steer davies gleave

Hillingdon Local Plan Part 2 - Strategic Transport Impact Assessment

Report
February 2017

London Borough of Hillingdon (LBH)

Our ref: 22990101

Hillingdon Local Plan Part 2 - Strategic Transport Impact Assessment

London Borough of Hillingdon (LBH)

Report
February 2017

Our ref: 22990101

Prepared by:

Steer Davies Gleave
28-32 Upper Ground
London SE1 9PD

+44 20 7910 5000
www.steerdaviesgleave.com

Prepared for:

London Borough of Hillingdon (LBH)
[Company Address]

Contents

Figures

Tables

Appendices

1 Introduction

Overview

1.1 This report has been prepared by Steer Davies Gleave (SDG) on behalf of the London Borough of Hillingdon (LB Hillingdon) to undertake an assessment of the transport related impact of Local Plan Part 2 which is currently being consulted on.

Report Context

1.2 The Local Plan provides the foundation for how planning throughout the LB Hillingdon will be managed. The borough adopted Local Plan Part 1 which sets out the strategic policies for Hillingdon. Local Plan Part 2 comprises Development Management Policies, Site Allocations and Designation and Policies Map. Once adopted it will deliver the detail of the strategic policies set out in Local Plan Part 1. Together they will form a comprehensive development strategy for the borough up to 2026.

1.3 Local Plan Part 2 was published for consultation in October 2015. As part of the consultation process LB Hillingdon received a wide range of representations, including a representation from Highways England (HE) which requested consideration of the cumulative highway impacts of the site's allocated within the plan.

1.4 This report has been prepared to address the principle concerns of HE by undertaking an impact assessment of cumulatively impact of the allocated sits on the strategic highway network within the vicinity of LB Hillingdon alongside an assessment of future public transport capacity.

2 Project Context

Overview

2.1 This chapter provides background on the Local Plan Part 2 process, the transport context of the LB Hillingdon and the details of the Highways England representations for which the project is specifically intended to address.

Transport Context

Hillingdon Overview

2.2 The LB Hillingdon is an outer London Borough located immediately to the west, approximately 14 miles from Central London. The borough is bordered to the north, east and south by the London Boroughs of Harrow, Brent, Ealing and Hounslow and to the east by the authorities that comprise Buckingham County Council.

2.3 The location of the Borough in relation to wider London and the southeast is shown in Figure 2.1.

2.4 LB Hillingdon is the second largest London borough by area; it is diverse in that it contains a number of locally important densely populated town centres and suburban housing to the south and centre of the borough whilst also comprising a number of sparsely populated rural areas to the north of the borough.

2.5 Locally important town centres within the borough include:

- Uxbridge
- Hayes
- Ruislip
- Northwood
- Yiewsley; and
- West Drayton

2.6 Alongside these town centres other key areas include London Heathrow Airport which is situated to the south of the borough, RAF Northolt which is situated to the northeast and Brunel University which is located to the south of Uxbridge to the west of the borough.

Highway Network

2.7 Owing in part to its outer London, a number of strategic roads run through or within close proximity of the borough. Key routes within the borough are shown in Figure 2.1 and described in further detail below.

2.8 The Strategic Road Network (SRN) routes that run within or adjacent to the borough and are operated by HE include:

- M25 running north to south immediately to the west of the borough, incorporating:
  - Junction 14 – with the A3113 at Heathrow Airport;
  - Junction 15 – with the M4 at Iver;
  - Junction 16 – with the M40 at Iver Heath; and
  - Junction 17 - with Denham Way at Rickmansworth.
- M40 which connects the M4 to the eastern boundary of the borough, incorporating:
  - Junction 1 – with the A40 at New Denham

  - Junction 1a – with the M25 at Iver Heath
- M4 running east to west between London and Berkshire towards the south of the borough, incorporating:
  - Junction 3 – with The Parkway at Cranford Park;
  - Junction 4 – with the M4 expressway to Heathrow Airport;
  - Junction 4b – with the M25 at Iver.
- A3113 to the immediate west of Heathrow Airport.

2.9 The Transport for London Road Network (TLRN) routes that runs within or adjacent to the Borough and are maintained by TfL include:

- A40 (Western Avenue) which transitions from the M40 in the northwest of the borough to run east-west through the northern part of the borough, including:
  - A40 / B467 junction at Uxbridge;
  - A40 / West End Road junction at Northolt (Polish War Memorial); and
- A312 (the Parkway) between Polish War Memorial and Junction 3 of the M4.

2.10 Accordingly, LB Hillingdon is extremely well connected to the wider strategic highway network.

Public Transport

Public Transport Accessibility

2.11 Public Transport Accessibility (PTAL) is a measure of accessibility to public transport in London. PTAL ratings range from 1 to 6 with 6 representing an excellent level of accessibility to public transport and 1 representing an extremely poor accessibility to public transport.

2.12 Figure 2.2 shows the PTAL of the Borough in relation to the sites identified within Local Plan Part 2.

2.13 In common with many outer London boroughs, the PTAL across Hillingdon is subject to significant variation given the reduced frequencies of services the further away from the locally important areas.

2.14 Areas with the highest PTAL in the borough correspond with the areas that are served by regularly London Underground services. As such, Uxbridge, Heathrow Airport and Hayes and Harlington have concentrations of PTAL 5 and 6 ratings. In between key local centres areas that are served by London Underground services such as Ruislip, Ickenham, Northolt and Northwood have a PTAL rating of between 3 and 4 within the confines of the centres. In addition, a number of key bus corridors notably along Uxbridge Road and Bath Road have a PTAL rating of 3. However the overwhelming majority of the borough has a PTAL of 2 or below reflecting the limited public transport options available outside of the local town centres.

2.15 London Underground and National Rail transport is largely concentrated on London, with a number of high frequency services from across the borough providing services to Central London. However, there is limited service connecting town centres within Hillingdon with the majority of inter-borough public transport connections needing to be made by bus. Although, similar to rail many bus services within the borough are radial in nature and therefore offer limited connectivity between town centres. As a result many north-south movements across the borough are somewhat limited by public transport.

London Underground

2.16 LB Hillingdon is served by two London Underground lines; the Metropolitan Line and Piccadilly Line.

2.17 The Metropolitan Line serves the north of the borough with two branches via Uxbridge and Northwood connecting the borough to Central London. The Piccadilly Line also has two branches serving the borough, the southern branch servicing the immediate south of the borough serving Heathrow and the northern branch connecting with the Metropolitan Line at Rayners Lane serving Ruislip and Ickenham terminating in Uxbridge town centre.

National Rail

2.18 Two principle rail corridors run through LB Hillingdon. The Great Western Main Line runs east to west through the south of the borough with stations at West Drayton and Hayes and Harlington. The Great Western Main Line runs between London Paddington and southwest England and Wales although principally services through the LB Hillingdon stations are restricted to services between London Paddington and Reading / Oxford and Didcot Parkway. The corridor also has a link further south to Heathrow Airport with services forming the Heathrow Express and Heathrow Connect with direct connections between the Airport and London Paddington.

2.19 The Chiltern Main Line runs east to west through the north of the borough with stations at West Ruislip and South Ruislip. The Chiltern Main Line runs between London Marylebone and the Oxfordshire/The West Midlands.

Crossrail

2.20 In 2018 Crossrail will begin serving the south of the borough along Great Western Railway corridor. High frequency services through Central London to Essex will connect Hayes and Harlington and West Drayton stations directly to Tottenham Court Road, Liverpool Street and Canary Wharf amongst others.

2.21 The introduction of Crossrail will result in an increase in PTAL in the locations immediately surrounding the Crossrail stations. However, the majority of the borough will be unaffected.

Highways England Representation

2.22 In October 2015 Highways England (HE) provided the following representation in response to the consultation of the Local Plan Part 2:

"Highways England will be concerned with proposals that have the potential to impact on the safe and efficient operation of the Strategic Road Network (SRN). In the case of Hillingdon this relates to the M25 junction 14 to 17, the M4 junctions 3 to 4b, the M40 Junctions 1 and 1a and the A3113.

….

As a fundamental point we would expect the local plan not to rely on future transport assessments that accompany planning applications. This may lead to an underestimation of the real impacts of the Local Plan in transport terms. Given that many developments across the borough identified in the site allocations may not individually have any significant impact, the combined impact may be significant and should be examined. Therefore, we would expect Hillingdon to produce a transport assessment covering the cumulative impacts of the Local Plan development. This should be done for the Local Plan horizon year. Without such an *assessment there is no real evidence on transport grounds to declare the plan sound based upon the NPPD "justified criteria".*

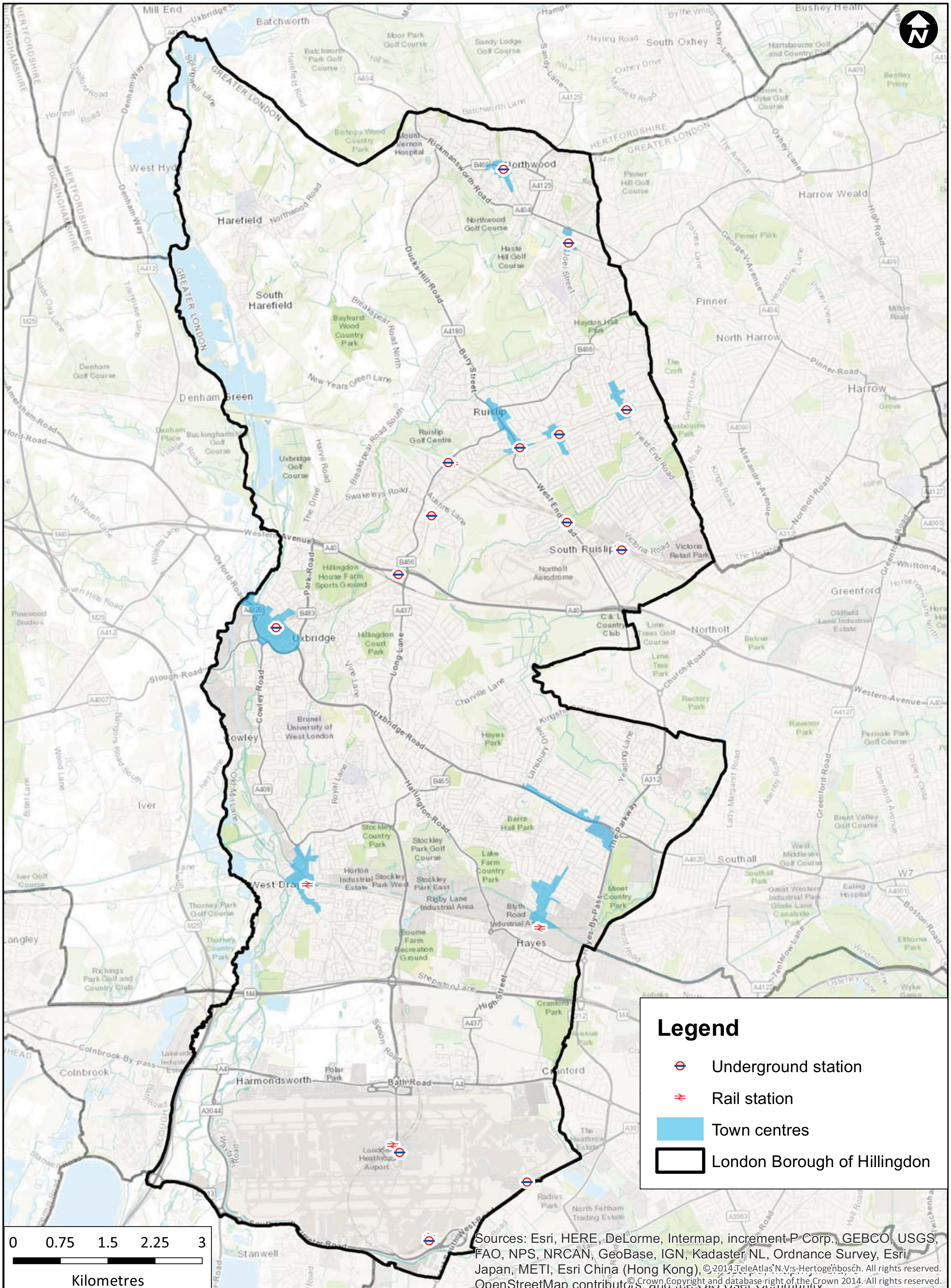
The Plan should demonstrate that all development can be accommodate on transport grounds, including evidence that any required mitigation (infrastructure or other measures) is affordable from identified funding sources and deliverable. Without such an assessment significant Local Plan related transport impacts may pass unnoticed, or the plan may be reliant upon allowing development that cannot be realised because mitigation measures for individual developments are not affordable and viable and therefore the plan will not be sound. …"

2.23 The full response is provided in Appendix A.

2.24 The work summarised in this report seeks to address the points raised by HE in relation to cumulative impacts of the allocated sites by adopting a holistic approach to assessment which comprises:

- Assessment if trip generation associated with allocated sites within the borough;
- Assessment of the impacts of trips on the Strategic Road Network (SRN) and Transport for London Road Network (TLRN) using TfL's Strategic Modelling suite/software;
- Identification of mitigation measures as and where necessary; and
- Reporting the above assessments into a consolidated document.

2.25 This method has been agreed with HE prior to commencement of works, a detailed methodology of the works adopted for this study are provided in the following chapter.



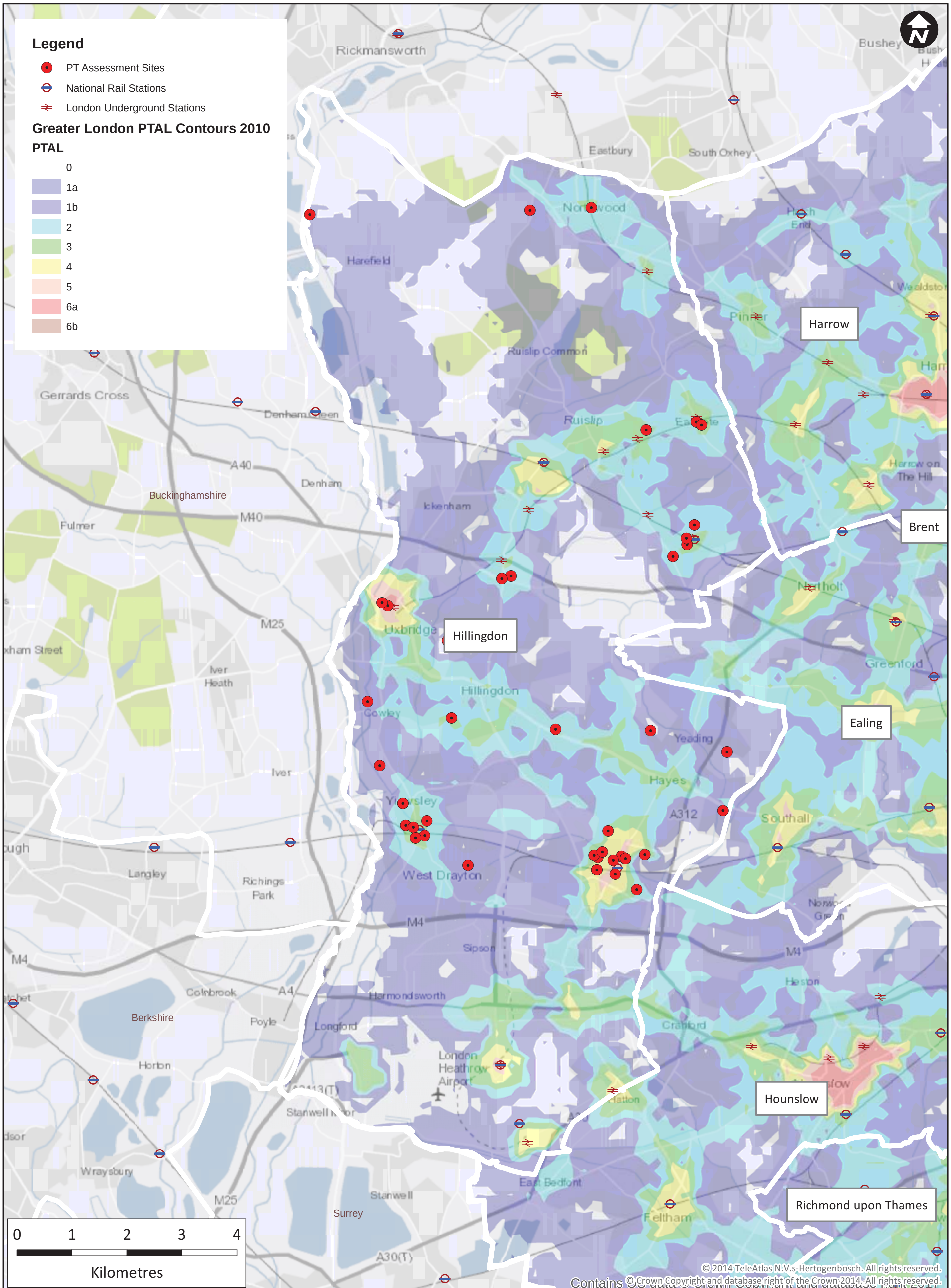
London Borough of Hillingdon

Borough Boundary Extent

steer davies gleave

Created by:	Last Updated:	Scale:
swellington	20/02/2017	75,000

P:\Projects\229\9\01\01\GIS\MAPPING\ARCGIS\Map_Documents\Hillingdon Boundary Map.mxd



Hillingdon Parking Standards Justification

Figure #: PTAL - 2010

steer davies gleave

Created by:	Last Updated:	Scale:
cyoung	26/09/2017	85,924

P:\Users\CYoung\Public\Hillingdon\PTAL.mxd

3 Modelling Methodology

Overview

3.1 This chapter provides an overview of the methodologies employed to undertake the strategic highway and public transport impact assessments of Local Plan Part 2.

Assessment Scenarios

3.2 For both the strategic highway and public transport assessments the forecast future trips have been based upon a Do Nothing and Do Something assessment scenario. This provides the ability to assess the impact of the Local Plan Part 2 trips within the context of wider background growth which is unconnected to the allocation of sites. It is noted that a number of allocated sites have already been granted planning permission, in such circumstances these sites would be assessed as part of background growth.

3.3 Table 1 outlines the modelling scenarios which would be used in the study.

Table 1: Modelling Scenarios

Scenario	Highway Impact	Public Transport Impact
Existing / Baseline: Understanding of existing situation for comparison against the future modelling scenarios.	✓	✓
Future (2026) Scenario A: Assessment of cumulative impacts of all sites with planning permission.	✓	✓
Future (2026) Scenario B: Assessment of cumulative impacts of all sites allocated within Local Plan Part 2 (including all sites with planning permission as in Scenario A).	✓	✓

Trip Generation

3.4 To assess the future impact of the allocated sites a trip generation exercise has be undertaken to determine the forecast future trips across the Borough for both car and public transport modes.

3.5 The 41 sites identified as SA1 – SA41 in Local Plan Part 2 have formed the basis of this assessment. The following information for each allocated site has been recorded:

- Postcode
- Type of development (residential, commercial, other)
- Quantum of development (number of units, floor area);
- Existing site PTAL rating;

- Future site PTAL rating;
- Existing development on site;
- Details of planning permission for the site (if applicable).

3.6 Table 3.2 provides a summary of the sites that have been considered within the assessment

Table 3.2: Local Plan Part 2 Allocated Sites

Site Number	SDG Site Reference	Post Code	Source of Information	Site Area
Enterprise House, Blyth Road, Hayes	D001	UB3 1DD	LBH Local Plan Oct 2015: SA1	0.3
The Old Vinyl Factory and Gatefold Building, Hayes	D002	UB3 4HP	LBH Local Plan Oct 2015: SA2	5.02
Eastern End of Blyth Road, Hayes	D003	UB3 4DF	LBH Local Plan Oct 2015: SA3	1.1 (Site A and B)
Fairview Business Centre	D004	UB3 1RZ	LBH Local Plan Oct 2015: SA4	1.71 (Site A and B)
Land to the South of Railway, including Nestle Site	D005	UB3 4QF	LBH Local Plan Oct 2015: SA5	15.96 (Site
Golden Cross Public House	D006	UB3 1AQ	LBH Local Plan Oct 2015: SA6	0.15
Union House, Hayes	D007	UB3 1AZ	LBH Local Plan Oct 2015: SA7	0.4
Olympic House, 1a Grove Lane	D008	UB8 3RG	LBH Local Plan Oct 2015: SA8	1.7
Audit and Bellway House, Eastcote	D009	HA4 9LT	LBH Local Plan Oct 2015: SA9	0.87 (Site A and B)
269-285 Field End Road, Eastcote	D010	HA4 9LS	LBH Local Plan Oct 2015: SA10	0.37
Charles Wilson Engineers, Uxbridge Road	D011	UB4 8JQ	LBH Local Plan Oct 2015: SA11	0.85
Former Allotments and Melrose Close Car Park, Burns Close	D012	UB4 0QT	LBH Local Plan Oct 2015: SA12	1.21
Royal Quay, Summerhouse Lane	D013	UB9 6JA	LBH Local Plan Oct 2015: SA13	1.6
Master Brewer and Hillingdon Circus	D014	UB10 9QE	LBH Local Plan Oct 2015: SA14	12.85
Royal Mail Sorting Office, Park Way, Ruislip Manor	D015	HA4 8NU	LBH Local Plan Oct 2015: SA15	0.27
Northwood Station, Green Lane	D016	HA6 2XL	LBH Local Plan Oct 2015: SA16	1.6
42-46 Ducks Hill Road	D017	HA6 2SB	LBH Local Plan Oct 2015: SA17	0.5
West End Road, South Ruislip	D018	HA4 6RE	LBH Local Plan Oct 2015: SA18	1
Braintree Road, South Ruislip	D019	HA4 0EX	LBH Local Plan Oct 2015: SA19	7.1
Bourne Court, Ruislip	D020	HA4 6SW	LBH Local Plan Oct 2015: SA20	0.72
Eagle House, The Runway, Ruislip	D021	HA4 6SE	LBH Local Plan Oct 2015: SA21	1.21
Chailey Industrial Estate, Pump Lane, Hayes	D022	UB3 3NB	LBH Local Plan Oct 2015: SA22	1.8
Silverdale Road/Western View, Hayes	D023	UB3 3BX	LBH Local Plan Oct 2015: SA23	1.8
Benlow Works, Silverdale Road	D024	UB3 3BX	LBH Local Plan Oct 2015: SA24	0.3

Site Number	SDG Site Reference	Post Code	Source of Information	Site Area
297-299 Long Lane, Hillingdon	D025	UB10 9JY	LBH Local Plan Oct 2015: SA25	0.39
148-154 High Street / 25-30 Bakers Road (WH Smith),	DA026	UB8 1JY	LBH Local Plan Oct 2015: SA26	0.3
St Andrew's Park - Annington Homes Site	DA027	UB10 0SA	LBH Local Plan Oct 2015: SA27	3.1
St Andrew's Park, Uxbridge	DA028	UB10 0XF	LBH Local Plan Oct 2015: SA28	46.6
Cape Boards Site, Iver Lane, Cowley	DA029	UB8 2JG	LBH Local Plan Oct 2015: SA29	8.6
Grand Union Park, Packet Boat Lane	DA030	UB8 2GH	LBH Local Plan Oct 2015: SA30	1.5
Fassnidge Memorial Hall, Uxbridge	DA031	UB8 1JP	LBH Local Plan Oct 2015: SA31	0.17
Former NATS Site, Porters Way, West Drayton	DA032	UB7 9AD	LBH Local Plan Oct 2015: SA32	12.59
Kitchener House, Yiewsley	DA033	UB7 9BZ	LBH Local Plan Oct 2015: SA33	0.1
The Blues Bar, Yiewsley	DA034	UB7 7BT	LBH Local Plan Oct 2015: SA34	0.26
Former Vehicle Testing Station, Cygnet Way, Hayes	DA035	UB4 9UL	LBH Local Plan Oct 2015: SA35	1.68
Hayes Bridge, Uxbridge Road	DA036	UB4 0JN	LBH Local Plan Oct 2015: SA36	0.8
Former Coal Depot, Tavistock Road, Yiewsley	DA037	UB7 7QX	LBH Local Plan Oct 2015: SA37	6.35
Padcroft Works, Tavistock Road, Yiewsley	DA038	UB7 7QX	LBH Local Plan Oct 2015: SA38	1.6
Trout Road, Yiewsley Site A	DA039A	UB7 7QL	LBH Local Plan Oct 2015: SA39	2.7
Trout Road, Yiewsley Site B	DA039B	UB7 7FY	LBH Local Plan Oct 2015: SA39	0.18
26-36 Horton Road, Yiewsley	DA040	UB7 8ET	LBH Local Plan Oct 2015: SA40	0.46
21 High Street, Yiewsley	DA041	UB7 7QG	LBH Local Plan Oct 2015: SA41	0.2
Crown Trading Estate	DA042	UB3 1DU	LBH Housing Zone Map	Unknown
Gateford Building	DA043	UB3 4HP	LBH Housing Zone Map	Unknown
Precis self-storage	DA044	UB3 4UZ	LBH Housing Zone Map	Unknown

3.7 Using the data outlined in Table 3.2 a trip generation exercise has been undertaken to determine the forecast number of trips in relation to the quantum of development proposed.

3.8 Where planning permission for a site exists the Transport Assessment prepared for the planning application has been interrogated to determine the number of peak hour trips forecast to be generated by the development.

3.9 Where a site does not have planning permission a series of assumptions based on the allocated site information and professional judgement has been made to make a robust forecast of trips to and from the site which is described in more detail below.

Assessment of Sites without planning permission (Reference Sites)

3.10 Where feasible sites that are not subject to a planning application and where the Transport Assessment cannot be interrogated these sites have been considered in the context of nearby application sites that do have permission, hereafter referred to as Reference Sites. The assessment has assumed that nearby sites of the same type of use (i.e. residential or commercial) will have similar peak hour trip rates to and from the development site. As such, the trip rate from a Transport Assessment from the most similar nearby site has been used to determine the number of trips to and from the development.

3.11 Following selection of the trip rate an analysis of future mode share has also been undertaken. Mode share for the site has been considered in the context of site PTAL rating and proposed car parking provision in relation to the Transport Assessment for the Reference Site. Where proposed parking ratio and PTAL rating are the same it is assumed that the mode share for the site remains similar, as is likely to be the case in any future planning application for the site. Where there is a difference between the site being assessed and the Reference Site in terms of either proposed parking ratio of PTAL rating adjustments to mode share have been made to reflect a different proportion of users using different modes of transport. For example, where a site has a higher parking ratio and lower PTAL it is assumed that a greater number of vehicle trips will be made to the site. As a result the Car Driver mode share has been adjusted in e proportion to the increase in parking in comparison to the reference site – i.e. where the parking ratio is proposed to be 25% higher than the Reference Site the Car Driver mode share for the site has been increased by 25%.

3.12 In cases where a nearby Reference Site is not available a search of Reference Sites with similar PTAL and parking ratio elsewhere within the borough has been made and the most relevant Reference Site has been selected on this basis.

3.13 This methodology has been chosen e so that forecast trips are based on local information which has been subject to review and agreement by by both LB Hillingdon and TfL as part of the wider planning application process. This also removes the need for more subjective and potentially more generalised at this scale trip generation assessment of a wide range of sites through the TRICS database. This methodology of determining forecast trips was agreed in principle with HE in October 2016.

3.14 The resulting trip generation forecasts for each of the allocated sites have been used in the assessment of future highways and public transport impact as outlined below. Detailed outputs of the trip generation exercise are provided in Appendix B.

Strategic Highway Assessment

Highways Assessment

3.15 The highway modelling undertaken for this study focussed on updating TfL’s 2026 reference models to test the allocated sites against the modelling scenarios outlined above.

3.16 Following agreement with both TfL and LBH we have utilised the WeLHAM (West London Highway Model) which has been supplied under licence from TfL. The WelHAM model supplied by TfL for 2021 was used as the base year of assessment, the following

Traffic Demand

3.17 The following tasks have been undertaken to develop the WeLHAM model demand matrix:

- Assign trips forecast through the Trip Generation exercise to development sites within the model and ensure the model(s) are consistent with the development forecast;
- Identify major sites outside of LB Hillingdon where significant developments are planned and check growth in the model is consistent with development forecasts; and
- A finessing approach has been undertaken to update the traffic demand across the Borough to ensure that they correspond to the agreed modelling scenarios and that there is no ‘double counting’ of development trips.

Analysis of Future Transport Constraints

3.18 The results obtained from the highway modelling exercise would be used to determine key indicators of stress using the model outputs, detailing:

- Traffic flows;
- Queue lengths;
- Total junction delay;
- Level of saturation; and
- Congestion (as delay PCU hours).

Scope

3.19 The scope of the modelling exercise was agreed with representatives from HE beforehand in October 2016. Minutes of the meeting with HE are provided in Appendix A of this report.

Public Transport

Public Transport Model

3.20 To enable a high level assessment of future public transport capacity we have interrogated outputs from TfL’s Railplan model for London to undertake a static assessment of future public transport flows.

3.21 Each of the allocated sites has been incorporated into a GIS model to determine the closest public transport node (London Underground or National Rail) to the site. The forecast trips generated as part of the Trip Generation exercise have then been assigned to the relevant station and a static assessment of capacity at each station has been undertaken to understand the likely future capacity of future public transport services subject to the background growth in the Railplan projections with and without the allocated site trips.

3.22 In a similar method to the Highway Modelling, this allows us to determine the impact of the allocated site trips upon each station.

4 Highway Modelling Results

Overview

4.1 The primary objective of this analysis is to understand the potential impacts of the Local Plan Part 2 proposals over a 20-year planning horizon against the backdrop of the latest population and employment growth projections in line with the GLA's London Plan.

4.2 The development associated with the Local Plan Part 2 Allocated Sites will affect both the highway and public transport networks. To identify future constraints, we have used models and data provided by TfL, namely WeLHAM (West London Highway Assignment Model) and Railplan (a public transport model).

Highway Assessment

Summary of Approach

4.3 The focus of this study is to examine the full impact of the development sites identified in Local Plan Part 2 as set out in the previous chapter.

4.4 The WeLHAM model covers the following three time periods representing an average weekday:

- AM Peak Hour (08:00-09:00)
- OP Average Hour (10:00-16:00)
- PM Peak Hour (17:00-18:00)

4.5 Although the AM peak period shows the condition of the network between 08:00 and 09:00, the model also needs to consider the demand between 07:00 and 08:00, to take account of any queues formed in the network before 08:00. This is achieved by first simulating 07:00-08:00 and then loading any final queues from the 07:00-08:00 model as a starting input into the 08:00-09:00 AM peak hour model. The same method is used in the PM peak period by first running the model for 16:00-17:00 and then passing any queues which form by 17:00 to the PM peak hour model.

4.6 The highway modelling has focussed on updating TfLs 2031 reference case models to test the Local Plan. These core scenarios enable us to identify which congestion effects are explicitly attributable to the Local Plan developments over-and-above the developments that are committed (i.e. will be implemented regardless of the Local Plan). In summary these are:

- **Do Minimum Committed Development Scenario (Scenario A)** – i.e. committed developments/road network changes only, reflecting a committed increase in housing and employment in the borough, and committed proposed changes to the road network.
- **Do Minimum Max Growth Development Scenario (Scenario B)** – as per do minimum but additionally with demand from additional developments. We are not testing mitigation measures, but using the model to identify potential constraints/ issues on the network.

4.7 The two scenarios above have been compared against the 'Base' year model which for this project is assumed to be the 2012 model provided by TfL as this reflects the most recent model without committed changes or forecast growth included.

4.8 For the purposes of this assessment chapter, the base is model is compared against Scenario A and Scenario B to show the cumulative impact of each against the base model.

Summary of Traffic Growth

4.9 Vehicle trip forecasts have been developed for 2031 with and without the full build of developments in Hillingdon, i.e. all developments including committed and future developments. Table 4.1 below shows the additional trips added as a result of the new proposed developments in the AM and PM peaks.

Table 4.1: Total Trips to/from Hillingdon in the full build out scenario (excluding Heathrow)

Time Period	2031 Total Flows		Additional Trips		% of Total Trips	
	Origin	Destination	Origin	Destination	Origin	Destination
AM Peak	37,980	40,133	968	280	2.5%	0.7%
PM Peak	38,498	36,179	381	642	1.0%	1.8%

4.10 As shown in Table 4.1, in the AM peak the additional trips within the network account for an increase of 2.5% of originating trips and 0.7% of destination trips. This suggests that a greater number of additional trips are in the AM peak originate in LB Hillingdon, reflecting that the majority of allocated sites are residential. This is also reflected in the reverse in the PM peak. The PM peak is also shown to have a smaller increase in trips suggesting that the impact of allocated sites in the PM peak is lower than in the AM peak.

4.11 Table 4.2 presents a comparison of total travel distance across the borough between the case, the do minimum and do something scenario.

Table 4.2: Comparison of Total Travel Distance (Hillingdon)

Time Period	Total Travel Distance (PCU-Kms)			Change from Base Year %		Difference (+/-)
	Base	Scenario A	Scenario B	Scenario A	Scenario B	
AM	433,687	468,084	470,452	7.9%	8.5%	0.6%
PM	426,225	447,218	448,392	4.9%	5.2%	0.3%

4.12 As shown in Table 4.2, in the AM peak the Do Something scenario accounts for a 0.6% increase in total distance travelled and in the PM peak a 0.3% increase. Similarly this suggests that that the trips generated by the allocated sites are not significant.

4.13 Table 4.3 presents a comparison of total hours travelled within Hillingdon between the three scenarios.

Table 3: Comparison of Total Hours Travelled (Hillingdon)

Time Period	Total Travel Time (PCU-Hours)			Change from Base Year (%)		Difference (+/-)
	Base	Scenario A	Scenario B`	Scenario A	Scenario B	
AM	13,632	16,070	16,333	17.9%	19.8%	1.9%
PM	14,661	18,013	18,035	22.9%	23.0%	1.1%

4.14 As shown in Table 4.3, the difference between Scenario A is far greater than with the allocated sites included within Scenario B for both the AM and PM peaks.

4.15 Table 4.4 provides a comparison of average speed within Hillingdon across the three scenarios.

Table 4: Comparison of Average Speeds (Hillingdon)

Time Period	Average Speed			Change from Base Year (%)		Difference (+/-)
	Base	Scenario A	Scenario B`	Scenario A	Scenario B	
AM	31.8	29.1	28.8	-8.4%	-9.5%	-1.1%
PM	29.1	24.8	24.9	-14.6%	-14.5%	+0.1%

4.16 Table 4.4 suggests that a reduction in average speed in both scenarios. However the next decrease in speed arising from Scenario B is minimal at -1.1% in the AM peak and negligible at +0.1% in the PM peak.

4.17 Overall the tables above suggest that growth in highway usage and associated impacts is subject to a greater increase in committed developments and background growth (Scenario A) than the allocated sites without planning permission in the Local Plan Part 2 (Scenario B).

AM Peak Analysis

4.18 Figure 4.1 outlines the volume of traffic flow in the Base Year Model; higher volumes are represented by thicker lines and lower volumes by lesser lines.

4.19 Figure 4.2 outlines the delays in seconds in the Base Year Mode; significant delays are signified by thicker green lines.

Figure 4-1: Base Year – AM Peak Hour

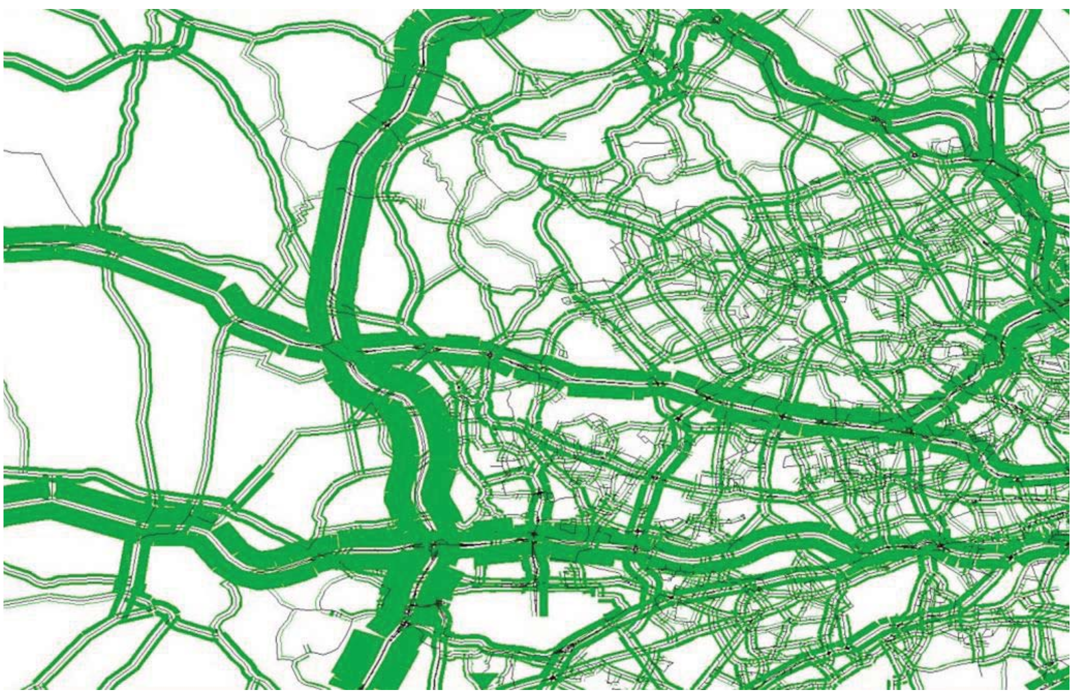
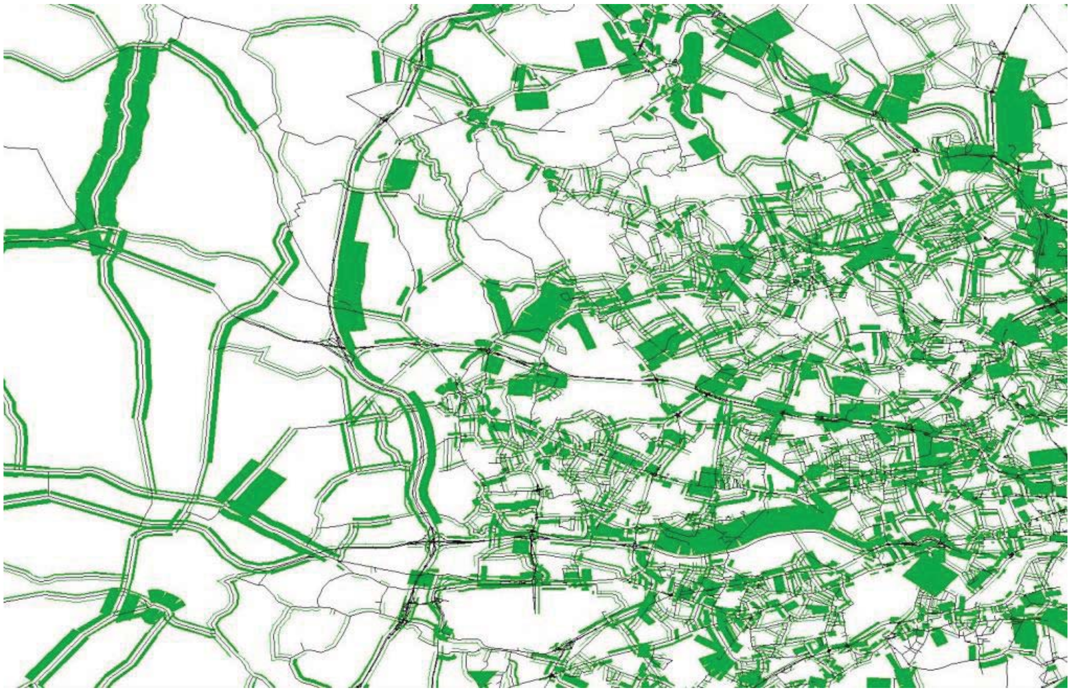
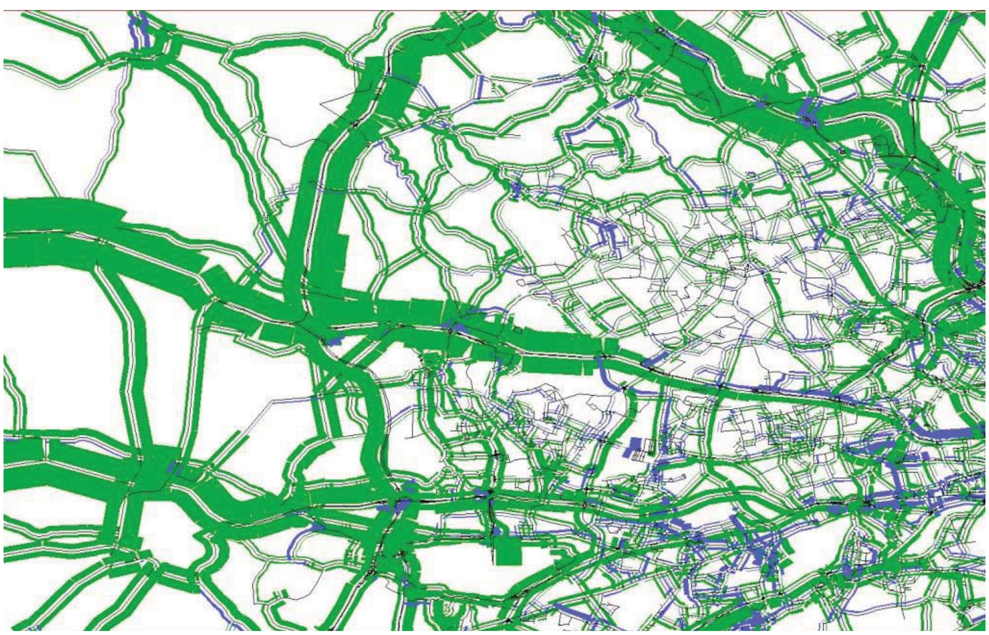


Figure 4-2: AM Peak Hour 2012 – Delays in Seconds



4.20 Figure 4.3 shows the change in flows between the Base Model and Scenario A; increase in flow are represented by green lines and reductions in flow are represented by blue lines with the greater the change reflected in greater line weights.

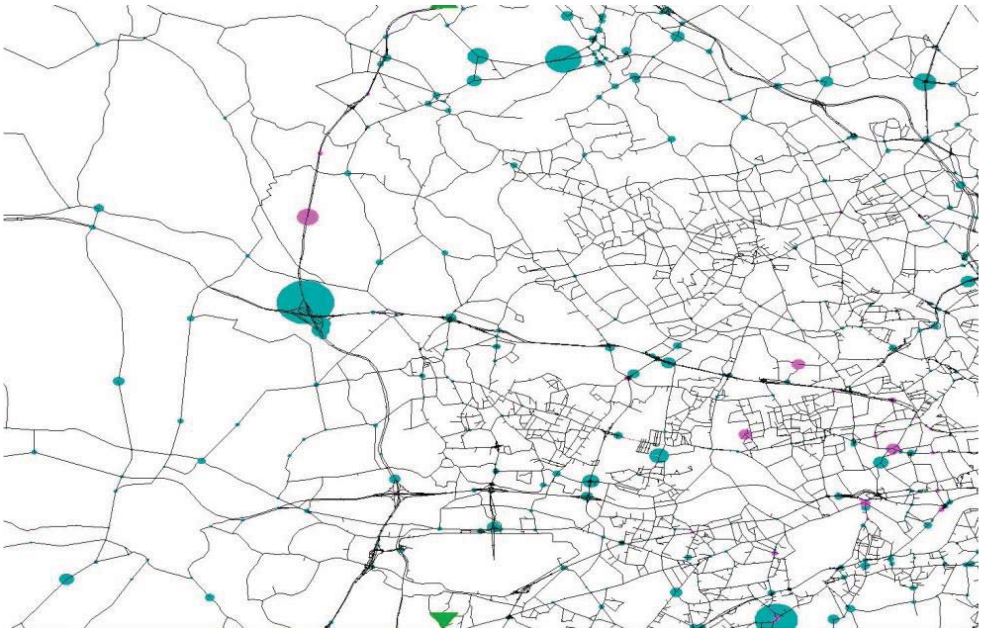
Figure 4-3: AM Peak Change in Flows (2031 Do Minimum – 2012 Base Year)



4.21 As shown in Figure 4.3 the majority of the network experiences increase in traffic volumes, particularly the strategic highway networks with the M40/A40 corridor experiencing the most significant growth. The M25 north of Junction 16 experiences significant growth in both directions, however south of Junction 16 growth is largely limited to clockwise direction of travel. Growth along the M4 corridor within the borough is similarly relatively limited but greater to the west beyond Junction 4b.

4.22 Figure 4.4 shows the change in peak delay between the Base and Scenario A; increase in delay is represented by green hotspots and reductions in delay are represented by pink hotspots with the greater the change reflected in greater size of the hotspot.

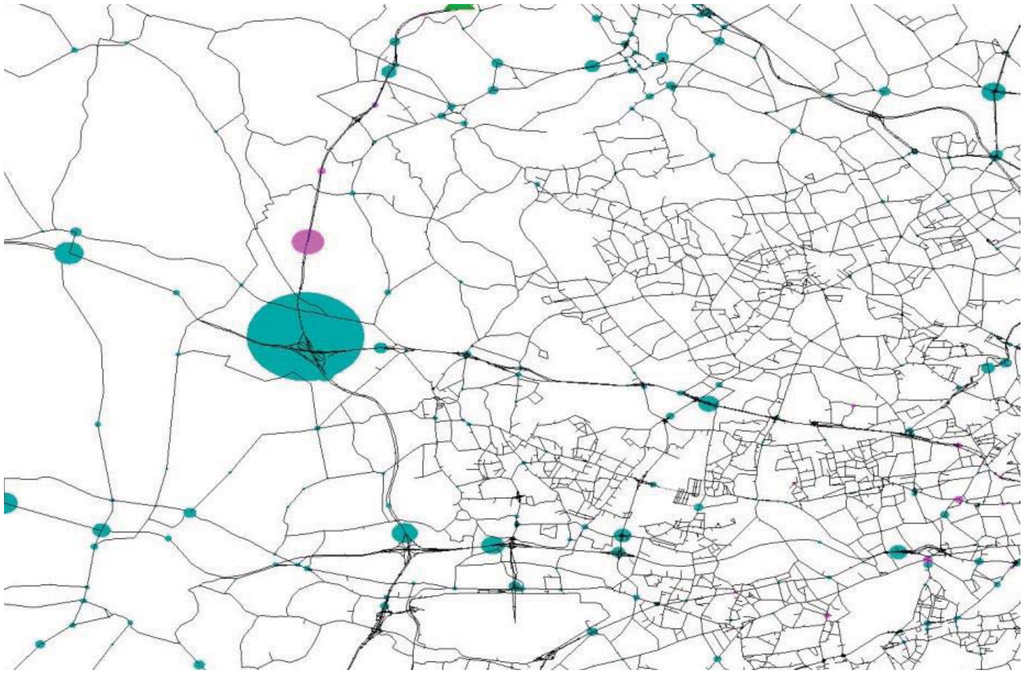
Figure 4-4.4: AM Peak Change in Link Delay (2031 Do Minimum – 2012 Base Year)



4.23 Figure 4.4. shows that delays increase in a number of locations of the strategic highway network. The greatest increase of delay is anti-clockwise on the M25 north of Junction 16. Other increases in delay occur within Hillingdon including on the M4 and A40, however these are relatively small scale in comparison to the greater delay experienced at Junction 16.

4.24 Figure 4.5 shows the peak change in vehicle hour delay between the Base and Scenario A; increase in delay is represented by green hotspots and reductions in delay are represented by pink hotspots with the greater the change reflected in greater volume of hotspot. This provides a different measure than Figure 4.4. by considering average vehicle delay as opposed to average link delay.

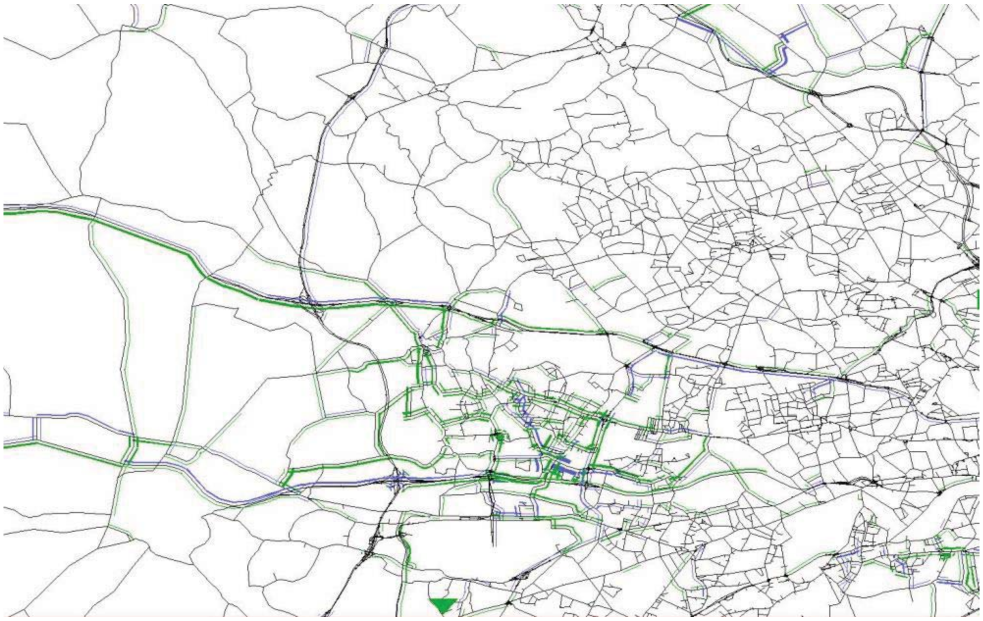
Figure 4-5: AM Peak Change in Vehicle Hour Delay (2031 Do Minimum – 2012 Base Year)



4.25 As shown in Figure 4.5, average vehicle delay occurs at many of the same locations as average link delay.

4.26 Figure 4.6 outlines the peak change in traffic flows between Scenario A and Scenario B; increase in traffic flows are represented by green lines and reductions in flow are represented by blue lines with the greater the change reflected in greater line weights.

Figure 4-6: AM Peak Change in Flows (2031 Do Something – Do Minimum)



4.27 Figure 4.6 shows that the additional flows generated by the allocated sites without planning permission are distributed relatively evenly across the highway network both within Hillingdon and on the wider strategic highway.

4.28 Figure 4.7 shows the change in link delay between Scenario A and Scenario B. Figure 4.8 shows the change in vehicle delay between Scenario A and Scenario B. For both figures increases in delay are signified by blue hotspots and reductions pink hotspots with size relative to the size of delay.

Figure 4-7: AM Peak Change in Link Delay (2031 Do Something – Do Minimum)

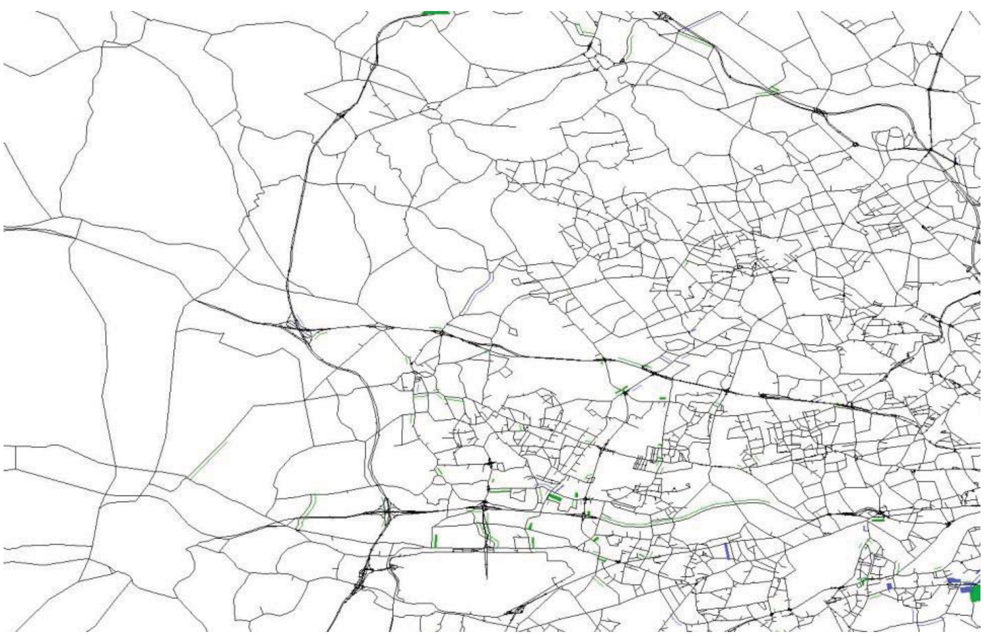
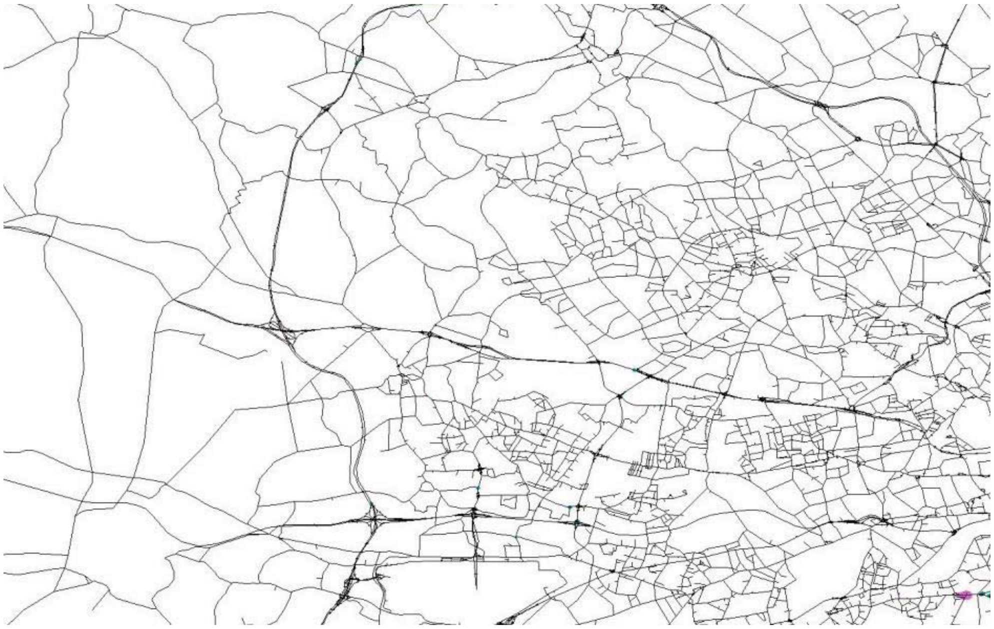


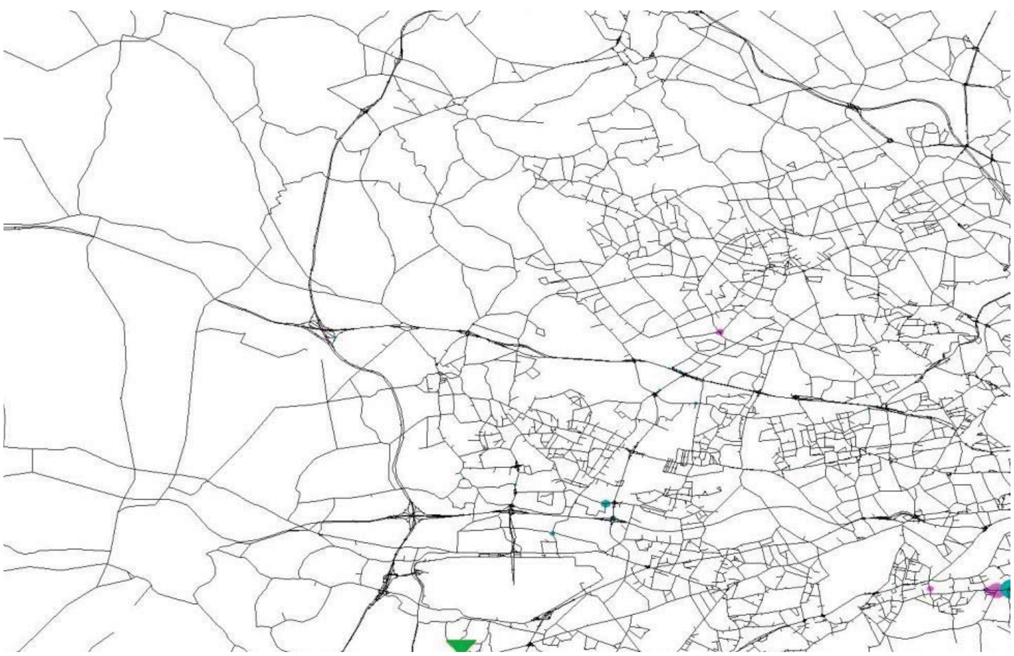
Figure 4-8: AM Peak Change in Vehicle Hour Junction Delay (2031 Do Something - Do Minimum)



4.29 As shown in Figure 4.7 and Figure 4.8 the increase in link delay is minimal across the borough.

4.30 Figure 4.8 shows the change in junction delay between Scenario A and Scenario B with green hotspots identifying increases and pink hotspots reductions in junction delay.

Figure 4-9: AM Peak Change in Junction Delay (2031 Do Something - Do Minimum)



4.31 As shown in Figure 4.9 there is no significant change to junction delay throughout the strategic road network. One minor increase to junction delay is forecast on the A347 which is not on the SRN or the TLRN. This delay is likely to relate to the significant amount of activity forecast for the Hayes Housing Zone which is within close proximity of the A347.

4.32 Figure 4.9, 4.10 and 4.11 consider the ratio of volume to capacity (expressed in terms of a percentage) for the Base, Scenario A and Scenario B models.

Figure 4-10: Base Year – Ratio of Volume to Capacity as a Percentage

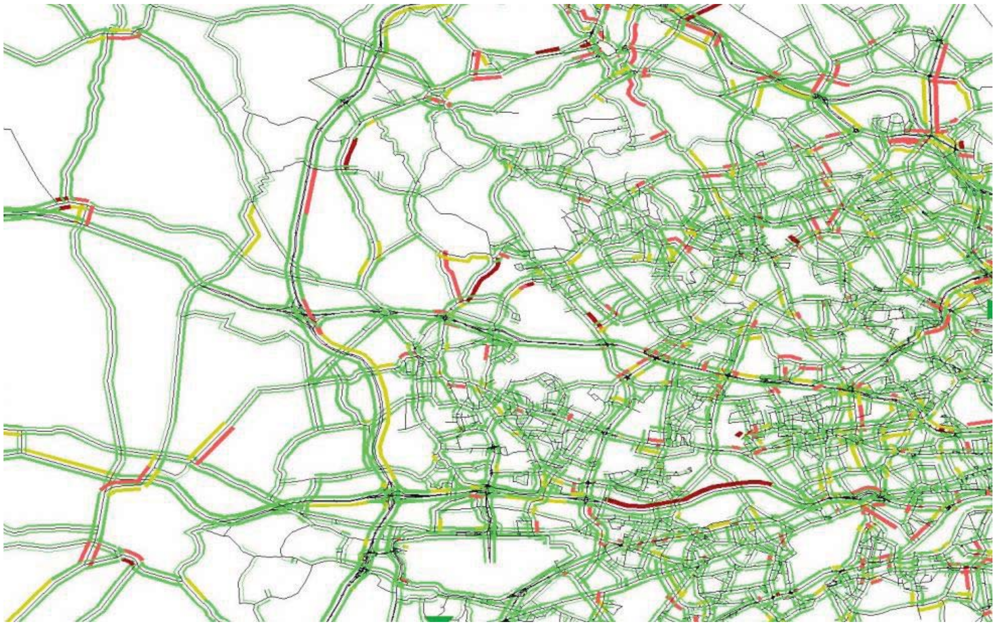


Figure 4-11: Scenario A – Ratio of Volume to Capacity as a Percentage

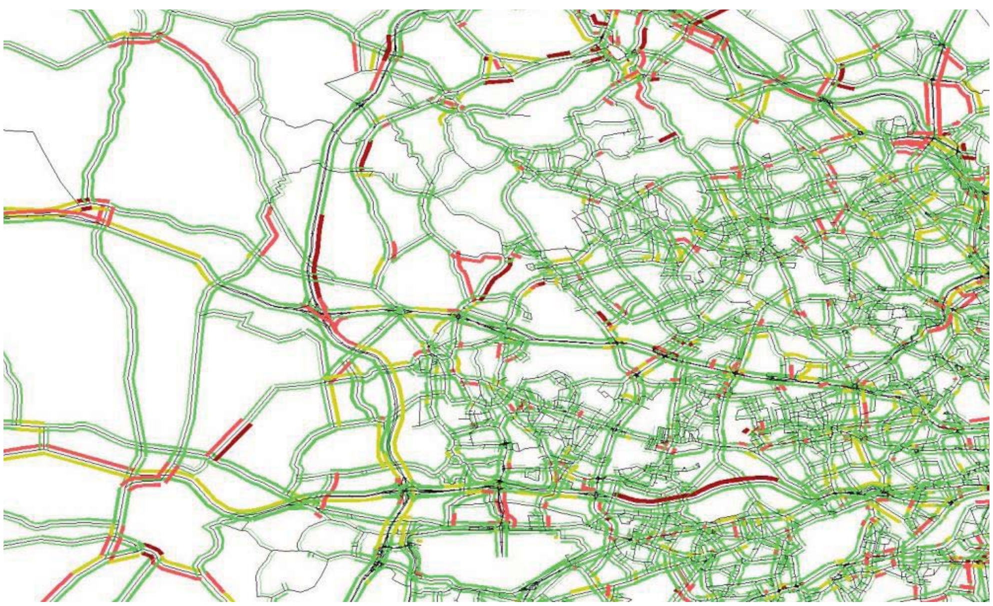
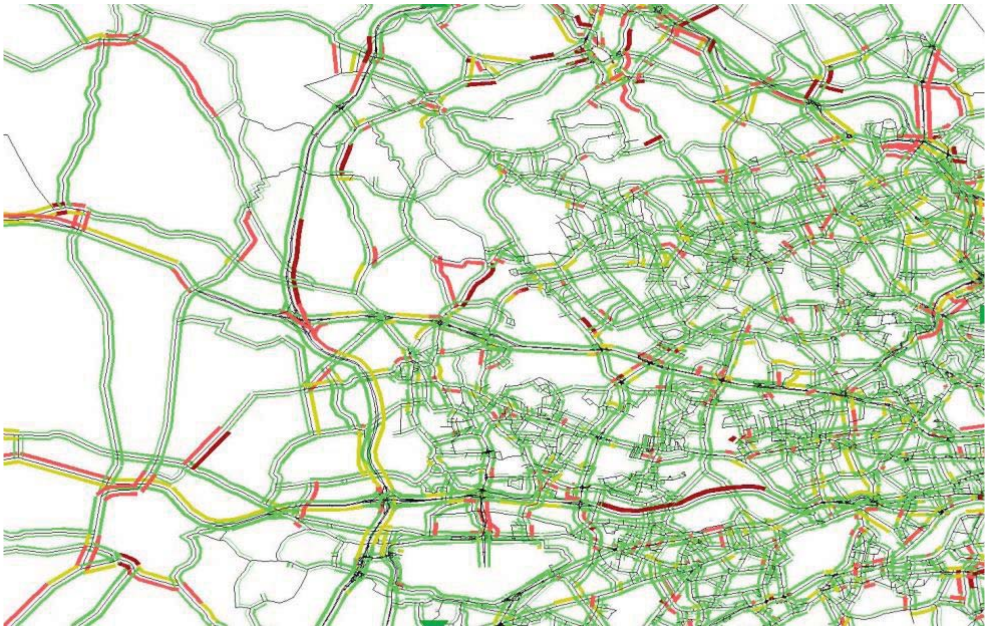


Figure 4-12: Scenario B – Ratio of Volume to Capacity as a Percentage



4.33 Table 4.5 provides a summary of the links and junctions that are operating close to capacity through the scenarios.

Table 4.5: Summary of AM Peak Ration of Volume to Capacity Analysis on SRN and TLRN

Link / Junction	Base	Scenario A	Scenario B
M25 (AC) Jct 17-16	>100%	>100%	>100%
M25 (AC) Jct 16-15	80% - 100%	80% - 100%	80% - 100%
M25 (AC) Jct 15-14	<80%	80% - 100%	80% - 100%
M25 (C) Jct 16-17	<80%	<80%	<80%
M25 (C) Jct 15-16	<80%	80% - 100%	80% - 100%
M25 (C) Jct 14-15	<80%	80% - 100%	80% - 100%
M4 (EB) Jct 4b – 4	80% - 100%	80% - 100%	80% - 100%
M4 (EB) Ject 4-3	<80%	<80%	<80%
M4 (EB) Jct 3-2	>100%	>100%	>100%
M4 (WB) Jct 4-4b	<80%	<80%	<80%
M4 (WB) Jct 3-4	80% - 100%	80% - 100%	80% - 100%
M4 (WB) Jct 2-3	<80%	<80%	<80%
M40 (EB) Jct 1a-1	<80%	80% - 100%	80% - 100%
M40 (EB) Jct 1 - Swakeleys	<80%	80% - 100%	80% - 100%

Link / Junction	Base	Scenario A	Scenario B
M40 (WB) Jct 1-1a	<80%	<80%	<80%
M40 (WB) Swakeley – Jct 1	<80%	<80%	<80%
A40 (EB) Swakeley – Polish War Memorial	<80%	<80%	<80%
A40 (WB) Swakeley – Polish War Memorial	<80%	<80%	<80%
Tha Parkway (NB) A40 – Uxbridge Road	<80%	<80%	<80%
The Parkway (NB) M4 – Uxbridge Road	<80%	<80%	<80%
The Parkway (SB) Uxbridge Road – A40	<80%	<80%	<80%
The Parkway (SB) M4 – Uxbridge Road	<80%	<80%	<80%

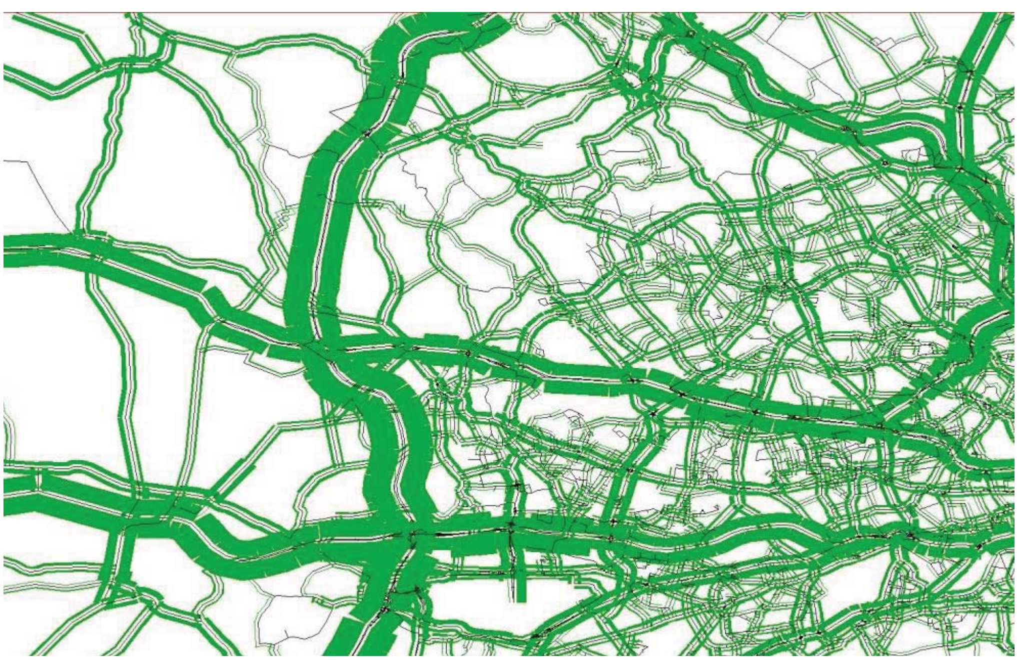
4.34 As shown in Table 4.5, a number of links move from under 80% capacity in the Base Year to between 80% - 100% capacity in Scenario A. However, there is no significant difference between the number of trips generated in Scenario A and those in Scenario B. This suggests that the largest impact during the AM peak on the SRN and TLRN is as a result of background growth and currently committed developments as opposed to the sites allocated within Local Plan Part 2.

4.35 This conclusion is supported by the remaining figures which show significant change between the Base model and Scenario A but negligible change between Scenario A and Scenario B.

PM Peak Plots

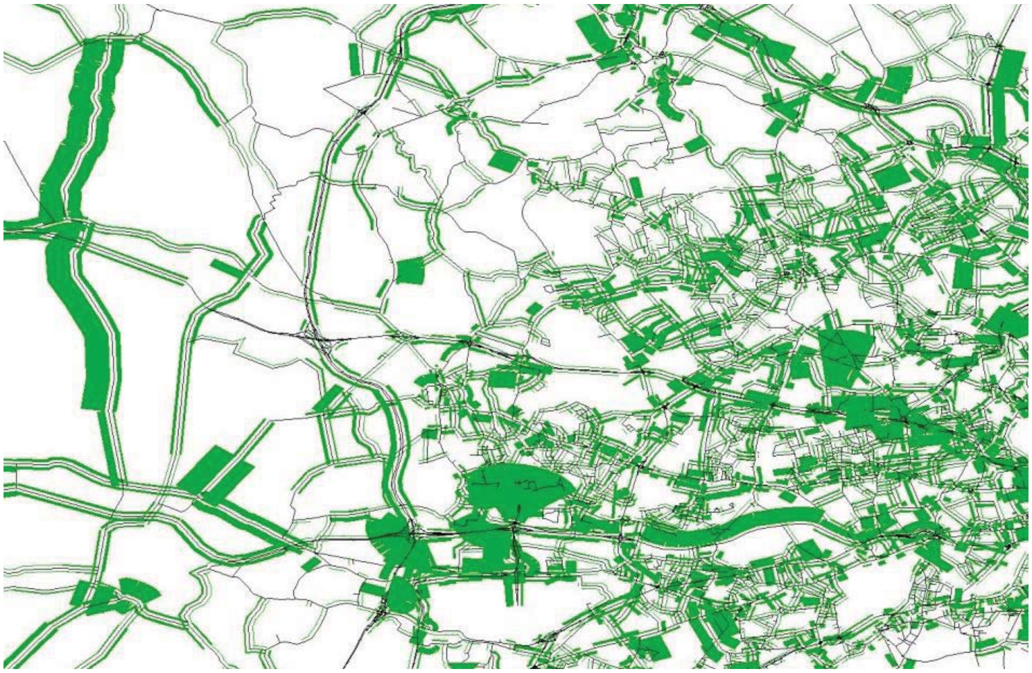
4.36 Figure 4.13 outlines the volume of traffic flow in the Base Year Model; higher volumes are represented by thicker lines and lower volumes by lesser lines.

Figure 4-13:PM Peak 2012 Base Year Flows



4.37 Figure 4.14 outlines the delays in seconds in the Base Year Mode; significant delays are signified by thicker green lines.

Figure 4-14: PM Peak 2012 Delays in Seconds



4.38 Figure 4.15 shows the change in flows between the Base Model and Scenario A; increase in flow is represented by green lines and reductions in flow are represented by blue lines with the greater the change reflected in greater line weights.

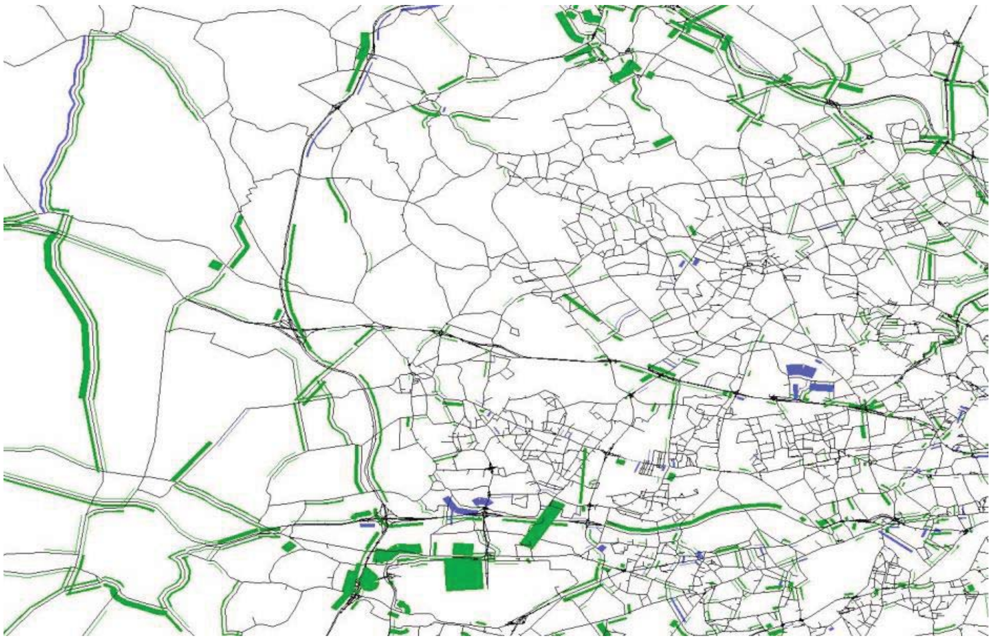
Figure 4-15: PM Peak Change in Flows (2031 Do Minimum – 2012 Base Year)

4.39 As shown in Figure 4.16, the greatest increase in flows traffic flow during the PM peak occurs on the M25 anticlockwise whilst a significant amount of growth is also forecast on the

M40/A40 corridor in both directions. The M4 links receive a small amount of volume increase but not to the same extent as experienced in the AM peak.

4.40 Figure 4.16 shows the change in link peak delay between the Base and Scenario A; increase in delay is represented by green hotspots and reductions in delay are represented by pink hotspots with the greater the change reflected in greater volume of hotspot.

Figure 4-16: PM Peak Change in Link Delay (2031 Do Minimum – 2012 Base Year)



4.41 As shown in Figure 4.16 nominal increases in link delay during the PM peak are relatively insignificant with the only substantial increases in delay occurring on the northbound M4 link at Heathrow which is attributed to airport background growth as opposed to general Hillingdon development background growth and Harlington High Street which does not form part of the SRN or TLRN.

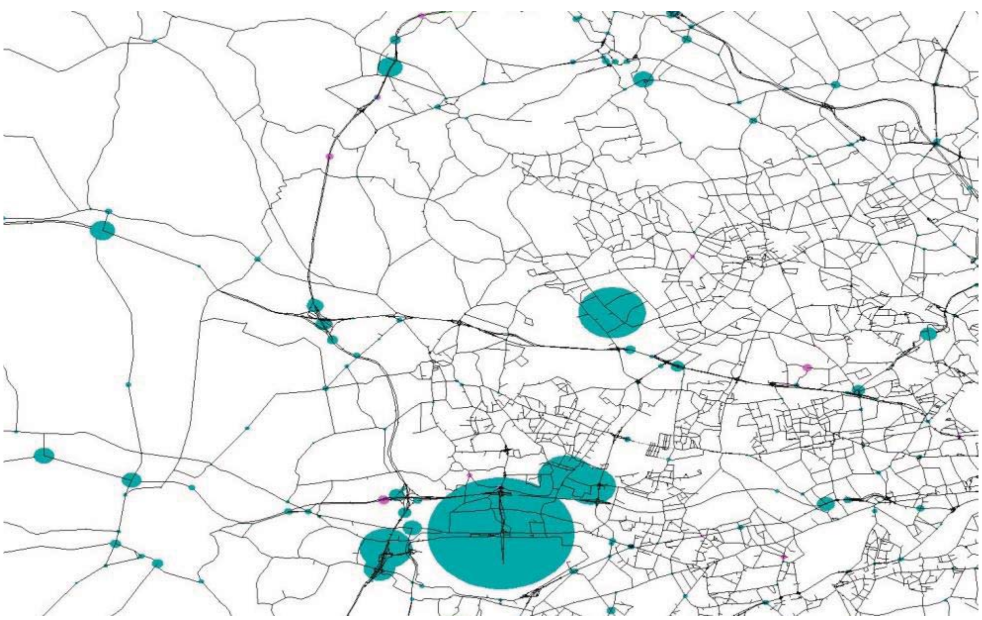
4.42 Figure 4.17 shows the peak change in junction delay between the Base and Scenario A; increase in delay is represented by green hotspots and reductions in delay are represented by pink hotspots with the greater the change reflected in greater volume of hotspot.

Figure 4-17: PM Peak Change in Junction Delay (2031 Do Minimum – 2012 Base Year)

4.43 As shown in Figure 4.17, there are a number of significant junction hotspots that forecast increase in delay at Junction N Hyde Rd/Station Rd and N Hyde Rd/Roseville Rd along A437, two junctions along Newbury Rd joining Tunnel Rd E, as well as the zone connector joining Victoria Rd north of A40.

4.44 Figure 4.18 presents the change in vehicle hour delay between the Base year model and Scenario A.

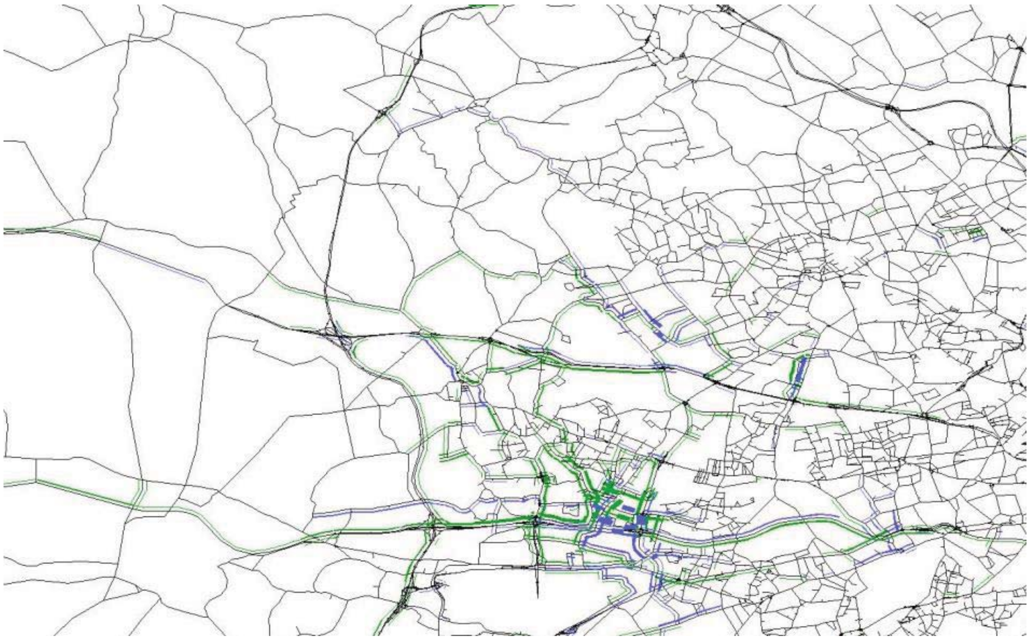
Figure 4-18: PM Peak Change in Vehicle Hour Delay (2031 Do Minimum – 2012 Base Year)



4.45 Figure 4.18 identified increases in vehicle delays at the same jucntion hotposts as identified in Figure 4.17 suggesting signficant impacts in and around these junctions. Additionally a relaitvely signficant increase in vehicle delay is also forecast at Junction 14 of the M25 with the A3113 interchange.

4.46 Figure 4.19 presents the change in peak traffic flows across the network between Scenario A and Scenario B.

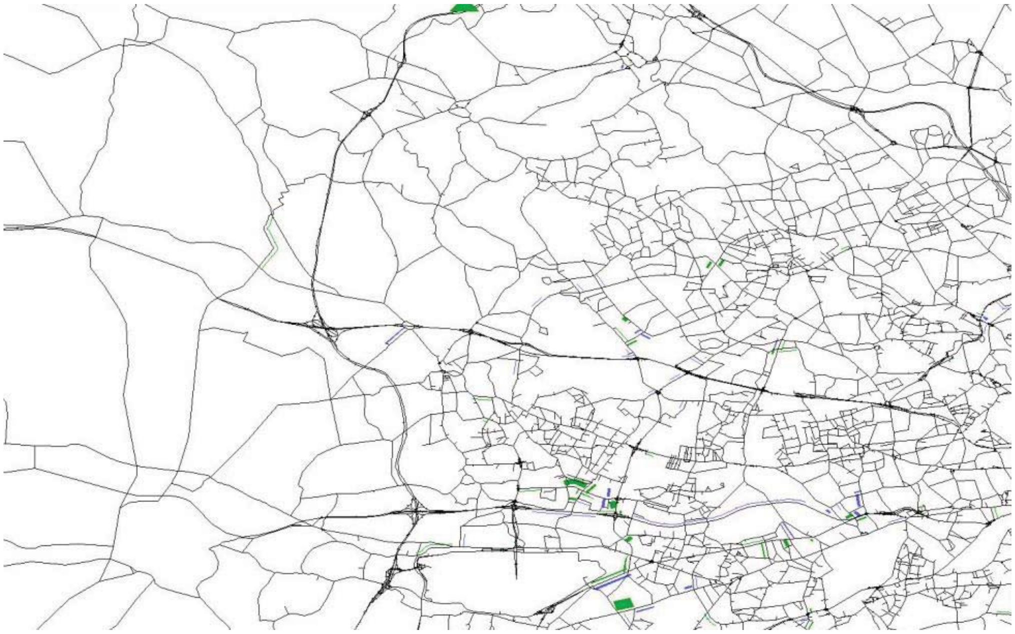
Figure 4-19: PM Peak Change in Flows (2031 Do Something – Do Minimum)



4.47 As shown in Figure 4.19, the uncommitted sites shown in Local Plan Part 2 result in increases across the local and strategic highway networks however none of these are deemed to be significant. In addition the net impact of certain development trips creates a small reduction in trips on some local routes; these reductions are limited on the SRN and TLRN.

4.48 Figure 4.20 presents the change in link delay between Scenario A and Scenario B.

Figure 4-20: PM Peak Change in Link Delay (2031 Do Something – Do Minimum)

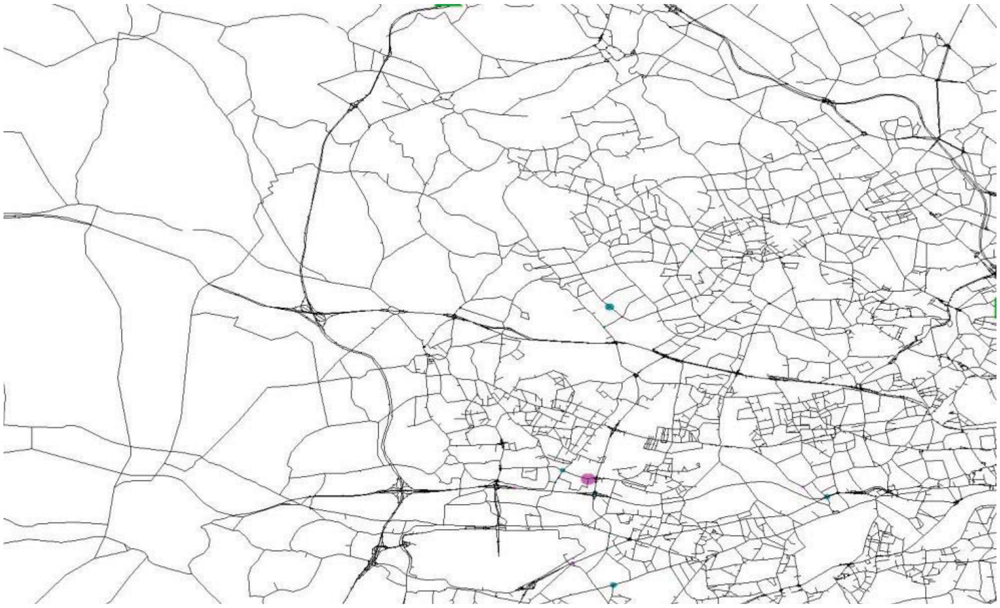


4.49 As shown in Figure 4.20, the change in link delay between the Scenario A and Scenario B is minimal with small increases on local borough roads around Hayes being the most significant but well within fluctuation levels.

4.50 Figure 4.21 presents the change in junction delay between Scenario A and Scenario B and Figure 4.22 presents the change in vehicular delay between Scenario A and Scenario B.

Figure 4-21: PM Peak Change in Junction Delay (2031 Do Something - Do Minimum)

Figure 4-22: PM Peak Change in Vehicle Hour Junction Delay (2031 Do Something - Do Minimum)



4.51 Both Figure 4.21 and 4.22 demonstrate that the difference in peak hour junction and vehicular delay between Scenario A and Scenario B is minimal suggesting the impact of the Local Plan Part 2 sites is negligible, particularly on the SRN and TLRN where no effect is forecast.

4.52 Figure 4.23, 4.24 and 4.25 consider the ratio of volume to capacity (expressed in terms of a percentage) for the Base, Scenario A and Scenario B models.

Figure 4-23: PM 2012 Peak Base Year Volume Over Capacity on links as %

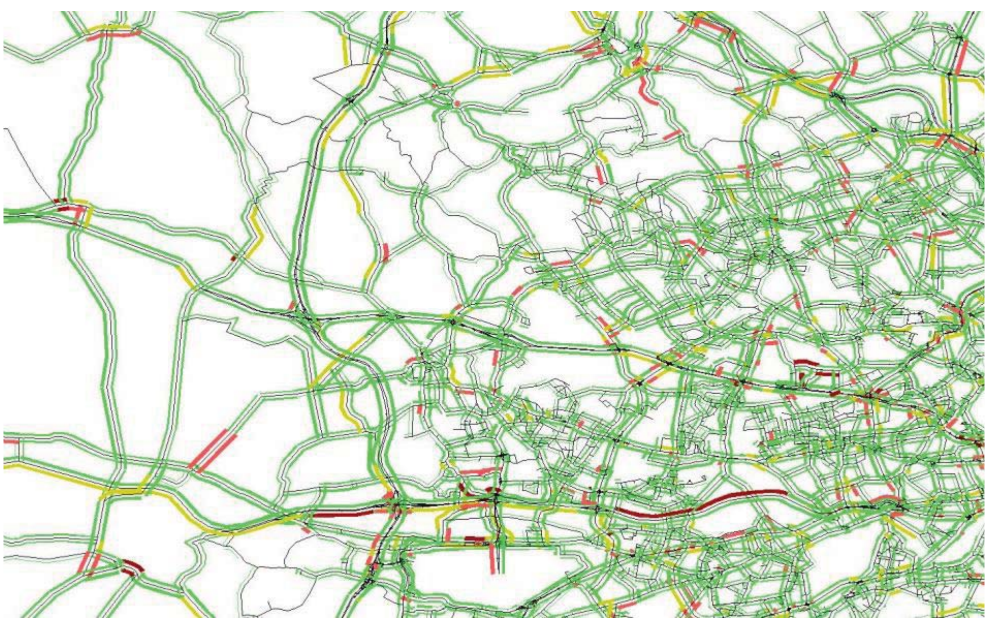


Figure 4-24: PM Peak 2031 Do Minimum Volume Over Capacity on links as %

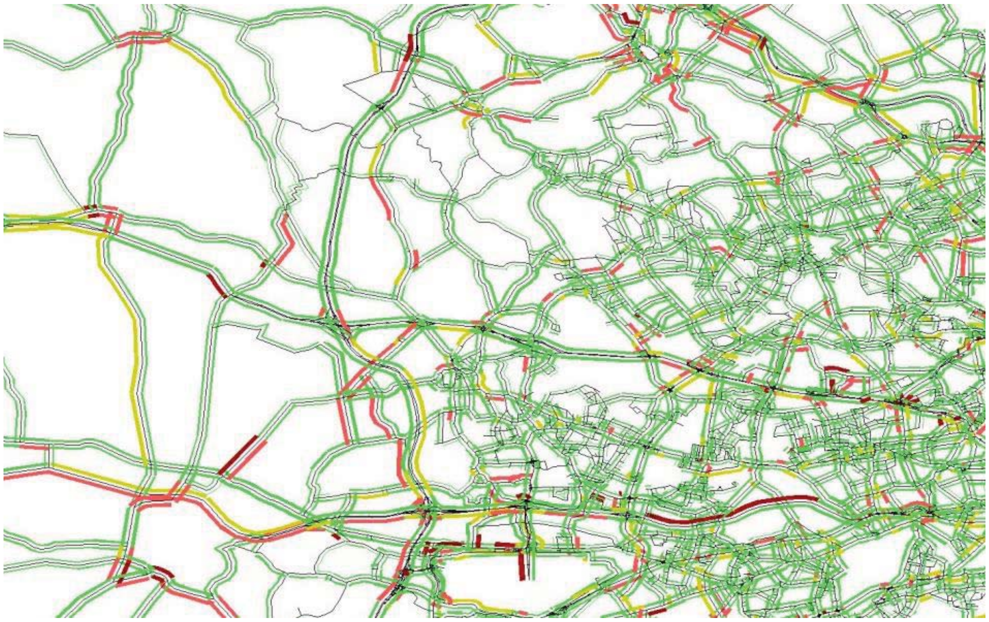
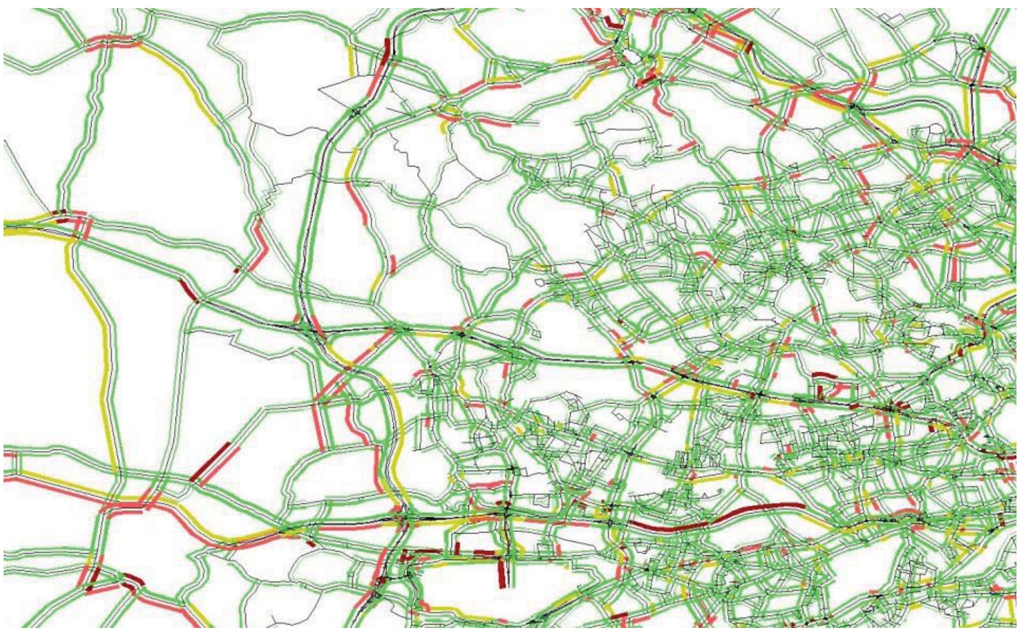


Figure 4-25: PM Peak 2031 Do Something Volume Over Capacity on links as %



4.53 Table 4.5 provides a summary of the links and junctions that are operating close to capacity through the scenarios.

Table 4.6: Summary of PM Peak Ratio of Volume to Capacity Analysis on SRN and TLRN

Link / Junction	Base	Scenario A	Scenario B
M25 (AC) Jct 17-16	<80%	<80%	<80%
M25 (AC) Jct 16-15	<80%	80% - 100%	80% - 100%

Link / Junction	Base	Scenario A	Scenario B
M25 (AC) Jct 15-14	<80%	<80%	<80%
M25 (C) Jct 16-17	<80%	<80%	<80%
M25 (C) Jct 15-16	80% - 100%	80% - 100%	80% - 100%
M25 (C) Jct 14-15	<80%	>100%	>100%
M4 (EB) Jct 4b – 4	<80%	<80%	<80%
M4 (EB) Ject 4-3	<80%	<80%	<80%
M4 (EB) Jct 3-2	>100%	>100%	>100%
M4 (WB) Jct 4-4b	80% - 100%	80% - 100%	80% - 100%
M4 (WB) Jct 3-4	80% - 100%	>100%	>100%
M4 (WB) Jct 2-3	<80%	<80%	<80%
M40 (EB) Jct 1a-1	<80%	<80%	<80%
M40 (EB) Jct 1 - Swakeleys	<80%	<80%	<80%
M40 (WB) Jct 1-1a	<80%	<80%	<80%
M40 (WB) Swakeley – Jct 1	<80%	80% - 100%	80% - 100%
A40 (EB) Swakeley – Polish War Memorial	<80%	<80%	<80%
A40 (WB) Swakeley's – Polish War Memorial	<80%	<80%	<80%
Tha Parkway (NB) A40 – Uxbridge Road	<80%	80% - 100%	80% - 100%
The Parkway (NB) M4 – Uxbridge Road	<80%	<80%	<80%
The Parkway (SB) Uxbridge Road – A40	<80%	80% - 100%	80% - 100%
The Parkway (SB) M4 – Uxbridge Road	<80%	<80%	<80%

4.54 As shown in Table 4.6 and in a similar trend to the AM Peak a number of links move from under 80% capacity in the Base Year to between 80% - 100% capacity in Scenario A. However, there is no significant difference between the volume of ration to capacity in Scenario A and those in Scenario B. This suggests that the largest impact during the PM peak on the SRN and TLRN is as a result of background growth and currently committed developments as opposed to the remaining sites allocated within Local Plan Part 2.

4.55 This conclusion is supported by the remaining figures which show significant change between the Base model and Scenario A but negligible change between Scenario A and Scenario B and similar trends in the AM peak.

PM Peak Optimisation

4.56 The results discussed above and particularly highlighted in Figure 4.17 and Figure 4.18 identify significant increases in delay at specific junctions. As such, we have reassessed the PM peak model with optimisation of signal timings through the network to explore whether any of these impacts can be reduced by increasing the efficiency of signals in accordance with the change in traffic flow forecast.

4.57 The optimisation exercise that has been undertaken considers:

- Signal timing optimised at Junction N Hyde Rd/Station Rd along A437
- Signal timing optimised at Junction and N Hyde Rd/Roseville Rd along A437
- Signal timing optimised at Newbury Rd/ Newport Rd South of A4 (Bath Rd)
- Capacity increased for link coming from the zone connector joining Victoria Rd north of A40. The increase in delay is due to the higher demand coming out of the Braintree Road development (site ID D019). This delay is only for the link leaving the development and we have assumed that the junction will be designed to accommodate the predicted traffic.

4.58 Figure 4.26 presents the peak change in junction delay while Figure 4-27 shows the peak change in vehicle hour delay between the Base and Scenario A; increase in delay is represented by green hotspots and reductions in delay are represented by pink hotspots with the greater the change reflected in greater volume of hotspot. The changes in junction delay and vehicle hour delay for Scenario B compared to A are also shown in Figure 4-28 and Figure 4-29.

4.59 As shown in the plots, the significant delay increases at junctions mentioned in chapter 4.43 have been mitigated through signal timing optimisation and capacity increase. There is still remains a significant increase in delay at the junction of A4 Bath Rd and the Heathrow Tunnel road in all future scenarios.

4.60 The same optimisation has also been done for Scenario B which improved the junction delays through the simulation network, minimising the impact of the additional development demand on the network.

Figure 4-26: PM Peak Optimisation – Change in Junction Delay (Scenario A – Base)

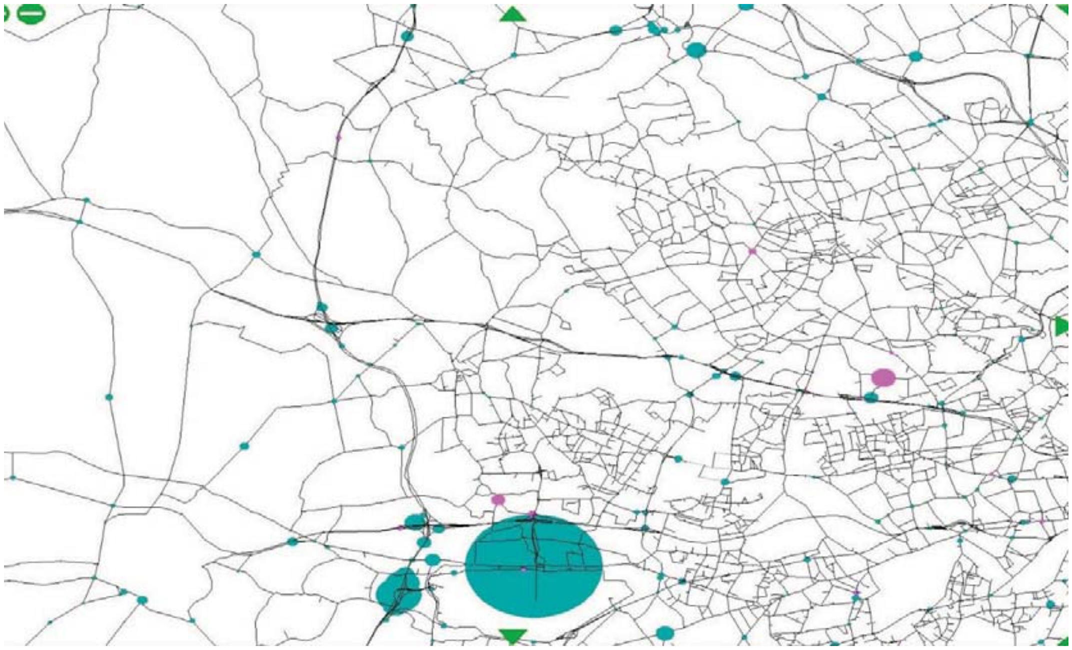


Figure 4-27: PM Peak Optimisation – Change in Vehicle Hour Delay (Scenario A – Base)

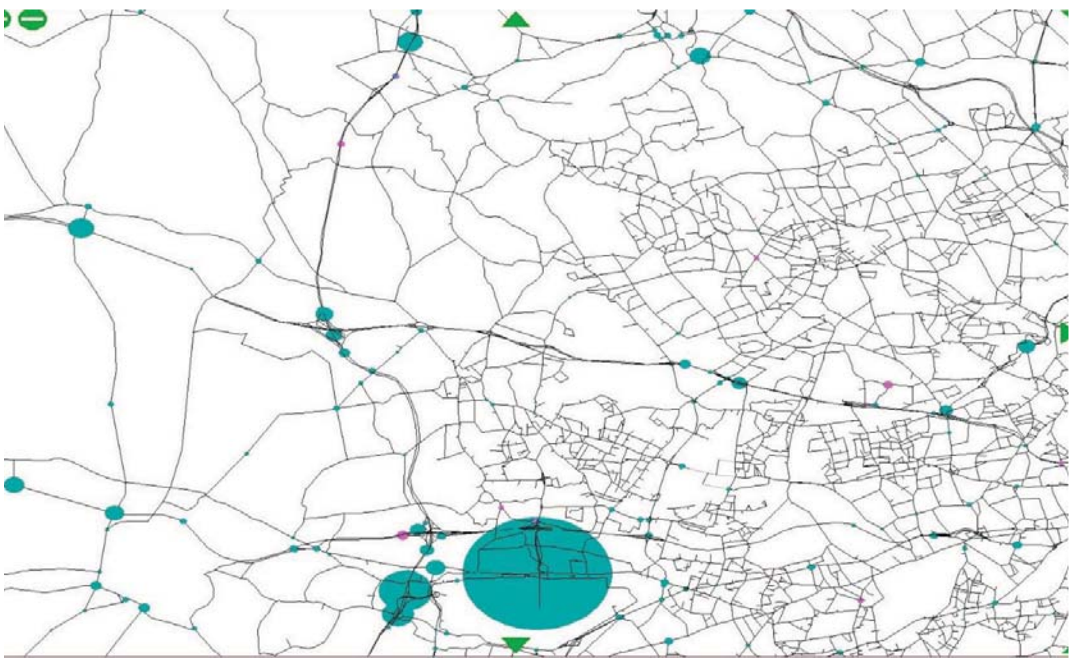


Figure 4-28: PM Peak Optimisation – Change in Junction Delay (Scenario B – Scenario A)

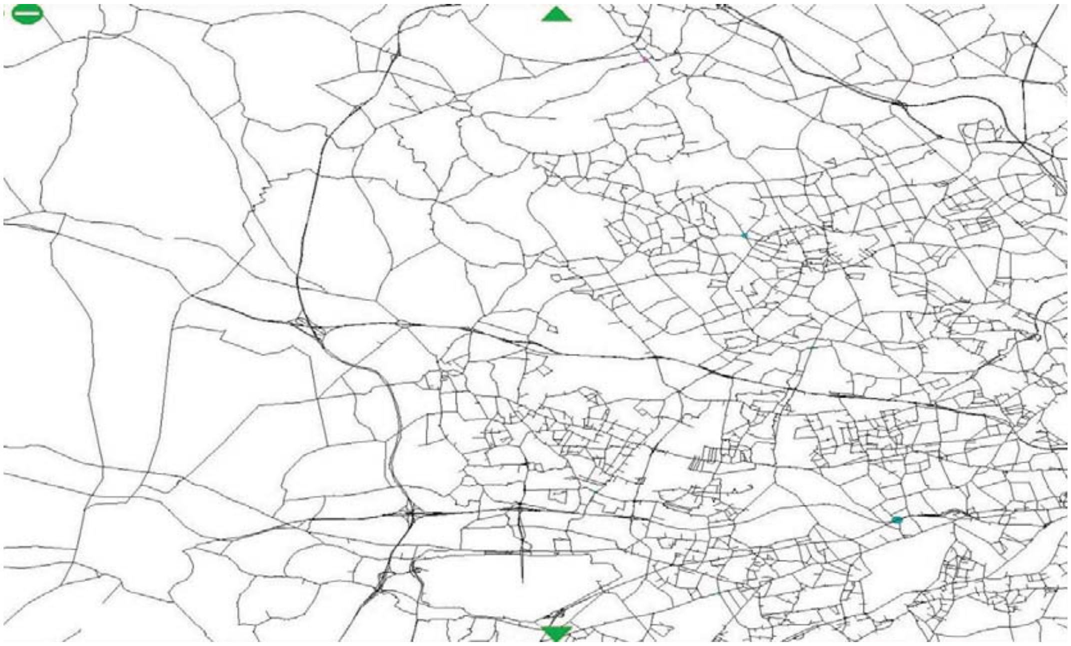
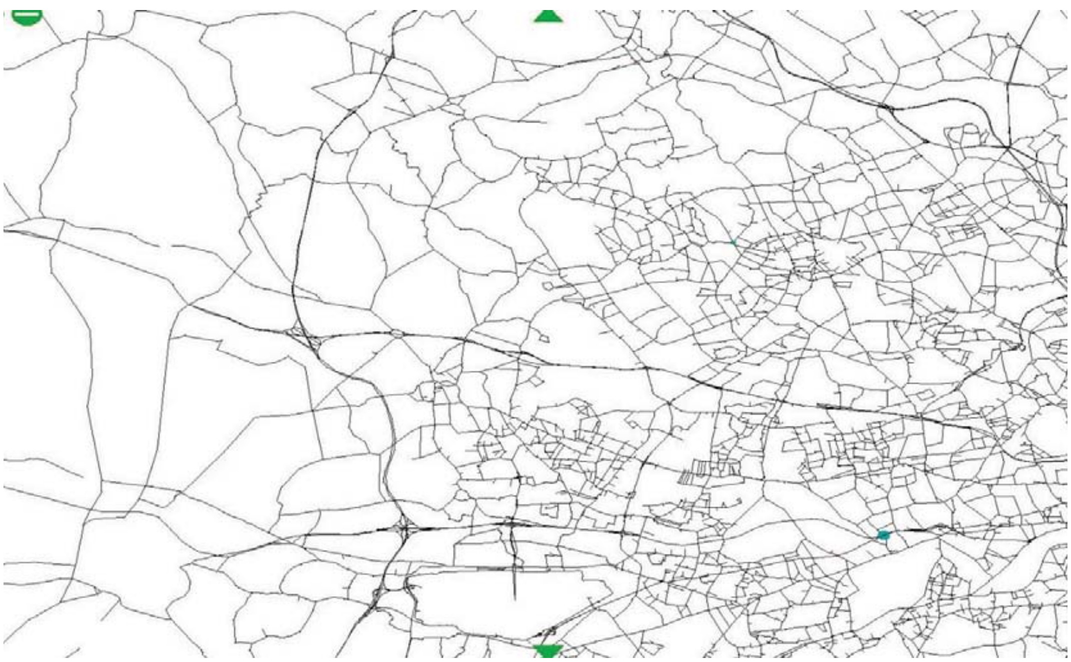


Figure 4-29: PM Peak Optimisation – Change in Vehicle Hour Delay (Scenario B – Scenario A)



4.61 As shown in Figure 4.26 and Figure 4.29 the optimisation of traffic in the PM peak has enabled improvements in both vehicle hour delay and junction delay between the Do Minimum and Base year. In addition, the optimisation process has reduced the differences in junction delay to a similar level than as seen in the AM peak, with only small differences in junction delays.

Detailed Junction Analysis

4.62 As discussed previously, the primary purpose of this study is to understand the impacts of the traffic impact of Local Plan Part 2 on the SRN and TLRN. Accordingly, the detailed outputs of the junction modelling for each of the identified junctions on the strategic road network has been undertaken and is provided in detail below.

4.63 Each junction on the SRN and TLRN has been assessed in terms of Ratio of Flow to Capacity (RFC), Delay and Speed to give a holistic view of the impact of each scenario at each junction.

- RFC is a measure of capacity, typically an RFC of 80% or lower indicates a junction is operating within its theoretical capacity, and RFC of between 80% and 100% indicates a junction is operating with close proximity of its theoretical capacity and an RFC of greater than 100% indicating a junction is operating above capacity with queuing and delays highly likely to occur.
- Delay is a measure of average vehicle delay experienced by each vehicle in the model and is expressed in terms of seconds.
- Speed is a measure of average vehicle speed through each arm of the junction, a higher speed indicates and better performing junction and a lower speed indicates lower performance.

M25 Links / Junctions

4.64 Table 4.7 presents the detailed results for Junction 14 of the M25.

Table 4.7: M25 Junction 14 – with the A113 at Heathrow Airport

Link	RFC (%)			Delay (secs)			Speed (kmph)		
	Base	Scenario A	Scenario B	Base	Scenario A	Scenario B	Base	Scenario A	Scenario B
AM Peak									
Southbound	**86%**	**92%**	**92%**	10.16	15.31	15.40	66.31	54.84	54.67
Westbound	21%	27%	27%	0.49	0.53	0.53	62.57	62.47	62.47
Northbound	**85%**	**87%**	**87%**	15.49	18.39	18.34	73.02	68.56	68.63
PM Peak									
Northbound	71%	73%	73%	3.51	4.07	4.09	90.92	88.13	88.04
Eastbound	51%	51%	51%	0.79	0.79	0.79	61.73	61.74	61.75
Southbound	62%	66%	66%	2.06	3.08	3.14	104.58	101.24	101.07
Westbound									

4.65 Table 4.7 shows that all links within Junction 14 operate within capacity during both peak hours in all scenarios. The AM is notably the more congested scenario with greater delays and slower speeds in the PM peak. It is notable that congestion, delay and speed all deteriorate between Base and Scenario A, however the impact of Scenario B is significantly less with minimal changes.

4.66 Table 4.8 presents the detailed results for Junction 15 of the M25.

Table 4.8: M25 Junction 15 – with the M4 at Iver

Link	RFC (%)			Delay (secs)			Speed (kmph)		
	Base	Scenario A	Scenario B	Base	Scenario A	Scenario B	Base	Scenario A	Scenario B
AM Peak									
Southbound	**95%**	**95%**	**95%**	111.33	112.08	112.08	66.65	66.47	66.47
Westbound	**84%**	**89%**	**89%**	4.18	6.84	7.22	83.34	76.86	76.03
Northbound	**82%**	**86%**	**86%**	11.10	14.91	14.96	75.79	68.11	68.01
Eastbound	70%	77%	76%	1.14	1.68	1.62	85.78	77.15	78.03
PM Peak									
Southbound	**82%**	**90%**	**91%**	42.40	83.32	84.64	88.95	74.21	73.82
Westbound	**96%**	**96%**	**96%**	17.22	17.07	17.10	59.03	59.22	59.18
Northbound	**81%**	60%	61%	169.07	259.12	256.03	13.33	9.07	9.17
Eastbound	69%	**80%**	**80%**	1.07	2.08	2.12	86.99	71.95	71.44

4.67 Table 4.8 shows that Junction 15 of the M25 operates within capacity within all scenarios. Similarly the impact of Scenario B on all three metrics is minimal.

4.68 Table 4.9 presents the detailed results for Junction 16 of the M25.

Table 4.9: M25 Junction 16 – with the M40 at Iver Heath

Link	RFC (%)			Delay (secs)			Speed (kmph)		
	Base	Scenario A	Scenario B	Base	Scenario A	Scenario B	Base	Scenario A	Scenario B
AM Peak									
Southbound	82%	**99%**	**99%**	364.42	768.46	775.76	26.65	13.71	13.60
Westbound	65%	69%	70%	1.93	2.19	2.25	87.69	85.14	84.53
Northbound	**83%**	**89%**	**89%**	24.70	29.36	29.37	81.45	60.55	60.55
Eastbound	66%	74%	74%	6.11	21.81	21.66	103.89	88.21	88.34
PM Peak									
Southbound	80%	87%	87%	30.75	91.62	96.34	88.74	50.74	49.80
Westbound	64%	79%	79%	1.83	3.19	3.20	88.73	76.52	76.42
Northbound	**89%**	**89%**	**89%**	37.53	28.40	28.40	71.33	61.03	61.03
Eastbound	54%	62%	62%	2.03	14.56	14.63	109.17	95.15	95.08

4.69 Table 4.9 suggests that Junction 16 of the M25 also operates within capacity, however in the AM peak the northbound and southbound carriageways operate at very close to capacity at 99% which is reflected in the high vehicle delay and low vehicle speed. However, the impact of Scenario B on all three metrics is equally minimal with Scenario A contributing towards the overwhelming majority of capacity and delay issues experienced.

4.70 Table 4.10 presents the detailed results for Junction 17 of the M25.

Table 4.10: M25 Junction 17 – with Denham Way at Rickmansworth

Link	RFC (%)			Delay (secs)			Speed (kmph)		
	Base	Scenario A	Scenario B	Base	Scenario A	Scenario B	Base	Scenario A	Scenario B
AM Peak									
Southbound	**81%**	74%	73%	3.09	1.89	1.88	71.95	64.13	64.23
Westbound	55%	64%	65%	4.85	5.31	5.32	28.20	26.81	26.78
Northbound	68%	74%	74%	5.72	12.11	12.08	101.71	69.38	69.40
Eastbound	25%	29%	30%	5.51	5.76	5.80	30.28	29.61	29.50
PM Peak									
Southbound	**83%**	71%	71%	3.36	1.70	1.71	69.75	65.47	65.42
Westbound	52%	64%	64%	4.73	5.29	5.30	28.63	26.85	26.84
Northbound	**81%**	**82%**	82%	17.47	18.16	18.10	85.55	65.07	65.10
Eastbound	3%	3%	3%	5.05	5.38	5.37	31.62	30.65	30.67

4.71 Table 4.10 indicates that Junction 17 of the M25 operates reasonable well within capacity in all three scenarios with minimal vehicle delay and moderate vehicle speeds.

M40 Links / Junctions

4.72 Table 4.11 presents the detailed results for Junction 1 of the M40

Table 4.11: M40 Junction 1 – with the A40 at Denham

Link	RFC (%)			Delay (secs)			Speed (kmph)		
	Base	Scenario A	Scenario B	Base	Scenario A	Scenario B	Base	Scenario A	Scenario B
AM Peak									
Southbound	25%	28%	28%	0.66	0.69	0.69	37.73	37.71	37.71
Westbound	75%	**88%**	**89%**	13.34	20.03	20.60	51.62	43.12	42.52
Northbound	52%	54%	55%	7.37	6.80	6.82	48.45	48.90	48.88
Eastbound	77%	**91%**	**90%**	51.86	102.69	105.24	41.28	25.45	24.97
PM Peak									
Southbound	21%	25%	25%	0.65	0.69	0.69	37.73	37.71	37.71
Westbound	**83%**	**95%**	**95%**	17.06	25.88	26.49	46.53	37.70	37.21
Northbound	**85%**	**102%**	**101%**	8.78	67.39	47.26	47.37	24.60	29.46
Eastbound	63%	74%	74%	4.07	6.66	8.12	99.45	92.39	88.83

4.73 Table 4.11 indicates that in the AM peak Junction 1 of the M40 operates relatively close to capacity on the westbound and eastbound carriageways. In the PM peak the northbound carriageway is shown to be operating above capacity with the introduction of Scenario A indicating that this element of the junction will operate above capacity in future years. The impact of Scenario B is not significant within the context of Scenario A impact suggested limited impact of the allocated sites.

M4 Links / Junctions

4.74 Table 4.12 presents the detailed results for the M4 Junction 3.

Table 4.12: M4 Junction 3 with The Parkway

Link	RFC (%)			Delay (secs)			Speed (kmph)		
	Base	Scenario A	Scenario B	Base	Scenario A	Scenario B	Base	Scenario A	Scenario B
AM Peak									
Southbound	55%	54%	55%	0.67	0.66	0.66	25.67	25.73	25.71
Westbound	62%	65%	65%	0.83	0.91	0.91	76.34	73.99	74.05
Northbound	57%	61%	61%	0.70	0.77	0.76	28.63	28.33	28.37
Eastbound	86%	89%	90%	30.08	40.71	42.54	75.93	68.17	67.00
PM Peak									
Southbound	53%	55%	55%	0.64	0.66	0.66	25.90	25.71	25.71
Westbound	66%	67%	68%	0.93	0.97	0.99	73.31	72.33	71.88
Northbound	62%	64%	64%	0.79	0.84	0.82	28.26	28.06	28.12
Eastbound	83%	83%	83%	21.97	22.01	21.64	83.15	83.11	83.48

4.75 Table 4.12 shows that Junction 3 of the M4 operates comfortably within capacity in all scenarios. Whilst vehicle delay and speed increases between the Base and Scenario A there is negligible difference between Scenario A and Scenario B and the junction is generally shown to operate well.

4.76 Table 4.13 presents the detailed results for the M4 at Junction 4.

Table 4.13: M4 Junction 4 with M4 Expressway

Link	RFC (%)			Delay (secs)			Speed (kmph)		
	Base	Scenario A	Scenario B	Base	Scenario A	Scenario B	Base	Scenario A	Scenario B
AM Peak									
Southbound	47%	49%	50%	1.61	1.64	1.71	62.46	62.17	61.57
Westbound	47%	43%	42%	2.16	1.93	1.87	72.23	72.98	73.19
Northbound	59%	63%	63%	91.19	142.98	141.33	3.83	2.49	2.52
Eastbound	33%	33%	33%	2.03	3.43	3.52	53.33	39.11	38.48
PM Peak									
Southbound	41%	40%	40%	1.79	1.75	1.74	60.91	61.26	61.31

Westbound	24%	27%	27%	0.93	1.05	1.07	76.46	76.04	75.94
Northbound	75%	81%	81%	214.09	245.83	238.64	1.68	1.47	1.51
Eastbound	25%	26%	27%	1.39	1.49	1.66	63.95	62.07	59.07

4.77 Table 4.13 similarly demonstrates that Junction 4 of the M4 operates comfortably within capacity in all scenarios.

4.78 Table 4.14 presents the detailed results for the M4 at Junction 4B.

Table 4.14: M4 – Junction 4B

Link	RFC (%)			Delay (secs)			Speed (kmph)		
	Base	Scenario A	Scenario B	Base	Scenario A	Scenario B	Base	Scenario A	Scenario B
AM Peak									
Southbound	**95%**	**95%**	**95%**	111.33	112.08	112.08	66.65	66.47	66.47
Westbound	**84%**	**89%**	**89%**	4.18	6.84	7.22	83.34	76.86	76.03
Northbound	**82%**	**86%**	**86%**	11.10	14.91	14.96	75.79	68.11	68.01
Eastbound	70%	77%	76%	1.14	1.68	1.62	85.78	77.15	78.03
PM Peak									
Southbound	**82%**	**90%**	**91%**	42.40	83.32	84.64	88.95	74.21	73.82
Westbound	**96%**	**96%**	**96%**	17.22	17.07	17.10	59.03	59.22	59.18
Northbound	**81%**	60%	61%	169.07	259.12	256.03	13.33	9.07	9.17
Eastbound	69%	**80%**	**80%**	1.07	2.08	2.12	86.99	71.95	71.44

4.79 Table 4.14 shows that Junction 4B of the M4 operates very close to capacity during the AM and PM peaks. However, it is noted that during the AM peak capacity, delay and speed remains largely unchanged through all three scenarios indicating limited impact of the Local Plan Part 2 sites. This is similar in the PM peak with the westbound carriageway which is closest to capacity but largely unaffected through the scenarios.

A3113

4.80 Table 4.15 presents the detailed results for the A3113 junction.

Table 4.15: A3113

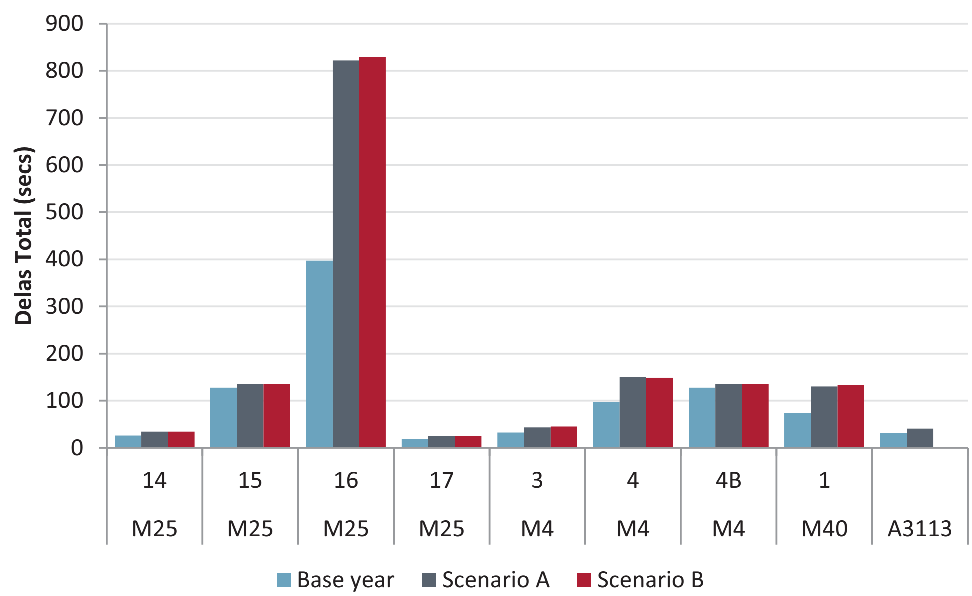
Link	RFC (%)			Delay (secs)			Speed (kmph)		
	Base	Scenario A	Scenario B	Base	Scenario A	Scenario B	Base	Scenario A	Scenario B
AM Peak									
Westbound	24%	26%	27%	0.40	0.41	0.41	55.61	55.37	55.32
Northbound	48%	49%	49%	1.21	1.27	1.27	94.46	94.07	94.05
Eastbound	**87%**	**94%**	**94%**	30.09	39.19	39.69	7.94	6.25	6.17
PM Peak									

Westbound	32%	33%	33%	0.44	0.45	0.45	54.59	54.37	54.38
Northbound	15%	40%	40%	0.47	0.91	0.91	100.07	96.66	96.65
Eastbound	**90%**	**87%**	**88%**	32.53	35.37	35.32	7.40	6.86	6.87

4.81 Table 4.15 demonstrates that the A3113 eastbound junction operates close to capacity in both the AM and PM peak. In a similar pattern to all other scenarios, the impact of Scenario A is far greater than the impact of Scenario A and B.

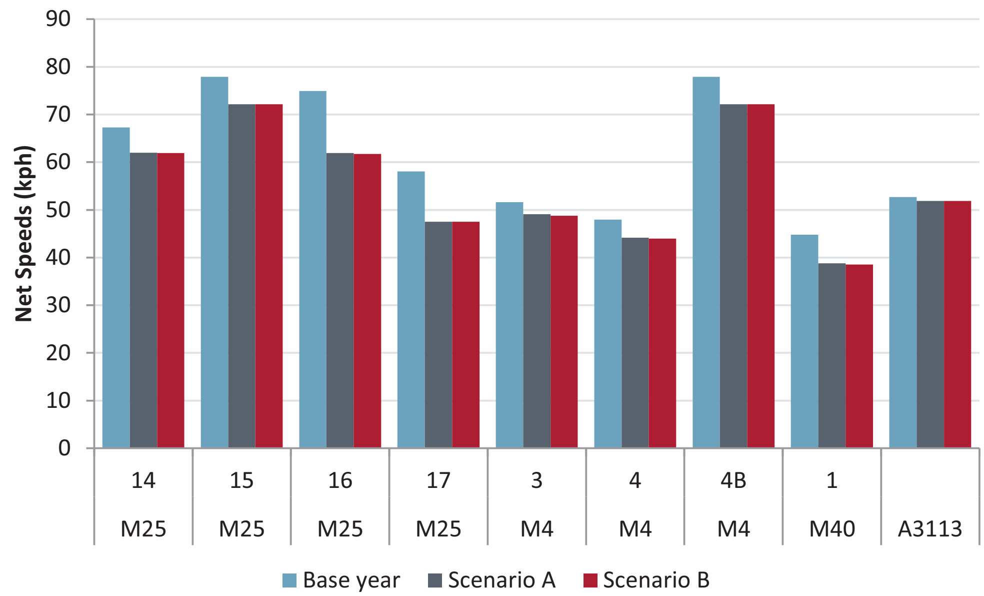
4.82 Figure 4.28 provides a summary of the results for each junction in terms of delay for the AM peak.

Figure 4-30: Key Junction Summary – Delay (AM Peak)



4.83 Figure 4.29 provides a cumulative summary of the results for each junction in terms of net speed for the AM peak.

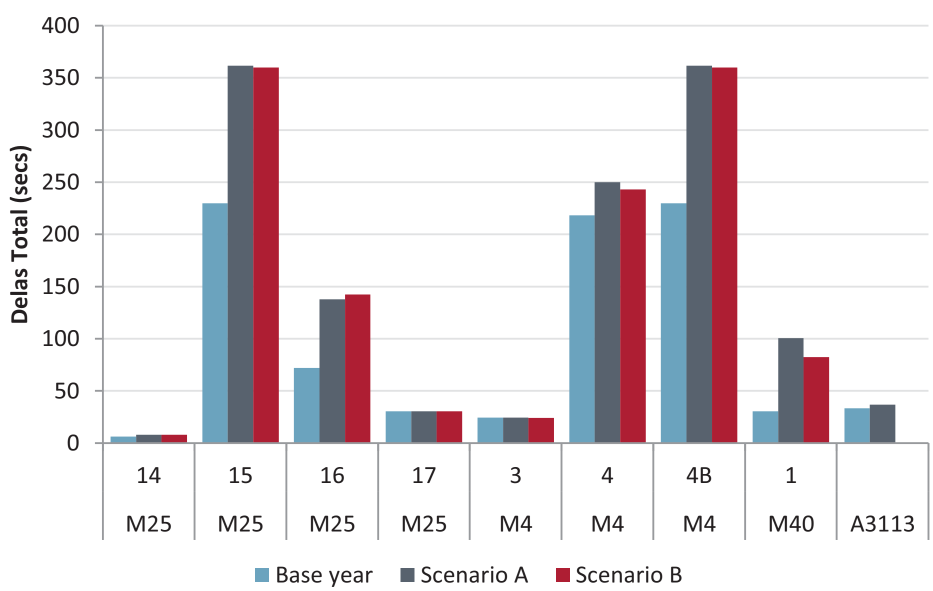
Figure 4-31: Key Junction Summary – Speed (AM Peak)



4.84 As shown in both Figure 4.28 and 4.29, during the AM peak the impact of Scenario A is far greater than the impact of Scenario B. Across all junctions Scenario B contributes to very little additional delay or speed decrease indicating that the impact of the allocated sites within Local Plan Part 2 is significantly less than that of background traffic growth and committed sites.

4.85 Figure 4.30 provides a summary of the results for each junction in terms of delay for the PM peak.

Figure 4-32: Key Junction Summary – Delay (PM Peak)



4.86 Figure 4.31 provides a summary of the results for each junction in terms of net speed for the PM peak.

Figure 4-33: Key Junction Summary – Speed (PM Peak)

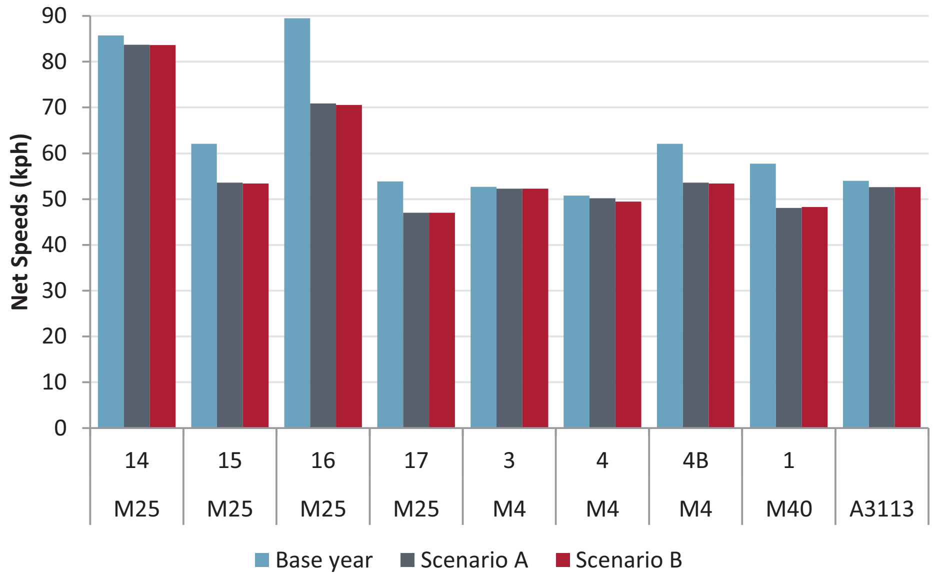


Figure 4.30 and 4.31 similar show that the impact of Scenario B is negligible in the context of the impact of Scenario A.

Modelling Summary

4.87 As detailed above, at all of the junction's subject to detailed assessment the impact of the sites allocated in Local Plan Part 2 (Scenario B) is not significant when considered in the context of the committed development sites and general background traffic growth (Scenario A).

4.88 The modelling has highlighted a number of junctions where traffic congestion, delay and reduced vehicle speeds is likely to impacted by background traffic growth, committed development and the remaining allocated sites within Local Plan Part 2 that may require mitigation measures in the future.

4.89 For the purposes of identifying junctions where mitigation measures may in the future be required, junctions where the capacity is forecast to be greater than 90% have been summarised below:

- M25 Junction 14 – southbound;
- M25 Junction 15 / M4 Junction 4B;
- M25 Junction 16; and
- M40 Junction 1 – westbound, eastbound and northbound.

4.90 The above junctions are shown in the model to be operating at above or beyond theoretical capacity with ensuing delays and reduced vehicle speeds. Whilst these are not considered to be a direct result of the sites allocated within Local Plan Part 2, a series of potential mitigation measures have been identified for each as discussed in further detail below.

Mitigation Measures

4.91 The scale of the impact as a result of the additional trips generated by the allocated sites within the Local Plan are not considered sufficient enough to require specific mitigation measures on behalf of LBH. Whilst additional traffic is generated through the majority of strategic junctions, the volume of this traffic is not considered to be of any significance so as to result in any meaningful deterioration of junction performance alone.

4.92 It is recognised that mitigation measures are likely to be required in the future to account for background traffic growth elsewhere across the network. Whilst LBH are a small contributor to this wider growth they would be willing to engage with HE to understand how any wider package of mitigation measures could be proactively and strategically delivered.

5 Summary and Conclusions

Overview

5.1 Steer Davies Gleave (SDG) have been commissioned by the London Borough of Hillingdon (LBH) to undertake an assessment of the transport related impacts of the sites allocated within the Local Plan Part 2 document which is currently being consulted on.

5.2 This report has summarised the results of the highway and public transport modelling assessments of the sites identified within Local Plan Part 2.

5.3 A robust trip generation exercise has been undertaken to forecast the number of trips by car and public transport from each of the sites identified within the Local Plan. This has primarily been undertaken using data for planning applications within approved Transport Assessments and Travel Plans which have been subject to scrutiny through the planning process. Where sites without planning permission have been identified as not being sufficient for assessment under the trip generation data within an associated Transport Assessment or Travel Plan adjustments to mode share have been made according to variables including future public transport accessibility and availability of car parking.

Highway Network

Assessment

5.4 An assessment of the highway network within and surrounding the borough has been undertaken using the WeLHAM Model which has been obtained from TfL. An assessment of the WeLHAM Model in both the AM and PM peaks have been undertaken considering background growth and developments within the Local Plan that have planning permission (Scenario A) and a further scenario incorporating the remaining development sites identified within the Local Plan without planning permission (Scenario B).

5.5 The modelling concentrates on assessing the impact of additional vehicle trips on the Strategic Road Network (SRN) maintained and operated by Highways England (HE) and the Transport for London Road Network (TLRN) maintained and operated by TfL.

5.6 The results of the modelling demonstrate that small specific areas of the network, particularly within the AM peak are currently operating close to capacity. The modelling for Scenario A suggests that congestion and delay will increase further with the introduction of additional background trips and committed developments. When considered in the context of the trips generated in Scenario A the impact of the additional trips generated by uncommitted allocated sites is not significant with no significant change in delay or capacity directly as a result of these trips.

5.7 The results of the modelling exercise demonstrate that the impact of trips associated with the development sites identified in Local Plan Part 2 is considered to be negligible. Of greater significance is the impact of traffic associated with background growth and committed sites.

A Highways England Representation

steer davies gleave

Meeting Minutes

Meeting date	9 November 2016
Time	14:30
Issue date	9 November 2016
Venue	Steer Davies Gleave
Attendees	Heather Archer (HE), Janice Burgess (HE), Nigel Walkden (HE), Kayley Smith (Atkins), James Gleave (LBH), Tom Campbell (LBH), Julie Bowerman (SDG), Matt Harris (SDG), Tom Caulfield (SDG), Ali Goddard (SDG)
Circulation	Meeting attendees
Project	Hillingdon Local Plan Part 2 - Transport Assessment
Project No.	22990101

Meeting with HE - Modelling Methodology

1. MH provided introduction to the project and its scope – LBH hoping to submit their Local Plan Part 2 for Examination prior to Christmas 2016.

   This assessment is being undertaken following representation from HE in October 2015 in response to the draft plan and is being undertaken in advance of final submission for Examination. -

2. JG outlined how the majority of development coming forward is in the south of Borough where Crossrail is being constructed. The plan uses growth projections based on GLA's SHLAA sites. Remaining sites are quite dispersed, the other large site being St Andrew's Park which assumes 1300 residential units near Uxbridge. -

3. HE outlined primary concerns in relation to their October 2015 representation:

   - Impact of congestion on the junctions of the following:
     - M25;
     - M4;
     - M40. -

4. TC outlined how SDG proposed to undertake the assessment using the West London Highway Assignment Model (WeLHAM) to provide the flows under each scenario.

   SDG to send HE the TfL validation report for the model once obtained from TfL. SDG

5. MH outlined proposed transport assessment methodology, consisting of:

   1. **Site Selection**: assessment will take into account all sites allocated in the Local Plan Part 2.
   2. **Model Selection**: SDG will use the WeLHAM model obtained from TfL which contains all of the key elements of strategic highway within the Borough.
   3. **Assignment and Distribution**: Trips will be assigned and distributed in the same -

steer davies gleave

manner as existing sites within the WeLHAM model.

SDG intend to model two future scenarios:

- Scenario A: 2026 with developments granted planning permission
- Scenario B: 2026 with developments granted planning permission + remainder of the allocated sites.

6. MH outlined methodology for obtaining vehicle trip rates. Where planning permission is granted the trips provided within the accompanying Transport Assessment will be used. Where there is no Transport Assessment trip rates will be obtained from a similar located site that contains a TA – the mode share will then be adjusted to take into account site specific factors, primarily car parking ratio and PTAL. PTAL is particularly important given the introduction of Crossrail in 2019. -

7. HE noted that the future models should reflect the HE network envisaged in 2026. HE identified the following potential changes:

- M4 Smart Motorway scheme – section between J3-5 will commence in next 12-18 months
- Road Investment Strategy (Dec 2014) runs until 2020 – J10-16 Smart Motorway Scheme has been delayed but needs to be considered for SDG's model. No definitive HE preferred option to share with SDG.

HE agreed to provide latest assumptions to SDG as soon as possible (within 1 week). As there is currently no designed M25 scheme SDG will manually increase capacity on affected links to reflect the likely 2026 capacity – this would be agreed with HE beforehand. HE

8. HE (NW) agreed that SDG's approach to the transport assessment is reasonable / satisfactory. -

9. HE (NW) noted that if models show specific junctions are over capacity, these should be examined at a local level using software for detailed capacity assessments and any mitigation measures should be designed to DMRB.

JB noted that the scope of the study at this moment in time is to identify any capacity issues and provide an overview of mitigation measures. Unlikely that any detailed design would be undertaken at this stage.

Agreed that this should be discussed further following analysis of results. -

10. HE (NW) noted the impact of the recent Heathrow airport expansion decision.

JG explained that all issues related to Heathrow will be considered in the next round of the Local Plan and would not be included in this assessment.

MH agreed that the report will set out the Councils position on Heathrow and provide commentary as to why, from a planning and policy perspective, it was not deemed necessary to take into account in this assessment. SDG

11. Next steps – HE & SDG will meet once the models have been run based on the above methodology to discuss initial results and potential mitigation measures if necessary. SDG

B Trip Generation Forecasts

steer davies gleave

Steer Davies Gleave
Hillingdon Local Plan
Development Sites Database

Site Name	Unique code (map reference)	Location	Grid Reference		Housing Zone?	Development status	LPA Application Ref	Existing PTAL	Proposed PTAL	AM - In				AM - Out				PM -In				PM-Out			
			Eastings	Northings						Car Driver	Motorcycle	Car + Cycle	Taxi	Car Driver	Motorcycle	Car + Cycle	Taxi	Car Driver	Motorcycle	Car + Cycle	Taxi	Car Driver	Motorcycle	Car + Cycle	Taxi
Enterprise House, Blyth Road, Hayes	D001	UB3 1DD	509355	179622	Y	Planning permission	11623/APP/2013/3592	3	4	44	0.4	44.4	0	25	10	35	25	18	7.2	25.2	18	51	20.4	71.4	51
The Old Vinyl Factory and Gatefold Building, Hayes	D002	UB3 4HP	509339	179393	Y	Planning permission	59872/APP/2012/1838	3	4	663	10	673	5	164	65.6	229.6	164	268	107.2	375.2	268	831	332.4	1163.4	831
Eastern End of Blyth Road, Hayes	D003	UB3 4DF	509783	179645	Y	Planning permission	1425/APP/2011/3040	4	5	4	0.4	4.4	0	15	6	21	15	12	4.8	16.8	12	10	4	14	10
Fairview Business Centre	D004	UB3 1RZ	509287	179660	Y	Site allocation	N/A	4	4	16	0.4	16.4	0	59	23.6	82.6	59	41	16.4	57.4	41	23	9.2	32.2	23
Land to the South of Railway, including Nestle Site	D005	UB3 4QF	510066	179033	Y	Site allocation	N/A	1b	2	88	0.8	88.8	1	317	126.8	443.8	317	219	87.6	306.6	219	126	50.4	176.4	126
Golden Cross Public House	D006	UB3 1AQ	509540	180101	Y	Planning permission	4607/APP/2013/3144		4	5	0	5	0	6	2.4	8.4	6	8	3.2	11.2	8	6	2.4	8.4	6
Union House, Hayes	D007	UB3 1AZ	509635	179568	Y	Planning permission	35250/APP/2014/4243	5	5	2	0	2	0	8	3.2	11.2	8	5	2	7	5	3	1.2	4.2	3
Olympic House, 1a Grove Lane	D008	UB8 3RG	506694	182155	N	Planning permission	18596/APP/2011/2200	3	2	1	0	1	0	2	0.8	2.8	2	1	0.4	1.4	1	1	0.4	1.4	1
Audit and Bellway House, Eastcote	D009	HA4 9LT	511147	187541	N	Planning permission	Planning permission 19365/APP/2014/2727; 18454/APP/2013/2449	3	4	2	0	2	0	6	2.4	8.4	6	4	1.6	5.6	4	2	0.8	2.8	2
269-285 Field End Road, Eastcote	D010	HA4 9LS	511238	187484	N	Site allocation	N/A	3	3	0	0	0	0	1	0.4	1.4	1	1	0.4	1.4	1	1	0.4	1.4	1
Charles Wilson Engineers, Uxbridge Road	D011	UB4 8JQ	508588	181944	N	Site allocation	N/A	2	2	2	0	2	0	9	3.6	12.6	9	6	2.4	8.4	6	4	1.6	5.6	4
Former Allotments and Melrose Close Car Park, Burns Close	D012	UB4 0QT	510314	181923	N	Permission expired	Unable to find	1	1	7	0	7	0	16	6.4	22.4	16	15	6	21	15	8	3.2	11.2	8
Royal Quay, Summerhouse Lane	D013	UB9 6JA	504110	191316	N	Planning permission	43159/APP/2015/883; 49004/APP/2013/3740	1a	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Master Brewer and Hillingdon Circus	D014	UB10 9QE	507779	184735	N	Site allocation	Previous applications been withdrawn / refused	2	2	25	0	25	0	90	36	126	90	63	25.2	88.2	63	36	14.4	50.4	36
Royal Mail Sorting Office, Park Way, Ruislip Manor	D015	HA4 8NU	510237	187393	N	Site allocation	n/a	3	3	0	0	0	0	1	0.4	1.4	1	1	0.4	1.4	1	1	0.4	1.4	1
Northwood Station, Green Lane	D016	HA6 2XL	509236	191441	N	Site allocation	n/a	3	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42-46 Ducks Hill Road	D017	HA6 2SB	508124	191391	N	Planning permission	49987/APP/2013/1451	1b	1b	1	0	1	0	1	0.4	1.4	1	1	0.4	1.4	1	1	0.4	1.4	1
West End Road, South Ruislip	D018	HA4 6RE	510722	185095	N	Site allocation	n/a	2	3	1	0	1	0	4	1.6	5.6	4	3	1.2	4.2	3	3	1.2	4.2	3
Braintree Road, South Ruislip	D019	HA4 0EX	511114	185667	N	Planning permission	66819/APP/2014/1600	2	3	356	0.4	356.4	0	215	86	301	215	568	227.2	795.2	568	555	222	777	555
Bourne Court, Ruislip	D020	HA4 6SW	510978	185307	N	Planning permission	11891/APP/2014/91	3	3	3	0	3	0	10	4	14	10	7	2.8	9.8	7	4	1.6	5.6	4
Eagle House, The Runway, Ruislip	D021	HA4 6SE	510968	185424	N	Planning permission	2342/APP/2015/624	1	3	1	0	1	0	4	1.6	5.6	4	3	1.2	4.2	3	3	1.2	4.2	3
Chailey Industrial Estate, Pump Lane, Hayes	D022	UB3 3NB	510210	179668	Y	Site allocation			3	3	0	3	0	19	7.6	26.6	19	17	6.8	23.8	17	9	3.6	12.6	9
Silverdale Road/Western View, Hayes	D023	UB3 3BX	509861	179599	Y	Site Allocation	n/a	3	5	6	0	6	0	36	14.4	50.4	36	33	13.2	46.2	33	17	6.8	23.8	17
Benlow Works, Silverdale Road	D024	UB3 3BX	509861	179599	Y	Site Allocation	n/a	3	5	1	0	1	0	4	1.6	5.6	4	4	1.6	5.6	4	2	0.8	2.8	2
297-299 Long Lane, Hillingdon	D025	UB10 9JY	507608	184693	N	Site Allocation	n/a	2	3	2	0	2	0	5	2	7	5	4	1.6	5.6	4	2	0.8	2.8	2
148-154 High Street / 25-30 Bakers Road (WH Smith), Uxbridge	DA026	UB8 1JY	505528	184193	N	Site Allocation	n/a	6A	6a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
St Andrew's Park - Annington Homes Site	DA027	UB10 0SA	506131	184034	N	Site Allocation	n/a	2		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
St Andrew's Park, Uxbridge	DA028	UB10 0XF	506637	183584	N	Planning permission	585/APP/2009/2752			612	0.8	612.8	9	0	0	0	0	426	170.4	596.4	426	0	0	0	0
Cape Boards Site, Iver Lane, Cowley	DA029	UB8 2JG	505165	182453	N	Site allocation	n/a	1a	1b	45	0.4	45.4	0	123	49.2	172.2	123	62	24.8	86.8	62	43	17.2	60.2	43
Grand Union Park, Packet Boat Lane	DA030	UB8 2GH	505384	181292	N	Site allocation	n/a	1a	1b	27	0.4	27.4	0	74	29.6	103.6	74	37	14.8	51.8	37	26	10.4	36.4	26
Fassnidge Memorial Hall, Uxbridge	DA031	UB8 1JP	505426	184248	N	Planning permission	12156/APP/2014/3099	5	6a	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Former NATS Site, Porters Way, West Drayton	DA032	UB7 9AD	506992	179480	N	Planning permission	5107/APP/2009/2348	1a	1b	132	0	132	0	197	78.8	275.8	197	169	67.6	236.6	169	124	49.6	173.6	124
Kitchener House, Yiewsley	DA033	UB7 9BZ	506200	180016	N	Planning permission	18218/APP/2013/2183	2	3	1	0	1	0	2	0.8	2.8	2	1	0.4	1.4	1	1	0.4	1.4	1
The Blues Bar, Yiewsley	DA034	UB7 7BT	506035	179976	N		65480/APP/2013/3034	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Former Vehicle Testing Station, Cygnet Way, Hayes	DA035	UB4 9UL	511704	181539	N	Site allocation	n/a	1A	1a	13	0	13	0	36	14.4	50.4	36	18	7.2	25.2	18	12	4.8	16.8	12
Hayes Bridge, Uxbridge Road	DA036	UB4 0JN	511632	180467	N	Site allocation	n/a	1B	2	2	0	2	0	9	3.6	12.6	9	6	2.4	8.4	6	2	0.8	2.8	2
Former Coal Depot, Tavistock Road, Yiewsley	DA037	UB7 7QX	505857	180200	N	Site allocation	n/a	1a	3	5	0	5	0	25	10	35	25	16	6.4	22.4	16	11	4.4	15.4	11
Padcroft Works, Tavistock Road, Yiewsley	DA038	UB7 7QX	505857	180200	N	Planning permission	45200/APP/2014/3638	2	3	-17	0	-17	0	43	17.2	60.2	43	32	12.8	44.8	32	-6	-2.4	-8.4	-6
Trout Road, Yiewsley Site A	DA039A	UB7 7QL	505878	180528	N	Planning permission	38058/APP/2013/1756	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Trout Road, Yiewsley Site B	DA039B	UB7 7FY	505833	180588	N	Planning permission	3678/APP/2013/3637	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26-36 Horton Road, Yiewsley	DA040	UB7 8ET	506240	180282	N	Planning permission	3507/APP/2013/2327	2	3	1	0	1	0	3	1.2	4.2	3	2	0.8	2.8	2	1	0.4	1.4	1
21 High Street, Yiewsley	DA041	UB7 7QG	505996	180167	N	Planning permission	26628/APP/2014/675	3	4	-18	0	-18	0	-1	-0.4	-1.4	-1	-10	-4	-14	-10	-20	-8	-28	-20
Crown Trading Estate	DA042	UB3 1DU	509436	179719	Y	Site allocation	N/A	4	4	16	0.4	16.4	0	59	23.6	82.6	59	41	16.4	57.4	41	23	9.2	32.2	23
Gateford Building	DA043	UB3 4HP	509339	179393	Y	Site allocation	N/A	3	4	8	0	8	0	30	12	42	30	21	8.4	29.4	21	12	4.8	16.8	12
Precis self-storage	DA044	UB3 4UZ	509671	179317	Y	Site allocation	N/A	5	5	10	0	10	0	37	14.8	51.8	37	26	10.4	36.4	26	15	6	21	15

END

steer davies gleave

Addendum Report

Prepared by	Steer Davies Gleave (SDG)
Date	April 2018
Project	Hillingdon Local Plan Impact Assessment
Project No.	22990101

Addendum to Local Plan Strategic Highway Impact Assessment (February 2017)

Introduction

1. This note has been prepared by Steer Davies Gleave (SDG) as an Addendum to the report; Hillingdon Local Plan Part 2 Strategic Highway Impact Assessment (hereafter referred to as the Strategic Highway Impact Assessment Report), which was also prepared by SDG in February 2017.

2. The Strategic Highway Impact Assessment Report was prepared during 2016 based on the allocated sites contained within the Revised Proposed Submission Version in October 2015 (hereafter referred to as the Draft Local Plan). Following this consultation, a Statement of Proposed Modifications (SOPM) has been prepared, which proposes the final alterations to the Draft Local Plan. These alterations include the removal and addition of site allocations, as well as changes to the capacity assumptions of certain sites.

3. This Addendum to the Strategic Highway Impact Assessment Report considers the impact of the SOPM upon the overall conclusions of the report and its findings.

Changes to Site Allocations

4. Throughout the consultation period for the Local Plan, a number of changes to the assumed allocated sites have been made between those assessed in the Strategic Highway Impact Assessment Report.

5. The changes that have occurred through the SOPM are summarised in Table 1 below. Please note this table excludes sites where no changes have occurred.

Table 1: Comparison in Sites between Draft Local Plan (2015) and SOPM (2018)

SITE	SOPM (2018)	Draft Local Plan (2015)	Difference (+/- Units)
The Old Vinyl Factory, Botwell	562	501	61
36-40 Rickmansworth Road, Northwood	21	0	21
Bourne Court, South Ruislip	69	49	20
RAF Uxbridge, Uxbridge North	995	1373	-378
Grand Union Office Park, Uxbridge South	251	190	61
Fassnidge Memorial Hall, Uxbridge South	80	49	31
Waterloo Wharf, Uxbridge South	52	0	52
Randalls Building, Uxbridge South	58	0	58
RAF West Drayton, West Drayton	204	775	-571
Former West Drayton Police Station, West Drayton	53	0	53

Former British Legion, West Drayton	13	0	13
RAF West Ruislip, West Ruislip	105	0	105
Padcroft Works Site A, Yiewsley	315	308	7
Trout Road Site A (Kirby and Rainbow Industrial Estates), Yiewsley	149	108	41
Land to Rear of Horton Road, Yiewsley	86	0	86
Eastern End of Blyth Road Site B, Botwell	93	0	93
Fairview Business Centre Sites A & B, Botwell	260	350	-90
Land to South of the Railway, including Nestle Site A	1000	1400	-100
Land to South of the Railway, including Nestle Site B	300		
Land to South of the Railway, including Nestle Site C	500	0	500
Crown Trading Estate, Botwell	197	350	-153
Master Brewer and Hillingdon Circus Site A, Hillingdon East	140	0	140
Chailey Industrial Estate Site B, Townfield	0	0	0
Silverdale Road/Western View Site A, Townfield	122	201	-79
Silverdale Road/Western View Site B, Townfield	119	0	119
Silverdale Road/Western View Site C, Townfield (	122	0	122
Benlow Works, Townfield	36	0	36
297 - 299 Long Lane, Uxbridge North	33	25	8
St Andrew's Park (Annington Homes Site), Uxbridge North	330	120	210
Master Brewer and Hillingdon Circus Site B, Uxbridge North (	250	330	-80
Padcroft Works Site B, Yiewsley	100	0	100
Padcroft Works Site C, Yiewsley (To Be Determined by Design)	0	0	0
Trout Road Site C , Yiewsley	24	0	24
Golden Cross Public House, Botwell	0	23	-23
Union House, Botwell	0	46	-46
Royal Quay, Summerhouse Lane, Harefield	0	87	-87
42-46 Ducks Hill Road, Northwood	0	10	-10
Kitchener House, West Drayton	0	23	-23
26-36 Horton Road, Yiewsley	0	50	-50
Gatefold Building, Botwell	0	132	-132
Pecis self-storage, Botwell	0	163	-163
Total	**6,677**	**7,050**	**-373**

6. As shown in Table 1, the number of units within the Draft Local Plan and therefore assessed within the Strategic Highway Impact Assessment, is greater than the number of units contained within the SOPM.

7. The majority of sites result in a marginal increase or decrease of less than 50 units, which individually are considered unlikely to result in any significant impact upon the conclusions of the Strategic Highway Impact Assessment. However, to consider the cumulative impact of each of the above, the increase/decrease in residential units has been explored further.

8. Table 2 provides a summary of the difference in the number of residential units between the Draft Local Plan and the SOPM by ward, comparing:

- The increase in assumed residential units delivered by ward according to the sites identified as increasing in Table 1 (SOPM Increase); and
- The number of units within the Strategic Highway Impact Assessment Model that are over and above the number of units in Table 1 (Model Overshoot).

Table 2: Difference in Units Modelled by Ward (comparing SOPM Increase and Model Overshoot)

Ward	SOPM Unit Increase	Model Overshoot	Difference (+/- Units)
Barnhill	0	0	0
Botwell	311	-364	-53
Brunel	0	0	0
Cavendish	0	0	0
Charville	0	0	0
Eastcote and East Ruislip	0	0	0
Harefield	0	-87	-87
Heathrow Villages	0	0	0
Hillingdon East	140	0	140
Ickenham	0	0	0
Manor	0	0	0
Northwood	21	-10	11
Northwood Hills	0	0	0
Pinkwell	0	0	0
South Ruislip	20	0	20
Townfield	198	0	198
Uxbridge North	138	-378	-240
Uxbridge South	202	0	202
West Drayton	66	-943	-877
West Ruislip	105	0	105
Yeading	0	0	0
Yiewsley	258	-50	208

9. The wards where significant change occurs, shown in Table 2, have been considered against other neighbouring wards, with the following wards grouped together:

- Botwell and Townfield;
- Hillingdon East, Uxbridge North and Uxbridge South; and
- West Drayton and Yiewsley

10. These wards have been grouped together because they account for the majority of the proposed changes (90%) identified in Table 2. Given that this study is concerned with strategic highway impact, the grouping of neighbouring wards to understand the impact of the changes is considered to be reasonable.

11. Table 3 considers the difference in the newly proposed number of units, compared to the originally modelled number, by the three grouped areas above.

Table 3: Difference in Units Modelled by Neighbouring wards

Neighbouring Wards	Difference in units modelled
Botwell and Townfield	145
Hillingdon East, Uxbridge North and Uxbridge South	102
West Drayton and Yiewsley	-669

12. The combined decrease of 669 units within West Drayton and Yiewsley following the SOPM mean that their impact does not need to be considered further.

13. Botwell and Townfield and Hillingdon East, Uxbridge North and Uxbridge South have a respective increase of 145 and 102 units that are identified in the SOPM, but not represented in the model.

14. Using the trip generation assumptions within the Strategic Highway Impact Assessment Report for these additional sites, Table 4 identifies the number of vehicle trips within each peak time period that would be reasonably forecast to be generated by these additional units.

Table 4: Additional Vehicle Trips in Peak Periods

Neighbouring Wards	Forecast AM Peak Vehicle Trips (08:00-09:00)		Forecast PM Peak Vehicle Trips (17:00-18:00)	
	In	Out	In	Out
Botwell and Townfield*	10	35	24	14
Hillingdon East, Uxbridge North and Uxbridge South*	7	24	17	10

Assumes a parking ratio of 1 space per unit

15. As shown in Table 4, the number of additional vehicles in both peak periods is less than 50 vehicle additional trips for both the grouped areas. Within the context of the strategic highway model that assesses the strategic road network throughout this part of West London, these vehicles trips would account for significantly less than 1% of the trips within each model, particularly when distributed across the many links within the strategic highway network in this part of West London.

16. As a result, the increases experienced in these neighbouring wards are not considered to have an impact on the Strategic Highway Impact Assessment.

Summary

17. This Addendum has considered the changes in site allocations from the Draft Local Plan, which were assessed and analysed in the Strategic Highway Impact Assessment Report (February 2017).

18. Across the entire strategic model, the Strategic Highway Impact Assessment Report accounts for a greater number of units than is contained within the newly proposed SOPM. When the differences are considered geographically across the Borough, eleven wards result in no change whilst a further three have only marginal changes.

19. In the seven wards where more significant changes are experienced, the neighbouring wards of West Drayton and Yiewsley show a significantly greater number of residential units that appear in the model

CONTROL INFORMATION

Prepared by	**Prepared for**
Steer Davies Gleave 28-32 Upper Ground London SE1 9PD +44 20 7910 5000 www.steerdaviesgleave.com	London Borough of Hillingdon (LBH) [Company Address]
SDG project/proposal number	**Client contract/project number**
22990101	
Author/originator	**Reviewer/approver**
Steer Davies Gleave (SDG)	Julie Bowerman
Other contributors	**Distribution**
Matthew Harris / Tom Caulfield	*Client:* *SDG*:
Version control/issue number	**Date**
1B	21/02/17