is on completing borough wide 20mph with targeted casualty reduction schemes to be identified following review of casualty data.	LIP Allocation	240	240	240	720	720	yes	yes	yes	-	-	-	-	-	-
Corridors Neighbourhoods and Supporting Measures	Programme 2: Road Safety ETP	Provision of targeted Road Safety Education, Training and Publicity campaigns including car seats, drink driving vulnerable road users and powered two wheelers.	LIP Allocation	110	110	110	330	330	yes	yes	yes	yes	-	-	-	-	-
Corridors Neighbourhoods and Supporting Measures	Programme 2: Road Safety ETP: Cycle Training	Cycle Training programme for adults and children. Note – top-up by additional TfL funding if required.	LIP Allocation	70	70	70	210	210	yes	yes	yes	yes	-	-	-	-	-
Corridors Neighbourhoods and Supporting Measures	Programme 3: Sustainable Transport Promotion & Travel Demand Management	Promoting Sustainable Travel to Schools, Business and Communities. Funding covers staff support and resources for ongoing campaigns including (but not limited to): Theatre in Education; WOW & Walk to School Week; Anti-idling campaigns; Hounslow Travel Active, Pedestrian Skills Training and Cycle Clubs. Also provides 'small grant' funding for onsite improvements at sites.	LIP Allocation	170	170	170	510	510	yes	yes	yes	yes	-	-	-	-	-

Programme	Scheme Title	Scheme Description	Funding Source	Funding £000's					Outcome Mapping - Healthy Streets Outcomes								
				FY 19/20	FY 20/21	FY 21/22	Sub-Total	Grand Total	Active	Safe	Green	Efficient	Connected PT	Quality PT	Accessible PT	Unlocking	Good Growth
Corridors Neighbourhoods and Supporting Measures	Programme 5: Better Streets: Street Improvement Fund	Funding available to elected members to bid for annually to deliver targeted improvements with an aim for delivering a c1 scheme/ward each year. Scheme will support interventions to promote accessibility, sustainable transport uptake and improved public realm submitted via the twice-yearly call for community projects managed by the CIL/s106 team.	LIP Allocation	170	170	170	510	510	yes	yes	yes	yes	-	-	yes	-	-
Corridors Neighbourhoods and Supporting Measures	Programme 5: Better Streets: Cycle Parking	Funding for provision of on and off-street (residential) cycle parking across the borough with a focus on Town Centres	LIP Allocation	30	30	30	90	90	yes	yes	yes	yes	-	-	-	-	-
Corridors Neighbourhoods and Supporting Measures	Programme 5: Better Streets: Feltham Town Centre Major Scheme - LIP Contribution	Funding to support delivery of Feltham Town Centre Major Scheme and support Liveable Neighbourhood bid.	LIP Allocation	250	250	250	750	750	yes	yes	yes	yes	yes	yes	yes	yes	yes
Corridors Neighbourhoods and Supporting Measures	Programme 6: Corridors and Networks: Staines Road (HTC	Staines Rd (HTC to Wellington) *Note: Additional funding will be required to deliver segregated facilities on this stretch.*	LIP Allocation	140	300	0	440	440	yes	yes	yes	yes	yes	yes	yes	yes	yes

Programme	Scheme Title	Scheme Description	Funding Source	Funding £000's					Outcome Mapping - Healthy Streets Outcomes								
				FY 19/20	FY 20/21	FY 21/22	Sub-Total	Grand Total	Active	Safe	Green	Efficient	Connected PT	Quality PT	Accessible PT	Unlocking	Good Growth
	to Wellington)																
Corridors Neighbourhoods and Supporting Measures	Programme 6: Corridors and Networks: Hounslow Road Hanworth Phase 3	Hounslow Rd, Hanworth Phase 3	LIP Allocation	130	0	0	130	130	yes	yes	yes	yes	yes	yes	yes	yes	yes
Corridors Neighbourhoods and Supporting Measures	Programme 6: Corridors and Networks: Bath Road	Bath Rd (Rosemary to A4)	LIP Allocation	300	270	190	760	760	yes	yes	yes	yes	yes	yes	yes	yes	yes
Corridors Neighbourhoods and Supporting Measures	Programme 6: Corridors and Networks: Hounslow Priority Cycle Network Development	Feasibility and outline design for Hounslow priority cycle route network (route to be selected).	LIP Allocation	50	50	50	150	150	yes	yes	yes	yes	yes	yes	yes	yes	yes
Corridors Neighbourhoods and Supporting Measures	Programme 6: Corridors and Networks: Hounslow	Implementation of first Hounslow Priority Cycle Route	LIP Allocation	0	0	380	380	380	yes	yes	yes	yes	yes	yes	yes	yes	yes

Programme	Scheme Title	Scheme Description	Funding Source	Funding £000's					Outcome Mapping - Healthy Streets Outcomes								
				FY 19/20	FY 20/21	FY 21/22	Sub-Total	Grand Total	Active	Safe	Green	Efficient	Connected PT	Quality PT	Accessible PT	Unlocking	Good Growth
	Priority Cycle Network Implementation																
Corridors Neighbourhoods and Supporting Measures	Programme 6: Corridors and Networks: Strategic Walking & Greenway Network Enhancements	Improvements to the strategic walking network (Capital Ring, London Loop and Thames Path) and Greenways network linking parks and open spaces across the borough.	LIP Allocation	76	76	76	228	228	yes	yes	yes	yes	yes	yes	yes	yes	yes
Corridors Neighbourhoods and Supporting Measures	Programme 7: Bus Network Enhancement	Bus network enhancement programme. This programme would support measures that improve bus journey time reliability (for example through new or enhanced bus lanes, targeted parking restrictions on bus routes etc) and bus stop accessibility	LIP Allocation	40	40	40	120	120	-	yes	yes	yes	yes	yes	yes	yes	yes
Corridors Neighbourhoods and Supporting Measures	Programme 8: Rail Network Enhancement	Funding to progress development of strategic transport schemes on and around 'Great West Corridor' and 'West of Borough' opportunity areas and to support step free access at stations generally.	LIP Allocation	240	240	240	720	720	-	-	yes	yes	yes	yes	yes	yes	yes

Programme	Scheme Title	Scheme Description	Funding Source	Funding £000's					Outcome Mapping - Healthy Streets Outcomes								
				FY 19/20	FY 20/21	FY 21/22	Sub-Total	Grand Total	Active	Safe	Green	Efficient	Connected PT	Quality PT	Accessible PT	Unlocking	Good Growth
Corridors Neighbourhoods and Supporting Measures	Programme 9: Encouraging Efficient Car Use: Parking Management Schemes	Funding for the identification, development and implementation of Controlled Parking Zones (in response to resident demand) and formalisation of footway parking restrictions and junction protection (waiting/loading restrictions) across the borough, improving safety and aiding accessibility.	LIP Allocation	200	200	200	600	600	-	yes	yes	yes	-	-	-	-	yes
Corridors Neighbourhoods and Supporting Measures	Programme 9: Encouraging Efficient Car Use: Car clubs and EV Charging	A range of measures to encourage efficient car use including: Expansion of car club provision, promotion of eco-driving, promotion of car sharing, promotion of electric vehicles/low emission vehicles etc. Support for air quality monitoring of schemes as required – funding to be supplemented by application to MAQF.	LIP Allocation MAQF (value tbc)	50 50	50 50	50 50	150 150	300	-	yes	yes	yes	-	-	-	-	yes
Corridors Neighbourhoods and Supporting Measures	Local Transport Fund	Local Transport Funding - As required to cover unanticipated under/over spends on approved initiatives or react to emerging opportunities not foreseen at point of delivery plan submission. Funding also support professional staff development and training.	LIP Allocation	100	100	100	300	300	yes	yes	yes	yes	yes	yes	yes	yes	yes
Major Schemes	Feltham Town Centre Major Scheme	Funding to progress the design and implementation of improvements within Feltham Town Centre, including provision	Major Scheme	4,424	0	0	4,424	4,424	yes	yes	yes	yes	yes	yes	yes	yes	yes

Programme	Scheme Title	Scheme Description	Funding Source	Funding £000's					Outcome Mapping - Healthy Streets Outcomes								
				FY 19/20	FY 20/21	FY 21/22	Sub-Total	Grand Total	Active	Safe	Green	Efficient	Connected PT	Quality PT	Accessible PT	Unlocking	Good Growth
		of access improvements in and around the rail station and a remodelled high street. Total Scheme value £7,732															
Liveable Neighbourhoods	Dukes Meadows Liveable Neighbourhoods Bid	Bid likely to be in the region of £2.6m.	Liveable Neighbourhoods	TBC	0	0	2,600	2,600	yes	yes	yes	yes	yes	yes	yes	yes	yes
Liveable Neighbourhoods	Feltham Town Centre Liveable Neighbourhoods Bid	Bid likely to be in the region of £2.6m.	Liveable Neighbourhoods	TBC	0	0	2,600	2,600	yes	yes	yes	yes	yes	yes	yes	yes	yes