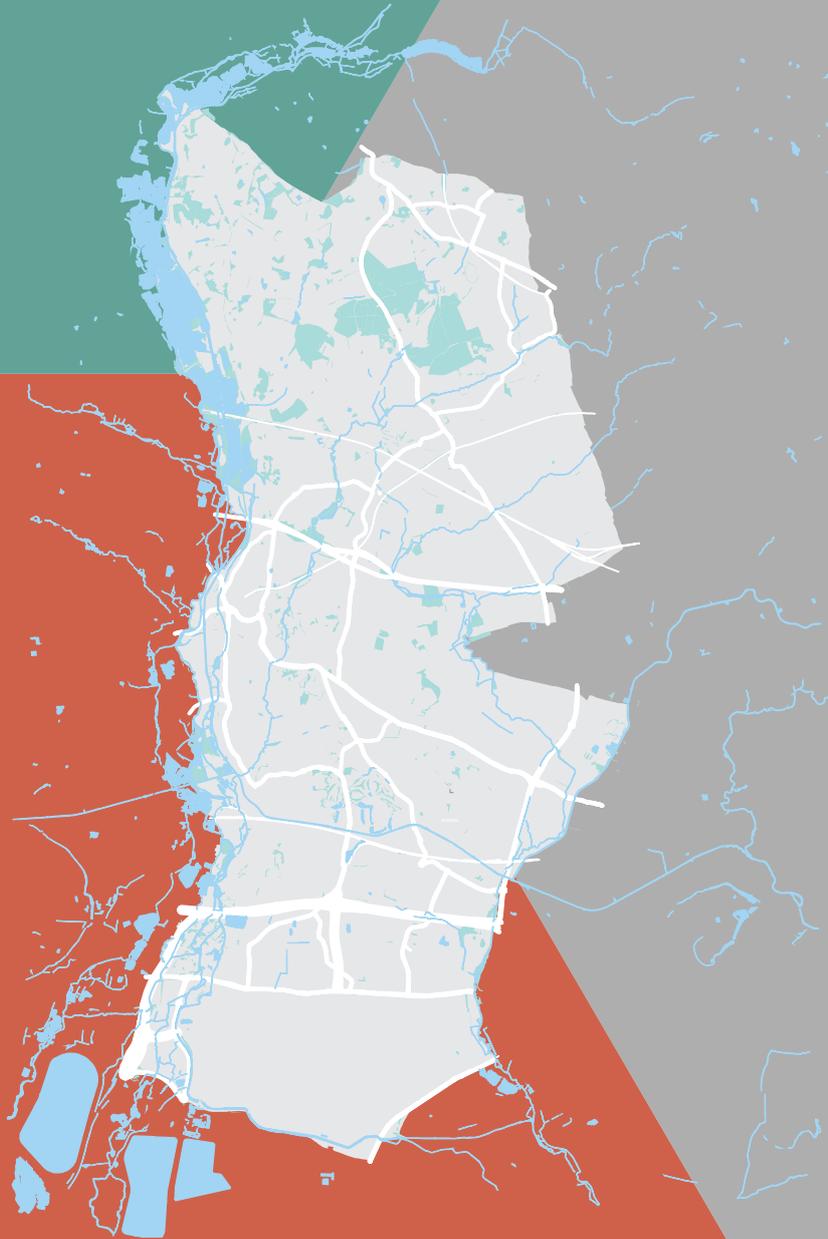


LONDON BOROUGH OF HILLINGDON
STRATEGIC INFRASTRUCTURE PLAN
(SIP)





HILLINGDON
LONDON



LONDON BOROUGH OF HILLINGDON STRATEGIC INFRASTRUCTURE PLAN

INNER CIRCLE CONSULTING

May 2017

with

BNP Paribas Real Estate

ARTELIA

OVERVIEW

Delivering Infrastructure to Support Sustainable Growth in Hayes Housing Zone

This Strategic Infrastructure Plan acts as evidence to support the first phase review of Hillingdon's Local Plan and the Council's revised Community Infrastructure Levy (CIL) Charging Schedule, both due in 2017.

7390-7998 New Homes in the London Borough of Hillingdon by 2026

Between 2016 and 2026, 7390-7998 new homes are likely to be delivered in the London Borough of Hillingdon, with around 60% of this growth likely to take place in Hayes Housing Zone.

Infrastructure Cost

At least £1.27bn of infrastructure investment is required to support sustainable development in Hayes Housing Zone.

There are some additional infrastructure capital costs that are not yet known. This is predominantly where the costs are self-funded by the infrastructure provider and a funding source does not need to be identified. There is also some additional transport infrastructure associated with the growth predicted within the Local Plan (Part 2) that has not yet been identified or costed.

£1.15bn Infrastructure Funding and £122m Forecast Funding Gap

According to infrastructure providers and the advice of LBH Finance, funding is/will be identified for £1.15bn. This leaves a funding gap of at least £122m.

£54m to £58m Forecast Residual Funding Gap

The projected income from CIL and S106 from 7998 net additional residential dwellings in the borough up to 2026 is £64.08m to £67.34m (CIL: £56.08m to £59.34m and S106: £8m). This would leave a forecast residual funding gap of £54.45 to £57.71m. Other sources of funding will need to be explored, particularly in relation to supporting growth in Hayes Housing Zone.

Recommendations to Ensure Sustainable Growth

It is recommended that:

- The CIL rates in the revised Preliminary Draft Charging Schedule 2017 are adopted
- S106 agreements continue to be utilised on a site-by-site basis through the normal planning application process, and supported by an updated Developer Contributions SPD
- A plan-monitor-manage approach is adopted, so that the London Borough of Hillingdon work actively with infrastructure providers to continue to ensure growth is sustainable in so far as sufficient infrastructure can be put in place at the right time to support housing and employment activities
- If necessary, the infrastructure projects identified in the infrastructure schedule as 'essential for planning permission' and 'necessary for sustainable growth' are prioritised
- The recommendations in the Development Infrastructure Funding Study for Hayes Housing Zone are acted on - £47.81m to £53.79m of the funding gap is likely to be related to the cost of infrastructure necessary to support the significant growth in Hayes Housing Zone. The remaining funding gap (likely to be between £661k to £9.9m) is related to wider projects across the borough necessary to support both growth outside of the housing zone.

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EXECUTIVE SUMMARY

Background

The London Borough of Hillingdon is due to review its Local Plan, a document which sets out how land will be used in the borough over the period 2011 to 2026. The Local Plan must demonstrate how and when the policies and development it proposes will be delivered.

This update to the Strategic Infrastructure Plan (SIP) has been prepared as part of the evidence base for the Local Plan in response to the National Planning Policy Framework (NPPF). This states that Local Plans should be based on a strategy which seeks to meet objectively assessed development and infrastructure requirements, including unmet requirements from neighbouring authorities where it is reasonable to do so and consistent with achieving sustainable development.

Information contained in the SIP has been gathered through discussions with infrastructure providers and a review of key documents. Each type of infrastructure is considered in terms of strategic context, current provision, existing need and future provision required to accommodate growth over the period of the Local Plan up to 2026. An examination of the estimated costs of provision and sources of funding, including Community Infrastructure Levy (CIL), to provide for future need is also outlined in this SIP.

Positive Planning for Sustainable Growth

This SIP intends to enable the London Borough of Hillingdon, together with partner organisations, to plan positively for sustainable growth. The latest information on confirmed projects from infrastructure providers has been collated, along with headline plans and aspirations for future projects to accommodate growth. At the same time, areas of uncertainty have been highlighted so that they can be proactively managed. Areas of uncertainty exist due to infrastructure providers often planning to different time horizons that do not correlate with the Local Plan and budgeting projects in five year periods. To support positive planning, where the cost of infrastructure provision was not provided, the expertise of a cost consultant was employed to provide accurate assumptions based on the latest available information. Section 5.8 of this document: 'Managing Uncertainty' provides more information to enable positive planning.

This is Hillingdon's second iteration of the SIP (the previous version dates to March 2013) and it is anticipated that it will be updated on a regular basis to reflect the changing nature of the infrastructure demands and requirements within the borough. Given the current uncertainty regarding the proposals for and timings of the expansion of Heathrow and the proposed third runway, it was agreed with LBH that this is out of scope for this study. As part of the 'plan, monitor and manage' approach this will need to be monitored and future updates of the SIP should take account of developments in this area.

Growth in Hillingdon

A key function of the SIP is to identify the amount and type of infrastructure required to deliver the growth proposed in the emerging Local Plan (Part 2). The amount of growth expected to occur can be summarised as follows:

Population:

Hillingdon's population is expected to increase by 4.8% between 2016 and 2026. This is a population increase of **14,286** based on the GLA's latest (2016) population estimates.

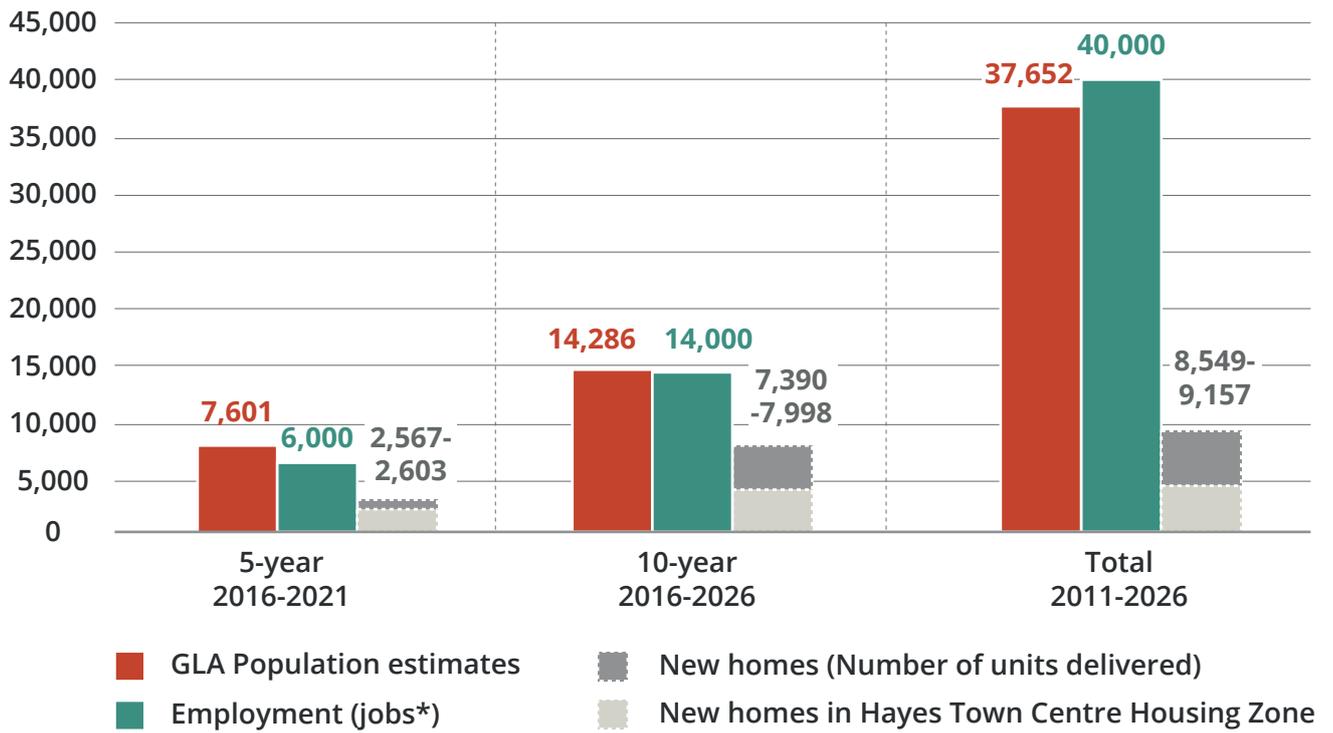
Households and Housing:

The emerging Local Plan (Part 2) contains updated housing targets as required by the GLA's London Plan. It is now anticipated that between 8,549 and 9,157 new homes will be provided in the borough between 2011 and 2026. For the period 2011 to 2016, 1,159 residential units have been completed, which means up to an additional **7390-7998** are still to be provided. Hayes Housing Zone is expected to see around 60% of the growth in the borough.

Employment and jobs:

The GLA's latest (2016) employment forecasts suggest that Hillingdon will see the creation of approximately **14,000 new jobs** between 2016 and 2026. This is more than the 9000 new jobs anticipated in the Local Plan. However, GLA estimates are an estimate of long-term trends, and do not seek to model year-on-year fluctuations. The projections include jobs which are both full-time and part-time. Note also that the projections are workforce jobs (and not people in jobs - as some people hold more than one job). It is recommended that the projected figures are assumed to include construction jobs.

Figure 1. Growth in Hillingdon



*These employment figures are an estimate of long-term trends, and do not seek to model year-on-year fluctuations. The projections include jobs which are both full-time and part-time. Note also that the projections are workforce jobs (and not people in jobs - as some people hold more than one job). It is recommended that the projected figures are assumed to include construction jobs.

Source: 1. 2016 (GLA population projections); 2. 2016 (Emerging Local Plan Part 2); 3. 2016 (GLA employment projections), Hayes Town Centre Development Infrastructure Funding Study 2017

Infrastructure Requirements in Hillingdon

The key findings in relation to infrastructure provision in Hillingdon are as follows:

Transport and Connectivity

Roads, Bridges and Junctions Connectivity



Organisations:

Highways England (HE), Transport for London (TfL), London Borough of Hillingdon (LBH), Southall Gasworks developer

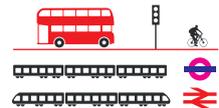
Needs:

- Managing impact of land based transport and specifically a high level of car ownership
- Planning for growth in Heathrow Opportunity Area and Hayes Housing Zone
- Key employment growth areas are proposed near congestion hotspots on road network.

Projects:

- HE will implement a number of projects to improve traffic flow on nearby arterial roads, including: 1) M4 J3-J12 hard shoulder running, involving localised widening, 2) M25 J10-J16 hard shoulder running, 3) M4 J4 spur landscaping and non-motorised improvements, 4) M4 J3-J1 average speed camera scheme
- HE and TfL are looking at options to manage future growth along A312 and M4
- TfL are planning: 1) TfL Road Network maintenance and enhancement along A40 (including Swakeleys Roundabout and the Polish War Memorial), A312 and A4, including improving safety, bus, walking and cycling connections and resurfacing , 2) signal works at junctions and crossings, 3) Bulls Bridge roundabout and M4 J3 upgrades to be delivered by the Southall Gasworks developer
- Southall Gasworks developer will also extend Pump Lane through to Southall
- LBH evolving programme of maintenance and upgrades to existing highway network.

Public Transport and Interchanges



Organisations:

Department for Transport (DfT), Network Rail, HS2 Ltd, Chiltern Railways, Crossrail, Transport for London (TfL), London Underground, Heathrow Airport Ltd, London Borough of Hillingdon (LBH)

Needs:

- To increase underground and rail capacity
- To improve north-south public transport connectivity
- Interchange and connectivity improvements required to accommodate significant growth expected in the south of the borough connected to the Crossrail station developments in Hayes and West Drayton.

Projects:

- DfT will implement a number of projects with partners: 1) With Crossrail, improving station access in Hayes and West Drayton - the Great Western Main line electrification is a prerequisite and in progress, 2) With Network Rail and Heathrow Airport Ltd, provide western and southern access rail to Heathrow by connecting to Great West Mainline and South West trains rail network via Staines

- HS2 Ltd railtrack construction that passes through Hillingdon south of Ruislip
- Chiltern Railways station road and bus access improvements and increased train frequency to improve journey between Birmingham and Central London via both West and South Ruislip
- Heathrow's Sustainable Action Plans aims to increase active travel and public transport use
- TfL are/will implement: 1) A4 Harlington Corner accessibility improvements for interchange between buses, cycle and walking environment, 2) Swakeleys Road and roundabout improvements to accommodate construction vehicles to HS2 railway tracks, 3) London Underground street-train accessibility for Metropolitan / Piccadilly Line in Uxbridge and Central Line / Chiltern Railway trains, 4) With London Underground, improving links to central London through track and signalling upgrades to Metropolitan and Central lines
- LBH will implement: 1) Uxbridge and West Ruislip transport interchange schemes to serve demand for north-south transport and enable growth in Uxbridge Metropolitan Town Centre, 2) Frequent and fast bus service along alignment identified on Local Plan Key Diagram.

Walking and Cycling



Organisations:

Greater London Authority (GLA), Transport for London (TfL), London Borough of Hillingdon (LBH)

Needs:

- Increase levels of cycling and walking and decrease dependency on private vehicles
- Ensure growth in the south of the borough can be accommodated sustainably, and does not worsen road congestion and pollution and noise levels.

Projects:

- GLA and TfL are implementing Quietways and other projects to increase cycling along key corridors in line with GLA and WestTrans targets
- LBH are in process of implementing: 1) Grapes Junction and Harlington Corner improvements to crossings and public realm to improve town centre access particularly for people to walk, cycle or travel by public transport, 2) Hayes Town Centre Major Scheme improvements to public realm and transport accessibility to facilitate growth and town centre access
- Developers of large development sites, particularly in Hayes Housing Zone, are also providing additional walking and cycling connectivity infrastructure through S106 contributions, such as the Old Vinyl Factory providing 16,722sqm of landscaped public space.

Air Transport



Organisations:

Heathrow Airport Ltd

Needs:

- Minimise number of employees and passengers travelling to Heathrow Airport by car
- Mitigate Heathrow's significant impact on air quality in the south of the borough
- Mitigate impact on local residents in the south of the borough due to traffic congestion, crowded public transport and high noise levels.

Projects:

- Terminal 2, phase 2 new terminal infrastructure
- Southern Road Tunnel to provide new road access from the southern side of the airport to the Central Terminal Area.

Managing Transport and Connectivity Uncertainty

- The requirements from TfL to accommodate growth predicted within the Local Plan Part 2 - other than those related to the Hayes Housing Zone - are still to be assessed and therefore costs will be additional to those within this document
- Highways England are in the processing of discussing methodology requirements for developing the transport assessment to support the Local Plan. Without the transport evidence base, it is difficult to identify and agree infrastructure mitigation. As such, any infrastructure requirements proposed and their associated costs are very preliminary
- TfL, in collaboration with LBH, is undertaking an outcome planning and definition process in order to set the surface transport priorities for Hayes Town Centre. Initial indicators suggest the following may be required:
 - Capacity increase and route amendments to the local bus network, as well as bus priority measures
 - Improvements to the bus interchange at Hayes & Harlington station
 - Junction capacity improvements
 - Additional walking and cycling infrastructure
- It is assumed that new development adheres to London Plan standards in terms of car parking and cycling provision, and that the Mayor's Transport Strategy objectives are met over this time (for example, 5% cycling mode share by 2026). If these targets are not adhered to, significantly more funding will be required to manage congestion and safeguard bus journey times. LBH are currently in discussions with TfL regarding this.
- No schemes have yet been identified to accommodate the increased demand generated by the Local Plan proposals other than those connected to supporting growth in the Hayes Housing Zone
- LBH highlighted an aspiration for the Central Line underground route to be extended to Uxbridge Station and for underground capacity increases.

Energy, Utilities and Waste

Waste



Organisations:

West London Waste Authority (WLWA), LB of Hillingdon (LBH)

Needs:

- Increasing sustainable waste management by reducing the amount of waste produced, maximising the re-use of waste through recycling and composting and minimising landfill waste, in line with London Plan targets, the Joint Municipal Waste Management Strategy and The West London Waste Plan

Projects:

- Rigby Lane Waste Transfer Station is identified in the West London Waste Plan as one of eight sites to ensure adequate waste management provision for the lifetime of the plan up to 2031. The site has the potential to increase capacity whether in the same type of waste management technology or a different type.

Electricity and Gas

Organisations:

National Grid and Scottish and Southern Electricity Networks



Needs:

- To meet customer demand and connect applications for new supplies - the cumulative effect of a large number of connections may cause capacity to be reached and reinforcement of the network may be required.

Projects:

- Scottish and Southern Electricity Networks deal with the distribution of electricity in the borough and the associated network. They have confirmed that some new and upgraded infrastructure is likely to be required to accommodate growth in the form of substation development. To accommodate 7390 housing units up to 7998, 1 and possibly 2 primary substations are likely to be needed and up to 27 distribution substations.

Renewable Energy



Organisations:

Greater London Authority (GLA), London Borough of Hillingdon (LBH) and private developers

Needs:

- To increase the amount of UK energy consumption coming from renewable energy sources, in line with EU, UK and GLA targets
- At the heart of the Mayor's vision is a strategy to to remove 25% of London's energy network from the carbon intensive national grid to local, low carbon heat and power networks. The London Heat Map identifies three hot-spots in Hillingdon that provide opportunities:: Uxbridge, Hayes and Heathrow and surrounding areas.

Projects:

- The developers of the large former Nestle site to the east of Hayes and Harlington Station have committed to providing a site-wide heating network from a Combined Heat and Power source, suitable for connection to wider district networks now or in the future.

Water Supply

Organisations:

Affinity Water



Needs:

- Achieve a decline in water usage in Affinity Water's Central region, which includes Hillingdon - pressure on water supplies is likely to increase due to sustainability reductions, the effects of climate change and an overall increase in demand due to population growth.

Projects:

- Affinity Water commenced its AMP6 Water Savings Programme (WSP) in January 2015, which will see the metering penetration within this region reach 90% over the next 10 years. They will also implement water efficiency measures and reduce leakages to manage supply and demand. As part of this, they are undertaking infrastructure works at Blackford pumping station on Moorhall Road, Harefield to ensure continued Affinity water supply to the borough.

Sewerage and Drainage



Organisations:

Thames Water

Needs:

- An upgrade project was recently completed at Mogden STW to increase treatment capacity by around 35% to reduce the volume of untreated storm flows being discharged to the river and to meet a more stringent quality obligation that came into force on 31 March 2013. The upgrade was designed to accommodate growth to 2021. Although this facility is located in Hounslow, it forms part of Hillingdon's sewerage treatment process.
- The latest information from Hillingdon is now being used to determine the impact at Mogden and to identify any work necessary. The results of this will be fed into Thames Water's application to the regulator for funding for the period 2020 to 2025.

Projects:

- Thames Water will be making improvements to the Colne Valley Trunk, Crane Valley Trunk and Bath Road Trunk to create additional capacity to address growth in the south of the borough, particularly in the bath road employment area.

Telecomms and Broadband



Organisations:

Vodafone partner with O2, Three partner with EE under a company called MBDL and each partnership ensures sufficient mobile network coverage and capacity through the provision of the necessary infrastructure (antennas and masts on sites). BT Openreach provide the necessary infrastructure for broadband provider fixed roll-out

Needs:

- Sufficient mobile network coverage and capacity depends on providers being able to acquire planned new sites and replacement sites where and if necessary for masts or antennas on roofs. Vodafone have highlighted that the development plans for Hayes may cause them to lose some of their existing sites. Plans are also dependent on budget continuing to be available.

Projects:

- Vodafone are building on 28 new sites in Hillingdon to ensure sufficient coverage in relation to population density. This is self-funded. Vodafone would welcome the opportunity to work with the council to ensure they can provide a good level of service to customers within the Borough of Hillingdon.
- Three are currently working on upgrading the majority of existing mobile network sites to provide 4G coverage. They have:
 - 78 live 3G sites in the borough
 - 70 are already live on 4G
 - 50x 1800MHz-only
 - 20x dual 800/1800MHz
 - 7 of the remaining 8 are in the 4G upgrade programme (i.e. only 1 is not in the programme)
 - 3x dual 800/1800MHz
 - 4x 1800MHz-only

Managing Energy, Utilities and Waste Uncertainty

- The site-wide heating network on the former Nestle site, and the site-wide heating network at Old Vinyl Factory site (which also has some spare capacity) could potentially act as a catalyst for a district wide heating network as more development in the Hayes Housing Zone is brought forward.
- National Grid is responsible for the transmission of electricity and the transmission and

distribution of Gas. They confirmed that network has sufficient capacity to accommodate developments in Hillingdon. However, they stressed that as they process works on a first come first serve basis there is no guarantee that this capacity will still be available at the time an official connections request is sent in.

- Affinity Water's infrastructure plans are informed by a review of documents available on their website as a formal response is yet to be received.
- BT Openreach require engaging regarding broadband infrastructure provision.

Health

Primary Care



Organisations:

North West London Clinical Commissioning Groups (NWL CCGs), Hillingdon CCG, Central and North West London NHS Foundation Trust (CNWL), LB of Hillingdon

Needs:

- A significant increase in the number of GPs is required and better access to primary healthcare across the borough
- Improve use of the existing estate and target strategic investment in estate locations that are appropriate for a hub healthcare model providing integrated out of hospital services.

Projects:

- Hillingdon CCG , LBH and private sector partner to develop three primary care hubs in North Hillingdon, Central (Uxbridge and West Drayton) and South Hillingdon (Hayes & Harlington), and a new centralised facility in both Yiewsley and also on the former Woodside Care Home site
- CNWL and a private sector to extend and improve existing facilities at Eastcote Health Centre

Acute Care



Organisations:

Hillingdon Hospitals NHS Foundation Trust (HHT)

Needs:

- To address significant quality and resilience issues within the current estate that is beyond its intended life

Projects:

- Hillingdon hospital estate strategy to ensure ongoing sustainability of acute hospital services in the borough
- Reconfiguration and site rationalisation of Mount Vernon Hospital.

Managing Health Uncertainty

- HHT are in talks regarding headline plans for a new combined health and academic facility on the Brunel University campus
- The impact of the closure of Ealing's children's accident and emergency unit and ward on Hillingdon's acute care infrastructure. Ealing accident and emergency unit will still treat

children though those requiring overnight care or further treatment will be transferred to other hospitals in West London

- Proposed changes to acute care through the NW London Strategic Transformation Plan are still to be agreed with all partners, and so delivery of these are still subject to change.

Education, Learning and Youth Provision

Early Years and Child Care



Organisations:

London Borough of Hillingdon (LBH) and private and voluntary sector organisations

Needs:

- Most early years provision is provided by the private and voluntary sector, while some are provided by schools and there are also a number of maintained nurseries. Hillingdon Council has a responsibility to ensure sufficient provision and tracks supply and projected population growth among 0-5s. Currently, there are a lack of places for disadvantaged two year olds whose parents are entitled to free child care (-299), which is a significant issue in the Hayes area (Townfield = -109 and Botwell = -57). Provision as a whole is at 98% capacity, so plans need to be put in place to accommodate the significant growth expected.

Projects:

- LBH have undertaken a review of their 18 children's centres and are proposing to create a new programme with five lead centres. Each lead centre or hub will coordinate the work of 11 linked centres in five defined localities. As part of the changes, children's services will no longer be directly delivered from the current centres at Hillside and Uxbridge College (Hayes Campus). Services for the families currently using these facilities will be coordinated by the lead centres in these areas and families can continue to access services at any of the other 16 sites across the borough.
- To address lack of capacity for disadvantaged two year olds and to ensure sufficient provision for 0-5 year olds to accommodate growth.

Primary and Secondary (including Additional Needs)



Organisations:

London Borough of Hillingdon (LBH), Education Funding Agency (EFA) and academies / free schools

Needs:

- Demand for primary places in the north of the borough appear to be reaching a plateau. However, there remains a residual need for a small number of additional forms of entry
- Demand for primary places in the south of the borough is still forecast to grow, particularly in the Hayes area where there has been significant housing development and more is expected in the future.
- The rising demand is now moving into secondary schools with the latest forecasts showing a long-term sustained pressure for additional school places.
- As the school-age population grows, the number of children with some form of special educational need will also increase.

Projects:

LBH programme to ensure the delivery of:

- 11 additional forms of entry in primary schools (2 in the north and 9 in the south) by 2025/26
- 15 additional forms of entry (10 in the north and 5 in the south) by 2025/26

- An additional 130 special school, Specialist Resource Provision and Pupil Referral Unit places will be required by 2020/21
- These needs are expected to be met through a combination of expansions of existing schools (LBH delivery lead with £88m budget to 2021) and new free schools (EFA delivery lead).
- A new primary school is likely to be needed to serve the central Hayes area.

Further Education and Adult Learning

Organisations:

Uxbridge College and London Borough of Hillingdon (LBH)



Needs:

- LBH has a statutory duty to ensure sufficient and suitable education and training provision for all young people aged 16-19. Adult Learning services are predominantly to meet the needs of people in areas of deprivation to help people into work and to support people's health and well-being and to be active citizens.

Projects:

- Uxbridge College are self-funding a £6 million expansion to their Uxbridge town centre campus. It is required to accommodate an increase in student numbers by approximately 250 people. It should be delivered by 2021 and is part of an approved planning application for phased works.

Higher Education

Organisations:

Brunel University



Needs:

- Accommodate increase in student numbers to 21,500 by 2022/23 with potential of up to 25,000 by 2025/2026
- Grow research capability to compete in more competitive funding climate.

Projects:

- 2017 masterplan identifies a need for 216,500sqm of development (118,500sqm net additional) new academic, research and student residential accommodation over the Local Plan period.

Managing Education, Learning and Youth Provision Uncertainties

- Pupil forecast updates (especially regarding housing development impacts) capacity changes initiated by schools, availability of sites for new schools. LBH Education primary and secondary school projections and associated plans are based on 4500 housing units coming forward between 2016 and 2026 in Hayes Housing Zone. Growth is likely to be at least this, so need should be planned for taking into account the likely possible growth of 5191 housing units coming forward
- How Hillingdon will fulfill its legal duties for ensuring sufficient school places in a much more complex environment and one in which other bodies control the direct provision of places and decisions regarding changes to schools. For example, LAs do not have powers to

make changes to academy schools or to set admission numbers. Therefore, achieving sufficient school places therefore requires the cooperation and support of standalone academies, multi-academy trusts, free school proposers and other organisations such as Foundation trusts and local diocesan boards

- The impact of devolution and the associated value reviews and rationalisation of estates, for example the West London Further Education Review on further education colleges and adult learning provision
- The Brunel University masterplan aims to intensify the existing built-up parts of its campus (Sites 1 and 2), as a means of accommodating a proportion of the University's assessed development needs. However, a significant amount of the identified need remains outstanding without encroaching further into the Green Belt. The key policy issue associated with this is that the existing campus site is currently designated as Green Belt. The university is in talks with Hillingdon Council regarding whether the release of part of their campus from the Green Belt boundaries can be revised as part of the preparation of Local Plan Part 2
- As a single campus university in London, Brunel's aspirations are to accommodate its needs at its existing Uxbridge Campus as a means of strengthening its position
- Brunel University's concept masterplan indicates how future development / needs opportunities could be met. Brunel is actively pursuing a formal memorandum of understanding jointly with the Hillingdon Hospitals NHS Foundation Trust and Central and West London NHS Foundation Trust to promote an integrated higher education health sciences centre and healthcare campus on a specific site at the university.

Emergency Services

Metropolitan Police Service

Organisations:

Metropolitan Police Services (MPS)



Needs:

- The MPS is reviewing the whole of its property estate to ensure they are making the best use of space, allowing it to exit under-occupied and outdated buildings and to replace them with more modern, efficient and geographically responsive facilities.

Projects:

- To be determined

London Ambulance Service

Organisations:

London Ambulance Service



Needs:

- The London Ambulance Service operates from three sites in Hillingdon: Hillingdon ambulance station, Hayes ambulance station, and Pinner and Northwood hospital. There are not currently any plans to carry out any capital projects in relation to these sites.

Projects:

- To be determined

London Fire Brigade

Organisations:

London Fire Brigade



Needs:

- To maintain the effective provision of fire services in Hillingdon

Projects:

- Refurbishment of Hayes Fire Station
- Refurbishment of Hillingdon Fire Station
- Refurbishment of Ruislip Fire Station
- Relocation of Heathrow Fire Station.

Managing Emergency Services Uncertainties

- The London Ambulance Service are in the process of developing an estate strategy that should be published in spring 2017. The current estate is not fit for purpose but there are no specific plans at this time.
- The MPS are currently working on the new Estate Strategy which is expected to be published alongside or soon after the Police and Crime plan in the coming months. Once the Estate Strategy is confirmed and approved by The Mayor's Office for Policing and Crime

Community and Leisure

Sports and Leisure (including children's playspace)



Organisations:

London Borough of Hillingdon (LBH) and other private and public sector organisations

Needs:

- The recent delivery of new leisure centres at Uxbridge and Botwell Green has significantly improved the quality of leisure facilities available to local residents
- Hillingdon has commissioned a Playing Pitch Strategy Assessment to assess the supply and demand of playing pitch facilities in accordance with Sport England's Playing Pitch Strategy Guidance: An approach to developing and delivering a playing pitch strategy. The draft strategy identifies a shortfall in: youth football grass pitches, junior and informal use grass cricket squares, Rugby Union pitches and Hockey pitches. Quality improvements required are also outlined
- To accommodate growth, the Indoor Sports Facilities Assessment report identifies a need for: 6.1 additional courts worth of sports hall space (1.5 Sports halls); 4.43 additional lanes worth of swimming pool space (1 swimming pool); 511 health & fitness stations (should be at least 20 stations per gym, some have a lot more like 200 at Virgin Active) report. Significant under supply to meet current need is also identified in sports halls and swimming pools, particularly when considering accessibility of the latter.
- There is a need for 5.79 to 6.27 (Ha) of additional children's playspace to support new development and population increases. 2.05-2.09 (Ha) of this is likely to be required in Hayes Housing Zone.

Projects:

- The provision of additional play facilities in relation to new residential development is a requirement outlined by the Council. Provision should be made according to guidance outlined in the Local Plan and Planning Obligations SPD.

Libraries

Organisations:

London Borough of Hillingdon (LBH)



Needs:

- LBH recently completed a capital programme that saw the refurbishment of its 17 libraries and made changes to staffing and resourcing, with many libraries now acting as community hubs and providing a range of health and well-being initiatives, as well as cultural events
- Using standards established in the Hillingdon Planning Obligations SPD an estimate of the likely additional library space required to meet future growth can be made. A total of approximately 420 additional square metres of library space would be required over the Local Plan period. If existing libraries near to new development have spare capacity, the Planning Obligations SPD sets out an alternative formula for estimating demand. This takes into account the demand on additional computing equipment, books and opening hours and is represented by a charge of £4.6 per person chargeable over a five year period. This represents £23.00 per person.

Projects:

- No projects are confirmed for the period up to 2026

Places of worship

Organisations:

London Borough of Hillingdon (LBH)



Needs:

- The council undertook work to assess the location of faith groups in the borough. A directory of places of worship was subsequently created in 2011, along with details of the community services they provide. LBH engage faith groups through the Hillingdon Inter-Faith network to better understand the needs of faith communities and to provide support and guidance where necessary.

Projects:

- No specific infrastructure proposals have been identified

Managing Community and Leisure Uncertainties

- LBH to develop a strategy to address the playing pitch and indoor sports facilities supply issues identified to accommodate growth.

Green and Blue Infrastructure

Green and Blue Infrastructure



Organisations:

Environment Agency, Natural England, Canal and River Trust, London Borough of Hillingdon (LBH) and private developers

Needs:

- To manage Hillingdon's only national nature reserve
- To increase the number of high quality and accessible open spaces in the borough. 18.92 (Ha) of unrestricted recreational space is required to accommodate growth, with 7.43-8.93 (Ha) of this likely to be required in / near Hayes
- To contribute to sustainable drainage systems, sense of place and climate change resilience, particularly through contributing to improvements in air quality, which is a particular concern in the south of the borough
- Improvements to the water environment are required consistent with commitments in the River Basin Management Plan 2015-2021
- Hillingdon's Surface Water Management Plan (2013) identifies 29,300 residential properties and 1,300 non-residential properties in LBH that could be at risk of significant surface water flooding during a 1 in 100 year rainfall event
- To discourage anti-social behaviour on/near canal and to meet demand for moorings.

Projects:

- LBH: 1) Improving the quality, quantity and accessibility of open space provision through Green Flag designations and developer infrastructure contributions, 2) Flood risk mitigation projects at The Common, Charville Lane, Cranford Park and Field End Road
- Natural England programme to support net gain for biodiversity across projects through implementing projects in the green grid
- Environment Agency: 1) programme of improvements to the water environment through green and blue infrastructure, 2) sustainable urban drainage schemes to mitigate flood risk, 3) River Pinn, Cannon Brook & Mad Bess Brook Flood Alleviation Scheme
- Canal and River Trust 10 berth linear residential mooring scheme on the off-side of the canal above Station Road bridge in Hayes
- Canal and River Trust towpath improvements from Bulls Bridge to West Drayton/Colham Br, including new access at Horton Bridge and resurfacing the ramp at Printing House Lane.

Managing Green and Blue Infrastructure Uncertainties

- The Canal and River Trust are in the process of working on a London Mooring Strategy that will be published in December 2017. The following have been identified as opportunities to consider further:
 - Possible development of a mooring scheme as part of the redevelopment of the Nestle site
 - Mooring scheme on the off-side of the canal east of Stockley Road in West Drayton
 - Visitor moorings and towpath access west of Stockley Road, between Iron Bridge Road North and Horton Bridge Road
- LBH recently expanded West Drayton Cemetery into Hillingdon adjoining land. Hillingdon has a large Muslim population and they have a criteria to be buried as soon as possible. Cemetery supply and demand needs mapping and cemetery expansion is likely to be required

- The implementation of sustainable urban drainage will be crucial to supporting growth in Hayes Housing Zone. To date, there have been problems due to the fact when sites were originally developed water discharge was unrestricted. Now, in order to control flows on site in accordance with national guidance, most sites are trying to use underground tanks where water then needs to be pumped up to the Thames Water sewer level. Sufficient space needs to be left for above ground SuDs in order to have a sustainable scheme. The implementation of SuDs is also important is helping achieve benefits for the Air Quality Management Area, which covers parts of Hayes
- There is a requirement for increased access to and from the Canal which is appropriately accessible (the Blue Ribbon Policy). This is proving difficult on some sites as the embankments are high and new development coming forward often leads to ramps being removed and not replaced. It is therefore a key requirement that new points of access and environmental corridors alongside, or in addition to, any cycle corridors are identified and safeguarded
- Botwell Lane and Pump lane are shown to be at risk of surface Water flooding on the Environment Agency Flood Risk maps. Any changes to road infrastructure in these areas should provide additional space for water to deal with these issues over and above the Thames Water required sizing
- There is a need to identify other deculverting infrastructure due to there being a pressure on deculvert rivers underground to ensure that future development does not prejudice future deculverting.

Infrastructure Cost and Funding

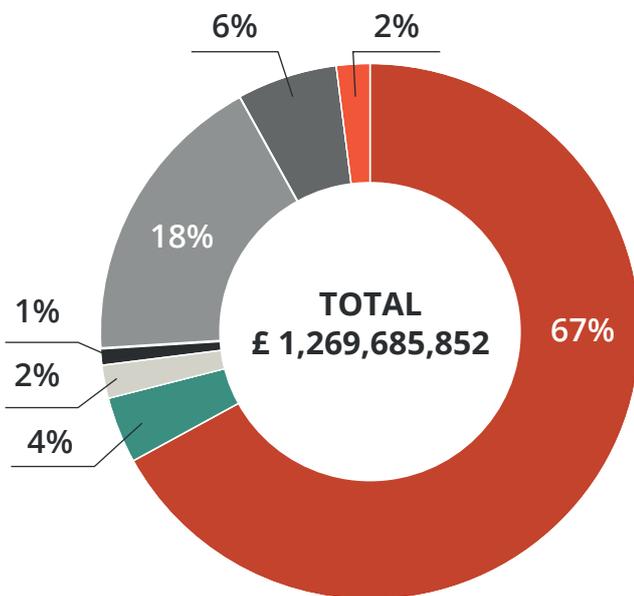
The total cost of infrastructure required to support growth over the remaining period of the Local Plan (2017 to 2026) is estimated to be at least around **£1.27bn**. Infrastructure projects required deemed:

- 'Essential for planning permission' by LBH total **£305.142m**
- 'Necessary for sustainable growth' by LBH total **£919.966m**
- 'Desirable for placemaking' by LBH total **£43.98m**.

The pie chart below summarises the costs of infrastructure required by category in Hillingdon over the planning period to meet the identified unmet need generated by expected future housing growth.

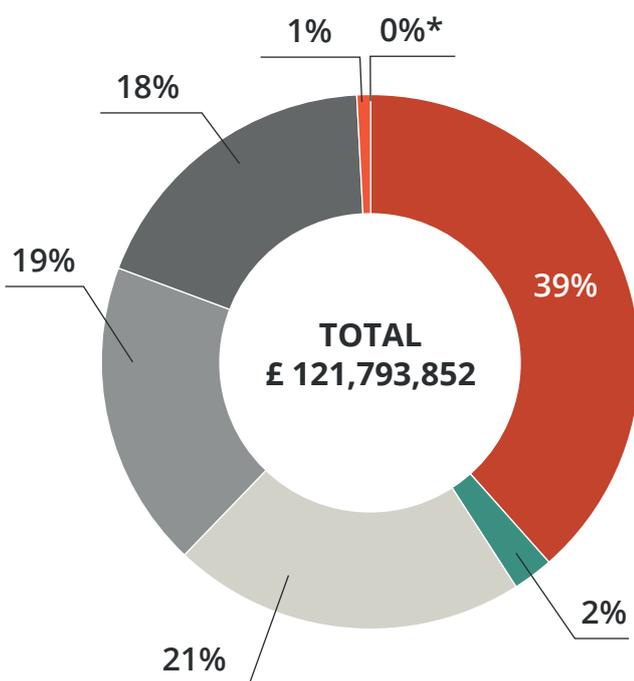
According to infrastructure providers and the advice of LBH Finance, funding is/will be identified for **£1.15bn**. This leaves a funding gap of **£121.79m**.

Figure 2. Infrastructure Cost



CATEGORY	COST
Transport and Connectivity	£845,920,000
Energy, utilities and waste	£30,150,000
Health	£75,500,000
Education, Learning and youth provision	£232,000,000
Emergency Services	£14,200,000
Community and Leisure	£25,853,000
Green and Blue Infrastructure	£46,062,852

Figure 3. Forecast Funding Gap



CATEGORY	FUNDING GAP
Transport and Connectivity	£46,870,000
Energy, utilities and waste	£1,000,000
Health	£22,500,000
Education, Learning and youth provision	£22,600,000
Emergency Services	£0
Community and Leisure	£25,853,000
Green and Blue Infrastructure	£2,970,852

* - Emergency services

Hillingdon currently receives developer contributions. It is therefore expected that LBH income from CIL and S106 will go some way to meeting this gap. Since CIL was introduced, S106 is limited to three tests which has reduced the scale of S106 contributions. S106 will however continue to be used to mitigate the site specific impacts of a development in accordance with the Regulations.

The projected income from CIL and S106 from 7998 net additional residential dwellings in the borough up to 2026 would be £64.08m to £67.34m (CIL: £56.08m to £59.34m and S106: £8m). This would leave a forecast residual funding gap of £54.45m to £57.71m. Other sources of funding will need to be explored, particularly in relation to supporting growth in Hayes Housing Zone. It is therefore recommended that:

- The CIL rates in the revised Preliminary Draft Charging Schedule 2017 are adopted
- S106 agreements continue to be utilised on a site-by-site basis through the normal planning application process, and supported by an updated Developer Contributions SPD
- A plan-monitor-manage approach is adopted, so that the London Borough of Hillingdon work actively with infrastructure providers to continue to ensure growth is sustainable in so far as sufficient infrastructure can be put in place at the right time to support housing and employment activities
- If necessary, the infrastructure projects identified in the infrastructure schedule as 'essential for planning permission' and 'necessary for sustainable growth' are prioritised
- The recommendations in the Development Infrastructure Funding Study for Hayes Housing Zone are acted on.

The Development Infrastructure Funding Study for Hayes Housing Zone

The Development Infrastructure Funding Study for Hayes Housing Zone indicates that about £47.81m to £53.79m of this residual funding gap is likely to be related to the cost of infrastructure necessary to support the significant growth in Hayes Housing Zone. The study sets out recommendations for how the London Borough of Hillingdon could go about meeting this forecast residual funding gap, including considering:

- A Strategic Infrastructure Tariff, in addition to the Local Infrastructure Tariff and S106, if the CIL Review Team Recommendations are implemented by the Government
- A Hillingdon Council mechanism to aid cashflow to fund infrastructure, such as:
 - Private finance & public-private partnerships - It is understood that the Council would consider land acquisitions that could potentially provide opportunities for commercial income streams. The rationale for this investment is based on generating a sustainable income stream to cover the on-going costs of any infrastructure investment. The study recommends that the Council undertake an options appraisal and business case examining the potential sites which could be acquired and the delivery structures which would best meet the Council's objectives and requirements.
- Prudential borrowing (e.g. Public Loan Works Board) - The study recommends prudential borrowing should be considered to enable growth, seeking to make use of the potential 'Local Infrastructure Rate,' which the government is currently consulting on. It will offer £1 billion of discounted lending to local authorities, available at a new Local Infrastructure Rate to support local infrastructure projects that are high value for money. Qualifying authorities would be able to access the allocation from the Public Works Loan Board for a period of three years to support upfront investment.
- Tax Increment Financing and retaining up to 65% of business rates from Hayes Housing Zone and its two adjacent employment clusters: Millington Road and Rigby Lane - 60% retention would generate an additional £56.1m (in addition to the existing 15% retention)
- Heathrow Business Rates Retention - The majority of Heathrow's business rates - which were around £118m in 2016 - go out of the borough of Hillingdon. However, given Heathrow's impact on air pollution and noise in the south of the borough, the study recommends LBH and the GLA hold discussions with The Treasury about whether a proportion can be retained to support improvements to green and sustainable infrastructure in and surrounding Hayes Housing Zone to mitigate the associated risks. This would be in addition to funds associated with the Heathrow Sustainable Action Plan.

- £2.3bn Housing Infrastructure Fund - The Housing White Paper: Fixing our Broken Housing Market (February 2017) sets out that it will target the £2.3bn Housing Infrastructure Fund at the areas of greatest housing need. The capital grant programme will be open to bids in 2017, with funding available over the next four years for a variety of infrastructure projects (including transport and utilities) where these will unlock the delivery of housing and enable economic development. Joint bids from across local authority boundaries are encouraged to open up new homes on a wide scale. The study recommends that LBH partner with Ealing Council to submit a bid, given that Hayes Housing Zone is so close to Southall Housing Zone and that a joined-up approach would be beneficial to infrastructure delivery given there are overlapping demands for schools, roads and open space to name but a few types of infrastructure.
- A Strategic Infrastructure Investment Programme for London - As set out in A City for All Londoners, the Mayor is committed to developing a Strategic Infrastructure Investment Programme for London to increase public transport investment, deliver more housing and improve London's air quality whilst moving towards a zero carbon city by 2050. Given Hayes Housing Zone falls within an Air Quality Management Area, funding opportunities should be pursued particularly related to helping meet the Mayor's objectives. The study recommends Hillingdon engage the Local Enterprise Action Partnership for London (LEAP) to see how they could work together to demonstrate what can be achieved by focusing on making significant improvements to a pollution hotspot in London: Hayes Housing Zone and its surrounding areas.
- London Finance Commission 2017 report - There is an ongoing debate about how the retention of tax from development can be reinvested to support growth and meet policy objectives. The GLA are currently exploring whether there is a case for retaining stamp duty locally and what impact this is likely to have. If Hillingdon were able to retain the Stamp Duty Land Tax associated with the housing zone, the housing zone-related forecast residual funding gap would be significantly smaller up to only £6.58m. The LFC is currently working on the final report due to be released in early 2017.

Sector-specific funding mechanisms

Sector-specific funding mechanisms to consider include:

Transport

- TfL funding including the rolling Local Implementation Plan
- Highways Agency / Department for Transport funding

Health

- CCG funding
- Through direct provision of space as part of a Section 106
- Through direct rental of space to be taken at a commercial rent

Education

- Through developer contributions such as S106 and CIL
- Mainstream local authority capital funding
- DfE funding
- EFA
- Free schools or academy trusts

Emergency Services

- Section 106
- Police - through the Metropolitan Police Estates Strategy

Community Facilities

- Provision of flexible community space for a variety of users through Section 106, or CIL given this is strategic and nature and not relating to one development

Open space and play space

- The funding for open space and play space is likely to come through Section 106 and / or CIL. Some of this space (particularly play space) will be provided on-site as part of the development

Utilities

- Some utilities infrastructure will be provided by utilities providers as part of their cyclical business planning or asset management plan. Local connections are paid for through development.
- The Housing White Paper: Fixing Our Broken Housing Market considers how new development can be capitalised on to enhance broadband coverage. In the 2016 Autumn Statement, the government announced over £1 billion of new funding to boost the UK's digital infrastructure.

In assessing bids for these trials from local authorities, DCLG will take account of which areas can demonstrate they have policies setting out how high quality digital infrastructure will be delivered in their area. (The Local Government Finance Bill published in January 17 will give a business rates tax break worth £60 million to incentivise telecommunications companies to lay full fibre broadband.)

1 INTRODUCTION

1 INTRODUCTION

1.1 Purpose of the Reviewed SIP

This Strategic Infrastructure Plan acts as evidence to support the first phase review of Hillingdon's Local Plan and the Council's revised Community Infrastructure Levy (CIL) Charging Schedule, both due in 2017.

It includes a comprehensive needs / demand and supply analysis of different types of infrastructure, and infrastructure identified has been costed on the basis of the latest available information.

This reviewed and updated Strategic Infrastructure Plan sets out the following:

Future Requirements

Where?	Identifying the broad locations for new infrastructure, and sometimes specific identified sites where applicable.
What?	Identifying the number and type of infrastructure items (capital build requirements) needed.
Why?	Identifying why infrastructure is needed according to evidence.
How much?	Identifying high-level cost estimates where they are known or have been estimated using benchmarks, as well as whether funding has been secured.
When?	Setting out when the infrastructure is required using 5-year periods.

Delivery Approach

Who?	Identifying if available: <ul style="list-style-type: none">• The leading delivery partner, delivery mechanism and governance arrangements• Potential opportunities for co-location and possible land constraints
How?	<ul style="list-style-type: none">• Potential funding sources• Possible risks to funding and• The related contingency measures.

1.2 Definition of Strategic Infrastructure

This SIP outlines infrastructure proposals for:

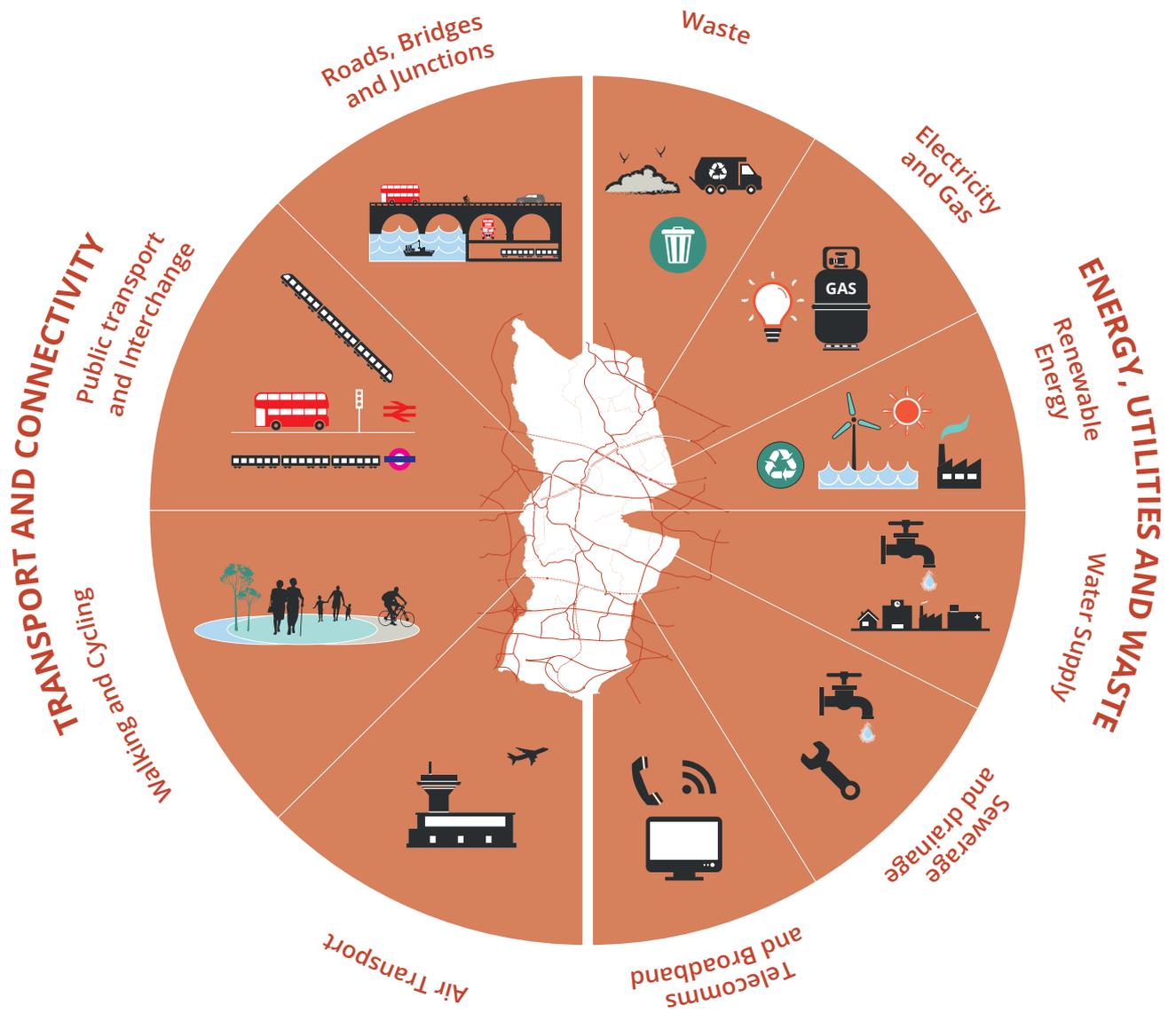
- Hard / physical infrastructure, such as utilities, transport and telecomms and broadband
- Social infrastructure, such as schools, health facilities and other public services
- Green infrastructure, such as parks, open space and the natural environment, including blue infrastructure.

Projects have been prioritised as follows to help enable positive planning for sustainable growth:

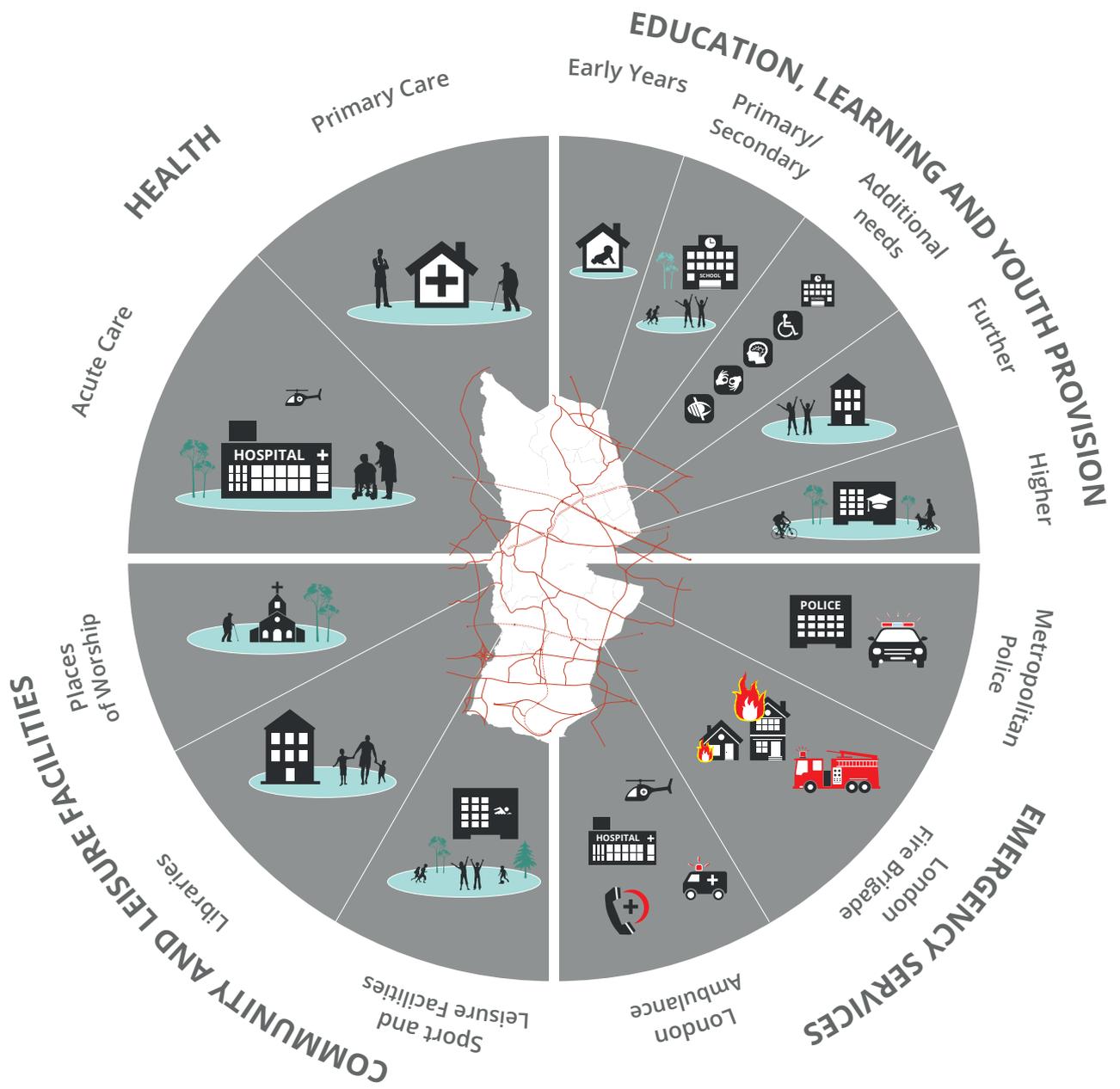
- Projects that are essential for planning permission
- Projects that are necessary for sustainable growth
- Projects that are desirable for placemaking.

Figure 4. Infrastructure Categories

Physical Infrastructure



Social Infrastructure



Green and Blue Infrastructure



2 BACKGROUND

2 BACKGROUND

2.1 Policy Context

2.1.1 National

National Planning Policy Framework

The importance of robust infrastructure planning is emphasised in the National Planning Policy Framework (NPPF). Paragraph 162 of NPPF states:

“Local planning authorities should work with other authorities and providers to:

- Assess the quality and capacity of infrastructure for transport, water supply, wastewater and its treatment, energy (including heat), telecommunications, utilities, waste, health, social care, education, flood risk and coastal change management, and its ability to meet forecast demands
- Take account of the need for strategic infrastructure including nationally significant infrastructure in their areas.”

The NPPF emphasises the importance of identifying and coordinating development requirements, including the provision of infrastructure. Planned infrastructure should be delivered in a timely fashion and local authorities should work with neighbouring authorities and transport providers to develop strategies for the provision of viable infrastructure necessary to support sustainable development.

National Planning Practice Guidance (2014) provides guidance regarding infrastructure planning in relation to the Local Plan. Paragraph 018 states:

“The Local Plan should make clear, for at least the first five years, what infrastructure is required, who is going to fund and provide it, and how it relates to the anticipated rate and phasing of development. For the later stages of the plan period less detail may be provided as the position regarding the provision of infrastructure is likely to be less certain.

The detail concerning planned infrastructure provision can be set out in a supporting document such as an infrastructure delivery programme that can be updated regularly. However the key infrastructure requirements on which delivery of the plan depends should be contained in the Local Plan itself.”

This guidance has informed the preparation of this and previous versions of the SIP.

Housing White Paper: Fixing Our Broken Housing Market

The Housing White Paper: Fixing Our Broken Housing Market (February 2017) sets out how the government intends to ensure infrastructure is provided in the right place at the right time. It states:

“We need to work with mayors and local leaders, taking a place-based approach, to better empower them to drive delivery of homes, jobs and shared prosperity for their areas...We will target the £2.3bn Housing Infrastructure Fund at the areas of greatest housing need. We will open this capital grant programme to bids in 2017, with money available over the next four years. We expect to fund a variety of infrastructure projects (including transport and utilities) where these will unlock the delivery of new homes, enabling economic development across the area. We would also welcome joint bids from across local authority boundaries where a strategic project could open up new homes on a wide-scale. Our decision-making is likely to factor in whether authorities intend to apply the new standardised approach to assessing housing requirements. We will fund those bids that unlock the most homes in the areas of greatest housing need.”

The White Paper also sets out proposals to amend national policy so that local planning authorities are expected to identify the development opportunities that such investment offers at the time funding is committed, and make it clear that when they review their plans they should seek to maximise the potential capacity unlocked by major new infrastructure.

2.1.2 Regional

The London Plan

The London Plan is the strategic plan for London and sets out an integrated economic, environmental, transport, and social framework for the development of the capital to 2036. It forms part of the development plan for Greater London and London Borough local plans need to be in general conformity with the London Plan and its policies.

Opportunity Areas

London has limited opportunities for accommodating large scale development. Several suitable areas are identified in the Mayor's London Plan March 2015: 38 Opportunity Areas and seven Intensification Areas.

Opportunity Areas are London's major source of brownfield land which have significant capacity for development – such as housing or commercial use - and existing or potentially improved public transport access. Typically, they can accommodate at least 5,000 jobs, 2,500 new homes or a combination of the two, along with other supporting facilities and infrastructure.

The Mayor works closely with the boroughs and other stakeholders in developing Opportunity Areas. He provides encouragement, support and leadership in preparing and implementing Planning Frameworks, which serve to help realise the potential of these areas.

These partnerships work in a number of ways, including:

- Joint GLA and borough steering groups
- Secondments both to and from the GLA
- Active involvement of the private sector
- The use of 'in-house' expertise
- The appointment of consultants (where appropriate).

Development proposals within Opportunity Areas should:

- Support the strategic policy directions for the relevant Opportunity Area(s) and Intensification Area(s)
- Seek to optimise residential and non-residential densities and provide infrastructure to sustain growth
- Contribute towards meeting the minimum guidelines for housing and/or employment capacity
- Realise scope for intensification associated with improvements in public transport accessibility and promote inclusive access including cycling and walking
- Support wider regeneration and integrate development proposals to the surrounding areas especially Areas for Regeneration.

The London Plan has identified Heathrow (including Hayes) as an Opportunity and Intensification Area, where there is the potential to provide a minimum of 9,000 new homes and 12,000 new jobs (indicative figures).

Heathrow Opportunity Area

The Heathrow Opportunity Area is designated in the London Plan.

- Area (Ha): 700
- Indicative employment capacity: 12,000
- Minimum new homes: 9,000
- OAPF progress: 1.

The Mayor supports an integrated approach to the distinct environmental and growth issues facing the area around Heathrow both within and beyond London in the three corridors covered by the 'Western Wedge' (see para 2.17) and recognises the importance of the airport as a driver for economic growth within the opportunity area and beyond. He recognises the importance of maintaining its attractiveness to business, while enhancing its environmental performance in line with Policy 6.6 Aviation. It contains a range of locations with potential to contribute to economic development without a third runway, together with new housing and environmental improvement.

Any new development and infrastructure brought forward in this area must avoid adverse effects on any European site of nature conservation importance (to include SACs, SPAs, Ramsar, proposed and candidate sites) either alone or in combination with other plans and projects. In Hillingdon, Heathrow 'north' (including the A4 corridor) will continue to benefit from airport related growth, particularly with regard to transport and logistics, business and hotels and leisure/tourism.

Stockley Park has a particular draw for a diverse range of offices including marketing and R&D, and for prestigious national and European headquarters. Uxbridge is set to grow significantly with the redevelopment of the RAF Uxbridge site, together with potential in the bio-science sectors and creative/media support services in the Uxbridge Business Park. The Hayes-West Drayton corridor contains redevelopment opportunities for a range of potential uses, including small business parks, logistics and mixed-uses. Hayes Town Centre offers considerable scope for the creative/media sector and for SME workspace. In Hounslow, there is capacity to continue the rejuvenation of Feltham as a town centre and to develop the borough's strategically important industrial offer. The capacity estimates indicate the broad potential of the Opportunity Area and are subject to more detailed testing.

Housing Zones

Housing Zones were introduced in 2014 and aim to boost housing supply in London. A Housing Zone includes a minimum of 1,000 homes across tenures. A range of planning and financial measures are used in these areas to unlock and accelerate housing delivery and to build more affordable homes for working Londoners.

All Housing Zones will be set up by an agreement which shares the duty of building the homes between partners. This will ensure the numbers of planned new homes are built.

The Mayor has set forward plans for the development of 31 Housing Zones in partnership with London boroughs and their development partners as part of his Housing Strategy. A total of £600 million in funding has been made available by the Mayor and government for the construction of 75,000 new homes. The programme will also provide 150,000 associated jobs over the next ten years.

In March 2016, a further 11 housing zones were designated (in addition to the original 20) including Hayes Town Centre, which falls within the Heathrow Opportunity Area. The GLA funding for the next set of Housing Zones is £200m across the boroughs with an anticipated allocation of £20m per Zone. This grant funding is capital in nature and typically a mix of direct grant assistance and repayable grant depending on the nature of the projects undertaken within the Zone.

Hayes Housing Zone

In 2016, Hayes Town Centre was designated as a Housing Zone. Policy 8.1B in the Further Alterations to the London Plan (FALP 2015) identifies Housing Zones as initiatives to realise the potential of large development areas and commits the Mayor to working with Government on developing implementation options for them and with boroughs on potential locations.

The 2014 Housing Prospectus makes clear that, 'A Housing Zone will be more tightly focused on housing delivery than an Opportunity Area. Parts of Opportunity Areas which include significant areas for commercial or mixed use development may be left outside of the Housing Zone 'red-line'. Housing Zones should present a more immediate opportunity for development than many Opportunity Areas are currently able to deliver, and, rather than setting out an aspiration through a broad planning framework, would specifically link investment and intervention to specific housing outputs in specific locations.'

2.1.3 Local

The Local Plan

The Hillingdon Local Plan sets out the key elements of the planning framework for the area from 2011 to 2026, and is separated into two parts.

- The Local Plan (Part 1) outlines the long term spatial vision for the area, and the broad locations for delivering the housing and other strategic development needs such as employment, retail, leisure, community, essential public service and transport development. Part 1 of the Local Plan was

adopted in November 2012 following an Examination in Public and approval by the Planning Inspectorate. It is due to be reviewed in 2017.

- The Local Plan (Part 2) includes a set of development management policies, site allocations and a policies map in order to provide guidance regarding development decisions, and a monitoring and implementation framework to aid the delivery of the Local Plan. The Council has undertaken consultation on the Revised Proposed Submission Version of the Local Plan Part in 2015. It is due to be submitted for examination in early 2017.

Hillingdon's Local Plan and Housing Strategy seek to provide additional housing in the Borough to meet the population needs and growth for the next 15 years, and the Hayes area of the Borough provides the greatest concentration of development opportunities to justify the allocation of a Housing Zone. The creation of a Housing Zone and access to grant funding aims to unlock potential housing sites and increase the element of affordable homes.

2.2 Local Context

2.2.1 Hillingdon Today

Hillingdon is the second largest London borough by area, located 14 miles west of central London. It has Heathrow Airport on its boundaries, making it the gateway to the UK, and a major contributor to the national and local economy, employing over 9,000 of Hillingdon's residents. Hillingdon is London's western-most borough, adjacent to the Colne Valley Regional Park and itself contains over 800 acres of woodland, country parks, fields and farms, several rivers and the Grand Union Canal.

The borough maintains over 200 green spaces, adding up to about 1,800 acres. Uxbridge is the largest town centre in the borough, other district centres include Eastcote, Hayes, Ickenham, Northwood, Ruislip and Yiewsley. The borough contains one further educational establishment (Uxbridge College) and two Universities: Brunel and Bucks New University.

Hillingdon has some of the busiest parts of London's strategic road network including the M4 and the nearby M40 and M25. National rail connections are available into central London from Heathrow (via the Heathrow Express and Heathrow Connect service) and West Drayton and Hayes (to Paddington) and West Ruislip and South Ruislip into Marylebone. The borough contains 13 Underground stations for the Piccadilly, Metropolitan and Central Lines with interchanges at Heathrow, Uxbridge and West Ruislip.

The Vision for Hillingdon 2026 is that, 'Hillingdon continues to prosper through the implementation of the following seven point vision:

- Hillingdon is taking full advantage of its distinctive strengths with regard to its places, communities and heritage
- The social and economic inequality gaps in Hillingdon are being closed
- Improved environment and infrastructure is supporting healthier living and helping the borough to mitigate and adapt to climate change
- Economic growth has been concentrated in Uxbridge, Heathrow and the Hayes/West Drayton Corridor, without ignoring local centres
- Improved accessibility to local jobs, housing and facilities is improving the quality of life of residents
- Hillingdon has a reliable network of north/south public transport routes and improved public transport interchanges

- Hillingdon has continued to prosper from the presence of Heathrow.

2.2.3 Growth in Hillingdon

The Local Plan (Part 1) set out the main growth targets from the Borough and a series of high-level policies as to how the growth will be achieved and managed in a sustainable way. It includes housing and population growth targets for the Borough over the lifetime of the Plan (up to 2026). The infrastructure projects contained within the previous SIP were those required to support this level of development.

This infrastructure plan has been updated to reflect the latest changes in population, housing and employment growth and also any other significant factors that will generate development and require infrastructure provision. A summary of these updates is provided below.

The updated Local Plan (Part 2) contains updated housing targets as required by the GLA's London Plan. The Local Plan (Part 2) also contains an update of the estimated housing capacity of identified development sites across the Borough.

During the period 2011 to 2016, the emerging Local Plan (Part 2) states that 1,159 residential units have been completed, which have contributed to the Council's Local Plan (Part 1) housing target of 8,385 units over the plan period 2011-2026 (leaving 7226 to be delivered against the target).

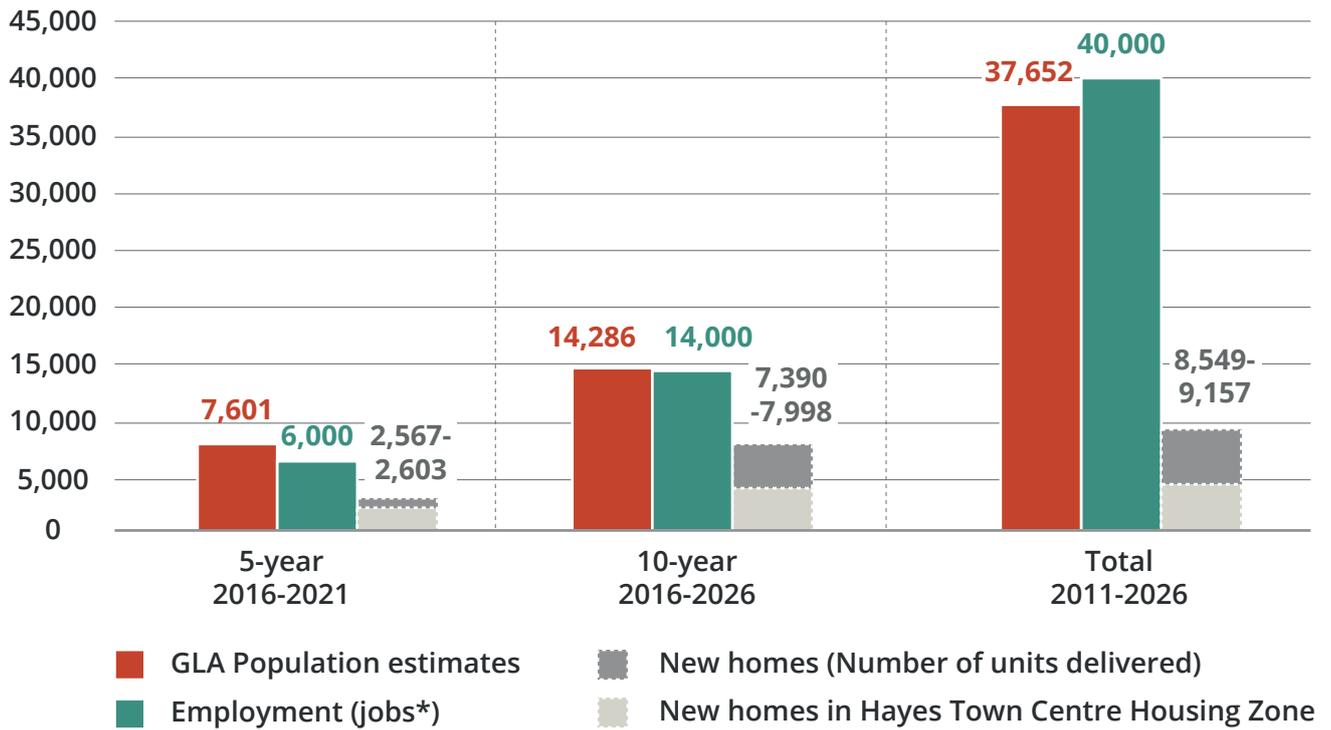
However, the growth forecasts have since been updated based on any changes as a result of completed or new developments or development sites. As per the Emerging Local Plan (Part 2), there is now a growth target of between 8,549 - 9,157 new homes up to 2026 (leaving 7390-7998 to be delivered against the target).

The majority of growth is expected to be delivered in Uxbridge, the Hayes/West Drayton corridor, Heathrow airport and South Ruislip. Since the adoption of the 2012 Local Plan, Hayes Housing Zone has been established. The Housing Zone will be a particular focus for growth and development in Hillingdon.

Figure 5. Hillingdon in Context



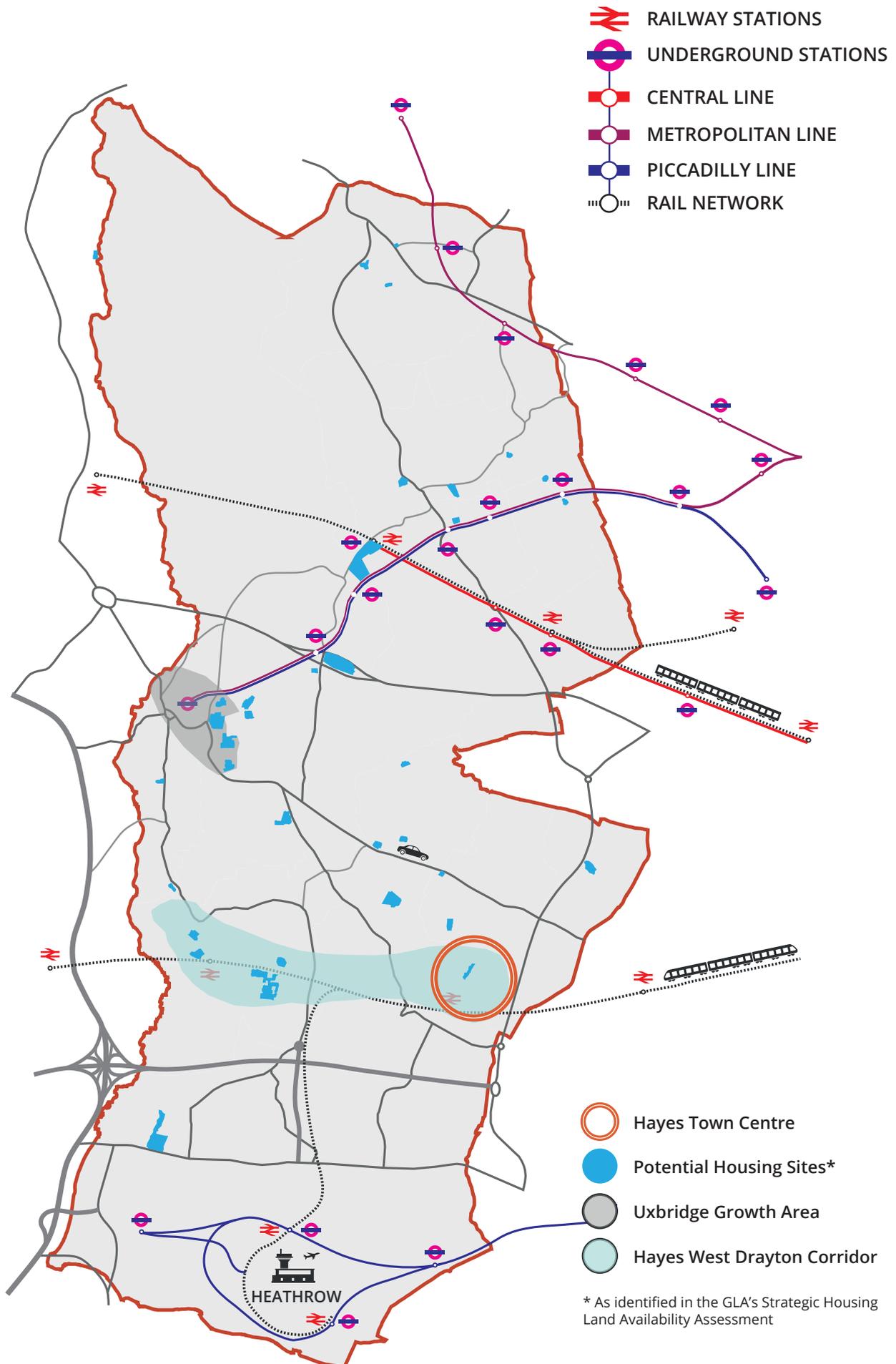
Figure 6. Growth in Hillingdon



*These employment figures are an estimate of long-term trends, and do not seek to model year-on-year fluctuations. The projections include jobs which are both full-time and part-time. Note also that the projections are workforce jobs (and not people in jobs - as some people hold more than one job). It is recommended that the projected figures are assumed to include construction jobs.

Source: 1. 2016 (GLA population projections); 2. 2016 (Emerging Local Plan Part 2); 3. 2016 (GLA employment projections), Hayes Town Centre Development Infrastructure Funding Study 2017,

Figure 7. Areas of Growth in Hillingdon



3 METHODOLOGY

3 METHODOLOGY

This section sets out the methodology for reviewing and updating Hillingdon’s Strategic Infrastructure Plan (SIP) to ensure it reflects the borough’s latest priorities and provides sufficient evidence to support the Local Plan.

It details the approach taken to information gathering, validation and approval of the revised SIP as part of the evidence base for the Local Plan in response to the National Planning Policy Framework (NPPF). This states that Local Plans should be based on a strategy which seeks to meet objectively assessed development and infrastructure requirements, including unmet requirements from neighbouring authorities where it reasonable to do so and consistent with achieving sustainable development.

The Local Plan must demonstrate how and when the policies and development it proposes will be delivered. As part of this, authorities with a Community Infrastructure Levy (CIL) must identify the total cost of infrastructure they wish to fund wholly or partly through the Levy. In doing so, they must consider what additional infrastructure is needed in their area to support development, and what other sources of funding are available, based on appropriate evidence.

Figure 8. SIP Methodology



3.1 Document Review

The document review entailed reviewing:

- Existing documents to ensure revisions to the SIP are fully understood within the context of the Council's policy framework
- The March 2013 SIP to fully scope gaps and weaknesses against new legislative requirements
- Other relevant documents such as the Capital Programme, the adopted Local Plan and any relevant existing Strategies
- Regulation 123, Planning Obligations Supplementary Planning Document (SPD) and CIL income / expenditure to date
- Historic work including previous legislation changes and growth indicators.

3.2 The Growth Areas, Assumptions and Forecasts

- To provide a robust forecast and create a suitable basis for the SIP, Hillingdon Council were liaised with to draw up and agree any relevant updates of the growth scenarios from the existing Local Plan
- An interim report was produced combining the forecast scenario and information collected from the document review. This informed the basis of engagement with infrastructure providers and of the subsequent demand analysis.

3.3 Stakeholder Engagement Phase 1: Infrastructure Providers

The engagement process for the SIP was organised in two phases and this paragraph describes phase 1. For Phase 2 see below.

- A list of infrastructure providers was agreed with the Council
- A stakeholder letter, briefing note and infrastructure schedule template were drafted and issued as a 'call for projects,' including a clear explanation of the CIL review and benefits for the infrastructure providers
- Agreed growth forecasts were shared with the infrastructure providers
- One-to-one engagement with infrastructure providers was carried out as required to ensure that they were aware of the growth scenarios and 'call for projects'. This encouraged providers to supply the appropriate data.

3.4 Infrastructure Demand Forecast

- The infrastructure requirements for the agreed assumptions were compiled, integrating supply / demand analysis from providers and completing the gaps in their forecasting
- Infrastructure requirements associated with the growth assumptions were estimated
- Social infrastructure requirement forecasts were based on the information received from initial stakeholder engagement and on the best available evidence and agreed standards where appropriate. Where the location of development was not yet known, no spare capacity in existing social infrastructure has been assumed
- No bespoke modelling was undertaken for transport or utilities as these are specialist areas led by statutory providers and it is important to rely on their analysis. Utilities providers did not provide specific answers on infrastructure associated with the growth scenarios at this stage. Nevertheless, close working with the infrastructure providers ensured they provided timely responses.
- It is important to note that TFL, as an infrastructure provider, has only provided details of plans to support growth connected to Hayes Housing Zone. Their requirements to meet growth elsewhere in the borough have not yet been identified. TFL expects the borough to assess and forecast transport requirements for their own Local Plan.

3.5 Stakeholders Engagement Phase 2: Harmonising Supply / Demand Analysis and Defining Infrastructure Delivery Projects

- Further one-to-one engagement was offered to review each provider's individual supply and demand forecasts once they had been calculated to translate the data into projects
- A workshop was held with a number of the infrastructure providers to review the new SIP schedule, validate the requirements, and to agree a consistent methodology for updating information including: forecast growth patterns, timescales, costs, use of inflation in forecasting
- Hillingdon Council were engaged on the prioritisation of the identified infrastructure.

3.6 Costing and Phasing

- A Cost Consultant reviewed all infrastructure costs and assessed cost inflation forecasts.

3.7 SIP Report & Schedule / CIL Infrastructure Funding Gap Evidence

- All additional infrastructure data to be provided in the SIP schedule was gathered and analysed
- This is supported by this SIP Report, the structure and contents of which have been agreed with the client team
- The SIP report includes the evidence of a forecast funding gap, which has been drafted to present as part of the overall evidence base to the revised CIL Charging Schedule and to support a Local Plan review
- The SIP report also establishes a strategy to enable positive planning to ensure infrastructure is provided at the right time, in the right place, and of the right quality to support sustainable growth in Hillingdon.

4 INFRASTRUCTURE REQUIREMENTS

4 INFRASTRUCTURE REQUIREMENTS

4.1 Transport and Connectivity

An efficient transport network is vital to support growth in Hillingdon over the period of the Local Plan. For the purposes of this study, transport infrastructure refers to roads (public highways), public transport services, pedestrian and cycle facilities and interchanges between travel modes.

This section explores current transport issues in Hillingdon, proposals that are likely to come forward during the period of the Local Plan and additional infrastructure that is required to underpin the strategic road network.

The Local Implementation Plan (LIP) outlines Hillingdon Council's transport policies, programme and long-term aspirations. It is developed in response to the requirements of the Mayor's Transport Strategy (MTS), with projects addressing the Mayor's objectives and reflecting local needs. It also takes account of local characteristics and evidence and policies set out in documents at the time of writing including, the Council's Sustainable Communities Strategy, the Local Development Framework (LDF) and West London sub regional transport plan. The latest plan provides a three year delivery plan for 2011 to 2014, as well as sets out larger and longer term major schemes and new infrastructure projects.

An essential aspect of the LIP is the Council's role as a partner, which for Hillingdon means working closely with Transport for London (TfL), transport operators, Heathrow Airport Limited, local businesses, community groups and the wider public to deliver a range of improvements that help change the way people travel. Some of the proposed improvements within the LIP can be implemented by the borough, using its statutory planning, highways and network management and parking powers. Other improvements, particularly the larger, longer term projects, need to be delivered in partnership. For example, improvements to the Transport for London Road Network (TLRN), and at rail and underground stations.

The objectives set out in the Local Implementation Plan are as follows:

- Improve the condition of principal roads and increase satisfaction levels with network condition
- Reduce the negative impacts of transport on air quality and noise
- Promote healthy travel behaviour

- Improve the safety and security of the transport system, including reducing the number of collisions
- Ensure the transport system enables sustainable access to health, education, employment, social and leisure opportunities
- Reduce Hillingdon's contribution to climate change and improve its resilience
- Improve journey time reliability and reduce congestion.

TfL recommends that London boroughs continue to use the 2015/16 Annual Spending Submission Guidance issued by TfL in 2015. Boroughs are advised to plan their 2017/18 programmes based on 2016/17 funding levels. The Interim Guidance advises that cycling, bus stop accessibility, Crossrail Complementary Measures and air quality improvements should still be prioritised within boroughs' Local Implementation Plan Programmes for 2017/18.

In preparation for the specific development proposals that are expected to come forward within the Hayes Town Centre, TfL is undertaking an outcome planning and definition process to set the surface transport priorities and required interventions.

Hillingdon's Air Quality Action Plan establishes a number of transport related measures designed to reduce emissions from road transport.

4.1.1 Roads, Bridges and Junction Improvements

Context

Hillingdon's existing road network has direct links to central London and other parts of the country via the motorway and strategic road network. The full extent of this network is outlined below and includes several main road routes: the M4, A40 and A4. As an outer London Borough, Hillingdon's road network will remain central to travel patterns within the borough over the period of the Local Plan.

The M4 motorway links London with South Wales and south west of England and passes through Hillingdon's southern quarter, intersecting the borough from east to west. This is the only motorway within the borough boundary, however the proximity of the M40 and M25 to the west of the borough have a significant influence on the travel patterns of local residents and those passing through the borough.

The following bodies play a key role in the management and maintenance of Hillingdon's road network:

- Highways England (HE): As part of the reform agenda, the Highways Agency was turned into a government-owned strategic highways company called Highways England in April 2015 and the Infrastructure Act was also introduced as supporting legislation. They manage and maintain the motorway network in the borough.
- TfL Road Network: TfL is the integrated body responsible for the capital's transport system. As an organisation, TfL manages the Transport for London Road Network (TLRN). In Hillingdon, this consists of the A40, A30, A312 and A4. These are primarily east/west routes apart from the A312, which runs north east/south west across the borough from Northolt. Under the Traffic Management Act 2004, TfL acts as the traffic authority for the strategic road network
- London Borough of Hillingdon (LBH): As the highway and traffic authority, the Council is responsible for the maintenance and management of all activities, on the Borough's road network and also maintenance of the strategic road network. This includes:
 - Strategic Road Network (SRN) (includes the A4020)
 - Borough Main Distributor Road Network (includes the A437, A408 and A4180)
 - Borough Secondary Distributor Road Network (local roads defined on the Transport Network Plan)
 - Borough Link Road Network (local roads defined on the Transport Network Plan)
 - Borough Unclassified Road Network.

Existing Need and Capacity

The Local Plan (Part 2) outlines that Hillingdon faces a number of challenges in relation to managing the impacts from land based transport, which significantly affect large parts of the Borough. Its outer London location and limited north-south strategic transport network have resulted in high car ownership - 53% of Hillingdon residents travel to work by private vehicle (car or van) compared to an average of 38.1% for other outer London boroughs or an average of 12.7% of inner London boroughs. Further transport challenges include planning for the growth which is proposed in the London Plan in the Heathrow Opportunity Area. 2016 also saw the designation of Hayes Housing Zone which falls within the south of the borough within the Opportunity Area.

Key employment growth areas proposed in the Local Plan are located in close proximity to existing congestion hotspots on Hillingdon's

road network. The capacity to accommodate growth and additional road traffic in these areas will be limited and dependent on measures such as highway and public transport improvements to make more efficient use of transport infrastructure. Further mitigation measures will be identified through green travel plans and detailed transport assessments as specific development proposals come forward for consideration.

As the emerging Local Plan (Part 2) sets out 41 site allocations for housing and mixed use developments, Hillingdon Council have commissioned a study of the plan's impact on highways. This will run concurrently with the Local Plan examination process. Hillingdon require the results of the modelling to specifically address the impact of the Local Plan on the following junctions:

Strategic Road Network (SRN):

- M25 junctions 14-17
- M4 junctions 3-4b
- M40 Junctions 1 and 1a
- A3113 Airport Way.

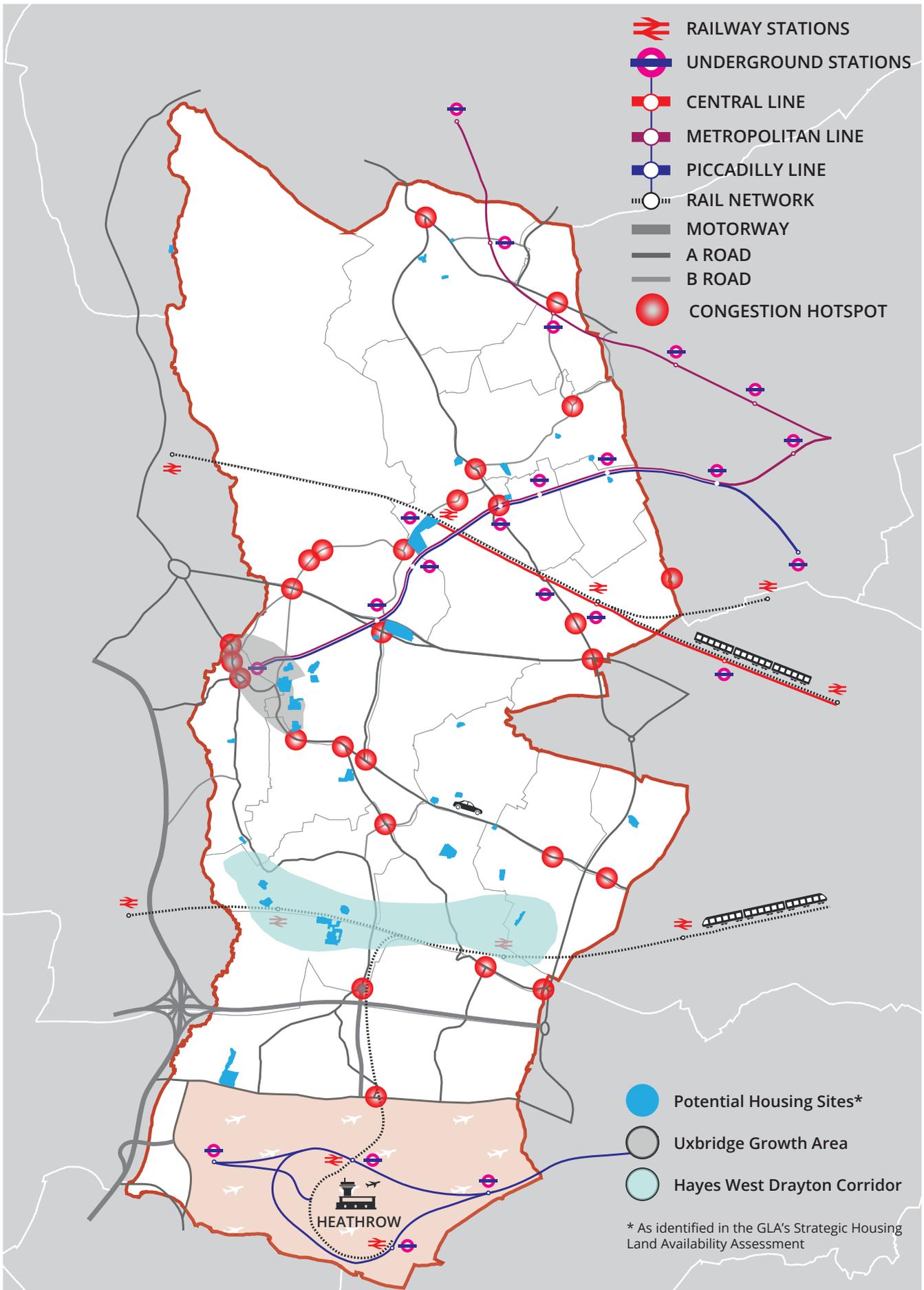
Transport for London Road Network (TLRN):

- A40,
- A30,
- A312
- A4.

Trip generation forecasts for each of the 41 sites will be used in the assessment of future highways and public transport impact. The high level assessment of public transport capacity will enable a static assessment of future public transport flows, focused on town centres in the borough and will give an indication of any areas of network stress resulting from the public transport trips generated by the site allocations.

Figure 9. Growth in Relation to Congestion Hotspots

Source: London Borough of Hillingdon Strategic Infrastructure Plan, March 2013, URS



Accommodating Growth

In December 2014, the Department for Transport (DfT) and the Highways Agency published the Road Investment Strategy: 2015 to 2020. It sets out a long-term approach to improve England's strategic road network. Over the next 5 years the first RIS will:

- See £15.2 billion invested in over 100 major schemes to enhance, renew and improve the network
- Help prevent over 2500 deaths or serious injuries on the network
- Build over 1300 additional lane miles
- Improve 200 sections of the network for cyclists

- Benefit up to 250,000 people by reducing the noise impact of England's motorways and major roads.

In November 2015, the government outlined plans to develop the next RIS covering the second road period post 2020.

Discussions with key stakeholders have highlighted that the following infrastructure improvements are required for Hillingdon's road network. TfL have highlighted that further improvements - not detailed below - will be needed to accommodate any increase in growth.

Description	Lead	Need	Requirements	Phasing
M4 J3-J12 Smart Motorway	HE	Measures are needed to provide more reliable traffic flow / journey time along M4	M4 hard shoulder running between junctions 3-12 involving localised widening	Multi-year project starting in the west. 2017-2022
Bulls Bridge roundabout and M4 J3 junction upgrades	Southall Gas-works and Hayes HZ developers	To facilitate the development	Increased capacity at the junction	2020-2022
Bulls Bridge roundabout and M4 J3 junction upgrades	TfL	To accommodate significant cumulative growth across Hillingdon, Ealing, Hounslow and wider London. Particularly Hayes Town Centre.	Redesign and rebuild of Bulls Bridge roundabout and M4 J3.	2021-2031
Existing highway network maintenance and upgrades	LBH	The Road Task Force requires the borough to review/ retrofit its entire highway network so that it is fit for the Mayor's growth and sustainable transport aspirations	Evolving programme of prioritised improvements for borough wide highway network	Borough-wide programmes are reviewed annually and monitored continuously
Cranford Park Access	HE/TfL	Minimise M4 and A312 severance and safety concerns especially at J3	Cranford Park multi-modal access improvements whilst smoothing traffic flow at M4/J3, along A312 and across M4	Multi-year project starting in the west

Description	Lead	Need	Requirements	Phasing
TLRN maintenance and enhancement	TfL	The Mayor's Transport Strategy and Road Task Force requires Transport for London Road Network (TLRN) review and updating especially to address growth and sustainable transport aspiration	Evolving programme of prioritised improvements along A40, A312 and A4, including resurfacing, bus stop accessibility and footway works	Three year programme of works; Borough-wide programmes are reviewed quarterly and monitored continuously
Road Safety Improvements	TfL	A40 Swakeleys Roundabout	To be determined	To be determined
Road Safety Improvements	TfL	A40 Polish War Memorial	To be determined	To be determined
HS2 Construction Routes	TfL	Swakeleys Roundabout circulatory capacity and associated works along Swakeleys Road to accommodate vehicles to HS2 railway tracks	Works to provide construction route capacity whilst maintaining TLRN capacity	Seven year programme of HS2 construction works
Take active steps to reduce car dominance - Cap car parking provision for new developments.	TfL	Without this measure, TfL will need to seek additional S106 funding to accommodate increased demand on its road network	Policy agreement to cap ratio for new developments to a maximum of 0.50	To be determined
Take active steps to reduce car dominance - Expand controlled parking zones (CPZs) around the station and town centre	TfL	Without this measure, TfL will need to seek additional S106 funding to accommodate increased demand on its road network.	Specific requirements to be discussed between TfL and LBH	To be determined

4.1.2 Public Transport and Inter changes between Travel Modes

Context

The existing public transport network in Hillingdon consists of bus, rail and London Underground services and is most strongly developed along east west routes, with all rail and Underground lines and many bus services travelling from central London to the west.

Rail forms an important part of the public transport network in Hillingdon. There are two main line rail services in the borough. The Chiltern Line links central London with Amersham through the north of the borough and the Great Western mainline links Paddington with the West Country through the south of the borough. The Heathrow Express runs through Hillingdon, connecting Heathrow Airport via a direct link with London Paddington. Crossrail services will also run through West Drayton and Hayes & Harlington stations from 2018, and there will be a new station at Heathrow.

Crossrail is a major infrastructure project that will provide a direct rail link from Maidenhead to the City, east London, Essex and Kent, travelling through the southern part of Hillingdon on the route of the existing Paddington line. The services will significantly reduce the travel time into London and are fundamental to growth plans in the borough.

High Speed Two rail network (HS2) is the government's proposed high speed rail network, which is planned to run through the borough, south of Ruislip. Routes haven't been confirmed yet, though phase 1 from London to the West Midlands is more advanced and less likely to change than the phase 2 route from the West Midlands to Leeds and Manchester. Work on the first phase is scheduled to begin in 2017, reaching Birmingham by 2026. Although the line is unlikely to be operational within the period of this plan, it may have significant construction impacts on existing infrastructure within the borough within the next five years.

There are 14 London Underground stations in Hillingdon which are served by the Piccadilly, Central and Metropolitan lines. In the south of the borough, a branch of the Piccadilly Line connects central London to Hatton Cross and all terminals at Heathrow Airport. The remaining London Underground services serve the northern part of Hillingdon. The Central Line runs through central Hillingdon from South Ruislip to West Ruislip, with three stops. The northern branch of the Piccadilly Line runs from Eastcote to Uxbridge, with six stops in the borough. The Metropolitan Line has two

branches in Hillingdon, one follows the northern branch of the Piccadilly Line and the other crosses the north eastern corner of the borough connecting Amersham and Watford with London Marylebone, with stops at Northwood and Northwood Hills.

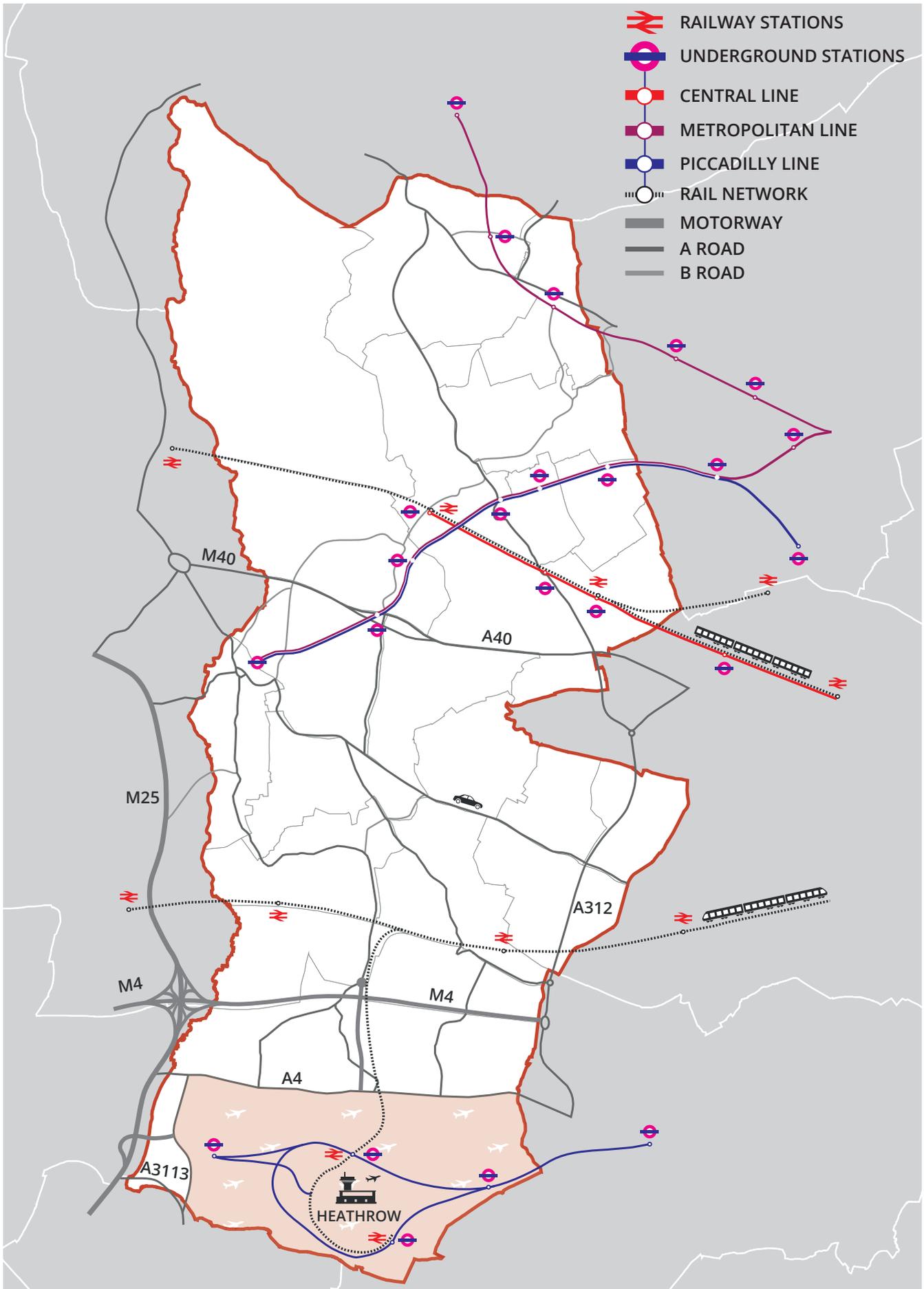
Bus services are focused principally on the borough's district centres while Uxbridge and Heathrow are key hubs for bus services.

Existing Need and Capacity

As outlined above, some parts of the borough are well served by the London Underground network and also has good rail links to central London. Current work is focused on improving the frequency of Underground services from Uxbridge and the forthcoming Crossrail line will reduce travel time into London. There is the potential for a new bus services to be introduced in the borough (primarily operating north-south routes). This would help to improve north-south public transport connectivity, which is currently limited.

Figure 11. Existing Transport Network

Source: London Borough of Hillingdon Strategic Infrastructure Plan, March 2013, URS



Accommodating Growth

In addition to the underground and rail capacity issues and north-south public transport connectivity outlined above, there are additional interchange and connectivity needs particularly related to the significant growth expected in the south of the borough connected to the Crossrail station developments in Hayes and West Drayton.

The development of an efficient, integrated, demand responsive public transport network is considered to be a key factor in ensuring sustainable growth in Hillingdon over the period of the Local Plan. The transport projects currently identified as required are as follows.

Description	Lead	Need	Requirements	Phasing
Uxbridge transport interchanges	LBH	Public transport provision is needed to serve demand for north-south transport within the borough and enable growth in Uxbridge Metropolitan Town Centre	Uxbridge public transport interchange scheme details are still to be determined	2017-2031
Crossrail station and forecourt upgrades	DfT/ Crossrail	Crossrail is needed to provide attractive direct public transport capacity between east and west London. Scheme is to regenerate south of the borough	Improve station access in Hayes and Harlington. Great Western Main Line electrification project is prerequisite and in progress	Completion expected in 2018/19
Station road and bus access as well as train stopping pattern improvement	Chiltern Railways	Increase capacity, reliability and journey time between Birmingham and central London via both West and South Ruislip	Increased train frequency along Chiltern Railway and Direct bus services between Uxbridge and both West Ruislip and South Ruislip	To be determined
Western Rail Access to Heathrow	DfT/ Network Rail/ Heathrow Airport Ltd	Provide new rail access to the Great West Mainline	New track, signalling, tunnelling and rolling stock	2020
Southern Rail Access to Heathrow	DfT/ Network Rail/ Heathrow Airport Ltd	Provide new rail access to Heathrow from South West trains rail network via Staines	New track, signalling, tunnelling	At early feasibility stage

Description	Lead	Need	Requirements	Phasing
Bus improvements at Hayes Town Centre	TfL	Capacity increase and potential route amendments to the local bus network, bus priority measures and improvements to the bus interchange at Hayes & Harlington station. Specific schemes are detailed under Requirement 1, 2a, 2b, 2c and 2d.	1. Enhance Hayes & Harlington bus interchange by increasing capacity, addressing queuing and improving waiting facilities. Bridge widening is likely to be required to achieve desired outcomes.	To be determined
Bus improvements at Hayes Town Centre	TfL	Capacity increase and potential route amendments to the local bus network, bus priority measures and improvements to the bus interchange at Hayes & Harlington station. Specific schemes are detailed under Requirement 1, 2a, 2b, 2c and 2d.	2a) Increase bus services to address capacity deficits.	To be determined
Bus improvements at Hayes Town Centre	TfL	Capacity increase and potential route amendments to the local bus network, bus priority measures and improvements to the bus interchange at Hayes & Harlington station. Specific schemes are detailed under Requirement 1, 2a, 2b, 2c and 2d.	2b) Deliver bus priority on Station Road south of Hayes & Harlington (inc. N Hyde Road junction).	To be determined
Harlington Corner Accessibility Improvements.	TfL	To accommodate growth of Hayes Town Centre, and beyond, and promote active travel.	Looking to improve interchange between buses and cycle and walking environment	2019/20

Description	Lead	Need	Requirements	Phasing
Bus improvements at Hayes Town Centre	TfL	Capacity increase and potential route amendments to the local bus network, bus priority measures and improvements to the bus interchange at Hayes & Harlington station. Specific schemes are detailed under Requirement 1, 2a, 2b, 2c and 2d.	2c) Deliver bus priority on Pump and Botwell Lanes or reduce parking on constrained sections of the network to bus reliability.	To be determined
Bus improvements at Hayes Town Centre	TfL	Capacity increase and potential route amendments to the local bus network, bus priority measures and improvements to the bus interchange at Hayes & Harlington station. Specific schemes are detailed under Requirement 1, 2a, 2b, 2c and 2d.	2d) Improve bus facilities along North Hyde Road, or divert services to Nestles Avenue (priority along new alignment and standing facilities).	To be determined
West Ruislip transport interchanges	LBH	Public transport provision is needed to serve demand for north-south transport within the borough and enable growth in Uxbridge Metropolitan Town Centre	To be determined	2017-2031

4.1.3 Walking and Cycling

Part 1 of Hillingdon's Local Plan promotes sustainable forms of transport with an overall aim of improving air quality and reducing private car dependency. It seeks to provide a sustainable transport system that supports the economy, encourages active travel and improves quality of life. The framework also aims to reduce congestion and smooth traffic flow by directing growth to locations that are near public transport interchanges, encouraging walking and cycling, improving existing public transport and ensuring ease of access for all.

The London Plan advises that development proposals should enhance the use of the Blue Ribbon Network. Local Plan (Part 1) policies seek to encourage the use of the Borough's waterways for walking, cycling and other recreational activities. Hillingdon also contains a number of nature based attractions including the walking, cycling and bridleways of the Colne Valley Park, the Grand Union Canal and the Willow Tree Marina, Yeading.

Walking and cycling accessibility is particularly important in district centres (for example in Ruislip, West Drayton, and Hayes), which provide convenience goods and services for more local communities and are accessible by public transport. Minor centres and local centres also typically serve a localised catchment often most accessible by walking and cycling and include local parades and small clusters of shops, mostly for convenience goods and other services.

Hayes Town Centre has been designated a housing zone and sufficient walking and cycling provision will be important to accommodate high levels of growth and to better connect the town to nearby Lake Farm Country Park and Minet Country Park.

In February 2015 the government introduced a duty through the Infrastructure Act for the Secretary of State for Transport to bring forward a Cycling and Walking Investment Strategy (CWIS) in England. In July 2015 Part 2 of the Infrastructure Act (Cycling and Walking Investment Strategies) was enacted through the Infrastructure Act 2015 (Commencement No. 3) Regulations 2015. The aim is to tackle the long term decline in walking and to improve the nation's health, economy and quality of life. The first Cycling and Walking Investment Strategy was published in March 2016. It sets out the government's ambition by 2040 to 'make cycling and walking the natural choice for shorter journeys, or as part of a longer journey.'

The objectives set to measure progress are:

- Double cycling, where cycling activity is measured as the estimated total number of bicycle stages made each year, from 0.8 billion stages in 2013 to 1.6 billion stages in 2025
- Reverse the decline in walking activity, measured as the total number of walking stages per person per year
- Reduce the rate of cyclists killed or seriously injured on England's roads, measured as the number of fatalities and serious injuries per billion miles cycled, each year
- Increase the percentage of children aged 5 to 10 that usually walk to school.

Existing Need and Capacity

The Local Plan (Part 2) notes that current levels of cycling and walking are low and dependency on private vehicles is high, which is likely due to a number of factors including its outer London location, limited north-south strategic public transport network and noise and pollution levels near to the motorway and major arterial roads, rail corridors and within the vicinity of the airport.

The West London Sub-regional Transport Plan 2014 Update states that cars and motorcycles continue to account for the largest share of trips originating in west London, with only 2% of journeys in the West London sub-region being by bicycle compared with 43% by car. It was agreed with boroughs that while all MTS challenges must be considered across London, and addressed locally through LIPs, there are some which would benefit from having a concerted effort at a sub-regional level. Consequently, the challenges of emissions and achieving the targets for – and desired results from – an increase in the mode share of cycling and walking were all identified as challenges for the sub-regions.

It notes that the recommendations of the Mayor's Roads Task Force provide direction for making more efficient use of the sub-region's road network for the movement of people and goods. The rollout of cycling infrastructure in west London including Santander Cycles Cycle Hire, Cycle Superhighway and Quietways form part of a broader effort to improve air quality and health impacts by shifting transport to active modes. WestTrans is also leading on a cycling strategy for the West sub-region.

The Local Implementation Plan notes that transport is a specific issue within the southern Hillingdon Area Action Plan. A high level of car dependency has resulted in localised congestion, parking pressure and noise and air pollution.

Hillingdon was designated as a Biking Borough in 2010. TfL funded the borough to prepare a strategy to increase cycling and provides funding for schemes to be rolled out as part of the strategy. The scoping report identifies locations within the borough that will act as 'cycle hubs', areas where cycling is encouraged through the creation of a cycle friendly environment with features such as secure and well lit cycle parking, improved permeability and wayfinding, and promotional activities. The Council is also progressing cycle improvements in the Uxbridge-Heathrow area as part of its Biking Borough programme.

As a Biking Borough, Hillingdon is expected to achieve the Mayoral target of a 400 per cent increase in cycling by 2026 or sooner. Based on the current proportion of cycle trips, this equates to an additional 30,000 daily trips in Hillingdon (London Area Transport Survey 2001 baseline of 7,500 daily trips), in the context of over 170,000 potentially 'cycleable' trips per day.

Accommodating Growth

To meet the need and capacity issues outlined above and accommodate future growth in line with local, regional and national policy, the following projects have been identified to improve cycling and walking provision in Hillingdon.

There are also a number of large development sites being brought forward as part of the Hayes Housing Zone, which will provide additional connectivity infrastructure through s106 contributions, such as the Old Vinyl Factory providing 16,722sqm landscaped public space and the former Nestle site providing 3 hectares. The sites between Hayes & Harlington Station and Nestle Avenue are also likely to provide significant connectivity and walking and possibly cycling infrastructure.

Description	Lead	Need	Requirements	Phasing
Hayes town centre major scheme	LBH	Needs public realm and transport access improvements to improve arrival experience and access car parks from the south. Sustainable transport and public realm schemes are needed to facilitate growth of the district centre	Comprehensive programme of improvements to facilitate planning development including housing, town centre access and especially walking, cycling, public transport, and access to car parks	3 year programme to be completed in 2018
Cycling and walking improvements at Hayes Town Centre	TfL	Improve cycling and walking connectivity, particularly to and from development areas, the district centre and rail and bus services. Specific schemes are detailed under Requirement 1a, 1b, 1c, 1d (1. Improve walking and cycling connectivity in development areas), 2a, 2b and 2c (2. Address cycling network gaps), and 3.	1a) Deliver walking and urban realm improvements on Nestles Avenue, and Clayton and Blyth Roads. Introduce cycle/bus lanes on Nestles Avenue and cycle lane on either Clayton/Blyth Road to connect to Station Road.	To be determined

Description	Lead	Need	Requirements	Phasing
Cycling and walking improvements at Hayes Town Centre	TfL	<p>Improve cycling and walking connectivity, particularly to and from development areas, the district centre and rail and bus services.</p> <p>Specific schemes are detailed under Requirement 1a, 1b, 1c, 1d (1. Improve walking and cycling connectivity in development areas), 2a, 2b and 2c (2. Address cycling network gaps), and 3.</p>	1b) Improve walking and cycling access to Grand Union Canal from Dawley Road and North Hyde Gardens.	To be determined
Cycling and walking improvements at Hayes Town Centre	TfL	<p>Improve cycling and walking connectivity, particularly to and from development areas, the district centre and rail and bus services.</p> <p>Specific schemes are detailed under Requirement 1a, 1b, 1c, 1d (1. Improve walking and cycling connectivity in development areas), 2a, 2b and 2c (2. Address cycling network gaps), and 3.</p>	1c) Two-way cycle track along Pump Lane, including continuous access to A312.	To be determined
Cycling and walking improvements at Hayes Town Centre	TfL	<p>Improve cycling and walking connectivity, particularly to and from development areas, the district centre and rail and bus services.</p> <p>Specific schemes are detailed under Requirement 1a, 1b, 1c, 1d (1. Improve walking and cycling connectivity in development areas), 2a, 2b and 2c (2. Address cycling network gaps), and 3.</p>	1d) Introduce railway bridge lighting on GUC Quietway.	To be determined

Description	Lead	Need	Requirements	Phasing
Cycling and walking improvements at Hayes Town Centre	TfL	<p>Improve cycling and walking connectivity, particularly to and from development areas, the district centre and rail and bus services.</p> <p>Specific schemes are detailed under Requirement 1a, 1b, 1c, 1d (1. Improve walking and cycling connectivity in development areas), 2a, 2b and 2c (2. Address cycling network gaps), and 3.</p>	2a) Provide a continuous cycle lane along Station Road south of Hayes & Harlington.	To be determined
Cycling and walking improvements at Hayes Town Centre	TfL	<p>Improve cycling and walking connectivity, particularly to and from development areas, the district centre and rail and bus services.</p> <p>Specific schemes are detailed under Requirement 1a, 1b, 1c, 1d (1. Improve walking and cycling connectivity in development areas), 2a, 2b and 2c (2. Address cycling network gaps), and 3.</p>	2b) Improve cycling facilities on North Hyde Road between Station and Dawley Roads, Bowell Lane, Minet Park and Lake Farm Country Park.	To be determined
Cycling and walking improvements at Hayes Town Centre	TfL	<p>Improve cycling and walking connectivity, particularly to and from development areas, the district centre and rail and bus services.</p> <p>Specific schemes are detailed under Requirement 1a, 1b, 1c, 1d (1. Improve walking and cycling connectivity in development areas), 2a, 2b and 2c (2. Address cycling network gaps), and 3.</p>	2c) Improve cycling legibility on Coldharbour Lane.	To be determined

Description	Lead	Need	Requirements	Phasing
Cycling and walking improvements at Hayes Town Centre	TfL	<p>Improve cycling and walking connectivity, particularly to and from development areas, the district centre and rail and bus services.</p> <p>Specific schemes are detailed under Requirement 1a, 1b, 1c, 1d (1. Improve walking and cycling connectivity in development areas), 2a, 2b and 2c (2. Address cycling network gaps), and 3.</p>	3) Southern access to Hayes and Harlington Station	To be determined
Take active steps to reduce car dominance - Cap car parking provision for new developments.	TfL	Without this measure, TfL will need to seek additional S106 funding to accommodate increased demand on its road network.	Policy agreement to cap ratio for new developments to a maximum of 0.50.	To be determined
Take active steps to reduce car dominance - Expand controlled parking zones (CPZs) around the station and town centre.	TfL	Without this measure, TfL will need to seek additional S106 funding to accommodate increased demand on its road network.	Specific requirements to be discussed between TfL and LBH.	To be determined
GUC Quietway - Projects to support the Mayor's Vision for Cycling and towpath improvements and town centre.	TfL	Increase cycling in London in line with GLA and WestTrans targets	Measures for cycling along corridors (potentially) in demand	Quietway Bulls Bridge - High Street Yiewsley is awaiting funds for implementation in 2018 & 2019. Section further north is to be implemented using S106 to be complemented by LIP allocations

4.1.4 Air Transport

Heathrow is the largest international airport in the world and the UK's only hub airport and key multi modal interchange. The Local Implementation Plan notes that Heathrow is a major contributor to the national and local economy, directly employing over 76,500 people with around 170,000 indirect jobs generated by the airport. It is estimated that around 9,000 Hillingdon residents are employed by the airport. It therefore has a significant impact on travel patterns and a high proportion of airport employees travel to Heathrow by car.

Heathrow has a significant impact on air quality in the south of the borough. The Local Plan (Part 1) notes that the southern two-thirds of the borough is designated an Air Quality Management Area. This is due to high levels of nitrogen dioxide above recognised national and European Union levels associated with the major road network in the borough and the operation of the airport. In addition to contributing to poor levels of local air quality, the operation of Heathrow Airport has further significant impacts on local residents in the south of the borough and adjoining areas including traffic congestion, crowded public transport and high noise levels.

Heathrow works together with local partners through the Heathrow Area Transport Forum which has been instrumental to recent public transport and road improvements implemented as part of Terminal 5.

Existing Need and Capacity

Improvements to the surrounding road network have been undertaken in recent years at Longford roundabout. A link bridge from Western Perimeter Road to the airport has also been created. Parking at the airport has been

regulated, including the limitation of available parking spaces under Heathrow's control at Terminal 5, promoting car sharing and research into the possibility of allocating staff parking on a needs basis. Bus services have been extensively improved in recent years, with priority routes introduced on a number of surrounding road networks in conjunction with TfL, as part of the London Bus Initiative. A network of cycle routes has been created on the airport and the Heathrow Area Transport Forum maintains an ongoing effort to raise awareness and improve sustainable travel options.

Hillingdon Council will continue to work closely with TfL, the West London Partnership, Highways England and Heathrow to maximise investment into reducing CO2 emissions. The forthcoming Crossrail station at Heathrow should help to reduce car journeys to and from the airport.

Accommodating Growth

Discussions with Heathrow have identified a significant ongoing capital programme to ensure the operational capacity of the airport. Recent proposals for the development of a third runway at Heathrow are not applicable to this report due to its time frame.

The airport's infrastructure plans that are relevant to this study for Hillingdon Council are set out below. Business plans for future infrastructure delivery at Heathrow Airport are currently going through a period of regulatory negotiation with the Civil Aviation Authority therefore staff are unable to provide further detail at this time.

Description	Lead	Need	Requirements	Phasing
Terminal 2 Phase 2	Heathrow Airport Ltd	Provide new terminal infrastructure	Terminal 2 built out to the full extent of its planning permission	2019-2025/26
Southern Road Tunnel	Heathrow Airport Ltd	Provide new road access from the southern side of the airport to the Central Terminal Area	Tunnelling and new road infrastructure	Early design stage. Phasing to be agreed

4.2 Energy, Utilities and Waste

The following section presents the results of consultation with organisations providing water, electricity and gas supplies to the borough. These are considered to be the main utility works required to deliver growth proposed in the Local Plan.

In December 2014, the Government published Better Connected, setting out the process for securing utility provision for developments from initial scoping to post-development. It provides a shared expectation for utility connections from companies and developers. It also sets out the statutory performance measures already in place, and introduces new voluntary standards for water and sewerage and telecoms. The Housing White Paper Fixing our Broken Housing Market (February 2017) sets out that the DCLG will now work together across government and the sector to review Better Connected, assessing its impact so far, and how existing performance standards and penalties are working to support house building at all scales from small and medium sized developments to major sites delivering many thousands of homes.

The Government will review what more it could do to ensure that utilities planning and delivery keeps pace with house building and supports development across the country: aligning investment in utilities provision with local development plans that set out where and, crucially, when houses will be built is likely to be key in achieving this, speeding up timely connections for new homes. As part of this review, and depending on progress made by the sector, the Government will closely monitor performance to ensure house building is not being delayed and, if necessary, will consider obligating utility companies to take account of proposed development.

4.2.1 Waste

Context

Current and emerging international, national and local policy is placing an ever increasing emphasis on sustainable waste management. This means reducing the amount of waste produced, maximising the re-use of waste through recycling and composting and minimising that which is thrown away into landfill.

The West London Waste Disposal Authority (WLWA) is the statutory Waste Disposal Authority for six West London boroughs (including Hillingdon). Waste management issues in Hillingdon are addressed in a number of documents:

- The London Plan outlines overall waste management targets for London, the West London sub region and individual boroughs.
- Joint Municipal Waste Management Strategy 2005-20 (and the 2009 update) sets future waste and recycling plans and targets for each of the six West London boroughs. The WLWA has a stated aspiration of achieving a 70% reuse/recycling/recovery rate and zero waste to landfill, although there is no timescale for these targets.
- The West London Waste Plan 2015 (WLWP) outlines the preferred sites for waste management development in the plan area and provides a set of policies within which waste developments must conform.

Existing Need and Capacity

Three existing waste management facilities are provided in the borough. The WLWP states that in 2012 the WLWA and its constituent Boroughs dealt with around 657,000 tonnes of municipal waste, excluding abandoned vehicles. Of this total some 154,000 tonnes was recycled, 90,000 tonnes was composted, and 93,000 tonnes was sent to Materials Recovery Facilities (MRFs) from which waste went on to other routes. Ultimately, 413,000 tonnes was sent either to Energy from Waste (EfW) or to landfill sites in Oxfordshire and Buckinghamshire (just over 80% by rail from the WLWA's transfer stations in Brentford and South Ruislip).

From 2009/10 increasing quantities of waste, not recycled or composted, have been diverted from landfill by sending it to EfW. The WLWA has a contract to send residual waste to the Lakeside Energy from Waste plant near Slough, until 2034/35. This contract has an annual tonnage of 25,000 tonnes until 2014/15 when for one year the tonnage increases to 45,000 tonnes. The following year (2015/16) the tonnage increases to 90,000 tonnes and remains at that level until the final year of the contract. In addition materials sent to certain MRFs in the Plan area are then sent to recycling, EfW and landfill respectively. The dominance of landfill has been broken by use of other management routes so that less than 50% of waste managed by the WLWA was actually landfilled in 2012.

The WLWP addresses the remainder of this waste and the provisions of the London Plan. This sets a target for London 'to manage as much of London's waste within London as practical, working towards managing the equivalent of 100% of London's waste within London by 2026.' To achieve this, each borough has been given a share of London's total municipal and commercial waste to manage

(the apportionment) for which it must identify sufficient and suitable potential sites for the development of waste management facilities. The WLWP notes that without any additional capacity coming on line, West London will be unable to meet the apportionment targets contained in the London Plan.

The London Plan outlines targets to increase recycling in municipal waste to 60% by 2031 and increase to 95% commercial and industrial waste by 2020. The plan also forecasts that by 2021 per annum the borough will be producing 101,000 tonnes of household waste and 144,000 tonnes of commercial and industrial waste and by 2036, 131,000 tonnes of household waste and 173,000 tonnes of commercial waste.

Accommodating Growth

The WLWP provides a planning framework for the management of all waste produced in the six West London Boroughs over the period to 2031. The Boroughs are required by Government to prepare local planning policy for waste management which needs to be in general conformity with the Mayor’s London Plan.

The WLWP was considered by the Planning Inspectorate to adequately set out how the West London Waste Authority (WLWA) would deal with its waste requirements for the plan period up to 2031, in accordance with the London Plan (2011). The Further Alterations to

the London Plan (2015) reduced the waste apportionment for the London Borough of Hillingdon. Subsequently, the WLWP comfortably deals with the waste apportionment needs for these revised figures. In accordance with the criteria outlined in National Planning Policy for Waste, the WLWP identifies eight sites which ensures adequate waste management provision for the lifetime of the plan up to 2031. The Plan identifies 15.52 hectares considered to be suitable and available on existing and new sites for future waste management. An additional 3.20 hectares of land currently not developed for waste management use has also been identified as suitable and deliverable - this does not fall within the borough of Hillingdon.

The Council recognises that an appropriate number of waste management facilities are essential to deliver growth over the period of the Local Plan. The WLWP indicates that one of the existing waste sites that has potential for redevelopment is in Hillingdon. This is the Rigby Lane Waste Transfer Station which sits just outside of the Hayes Housing Zone and within an employment cluster. Redevelopment means that the site has the potential to increase capacity whether in the same type of waste management technology or a different type.

Contribution of the Rigby Lane site to meeting the London Plan apportionment is as follows:

Site Name	Included Area (ha)	Potential Contribution @ 65,000t/he (tpa)	Existing Contribution (tpa)	Potential Additional Contribution
Rigby Lane Waste Transfer Station	0.91	59,150	25,280	33,870

Description	Lead	Need	Requirements	Phasing
Redevelopment of Rigby Lane Waste Transfer Station to increase West London waste management capacity.	West London Waste Partnership	To ensure the sustainable management of waste in Hillingdon over the period of the Local Plan and meet waste apportionment targets	Waste management - the West London Waste Plan does not state which type of waste management technology should be developed on which site but will be subject to further assessment.	Up to 2031

Figure 12. Existing Waste Management Sites

Source: London Borough of Hillingdon Strategic Infrastructure Plan, March 2013, URS

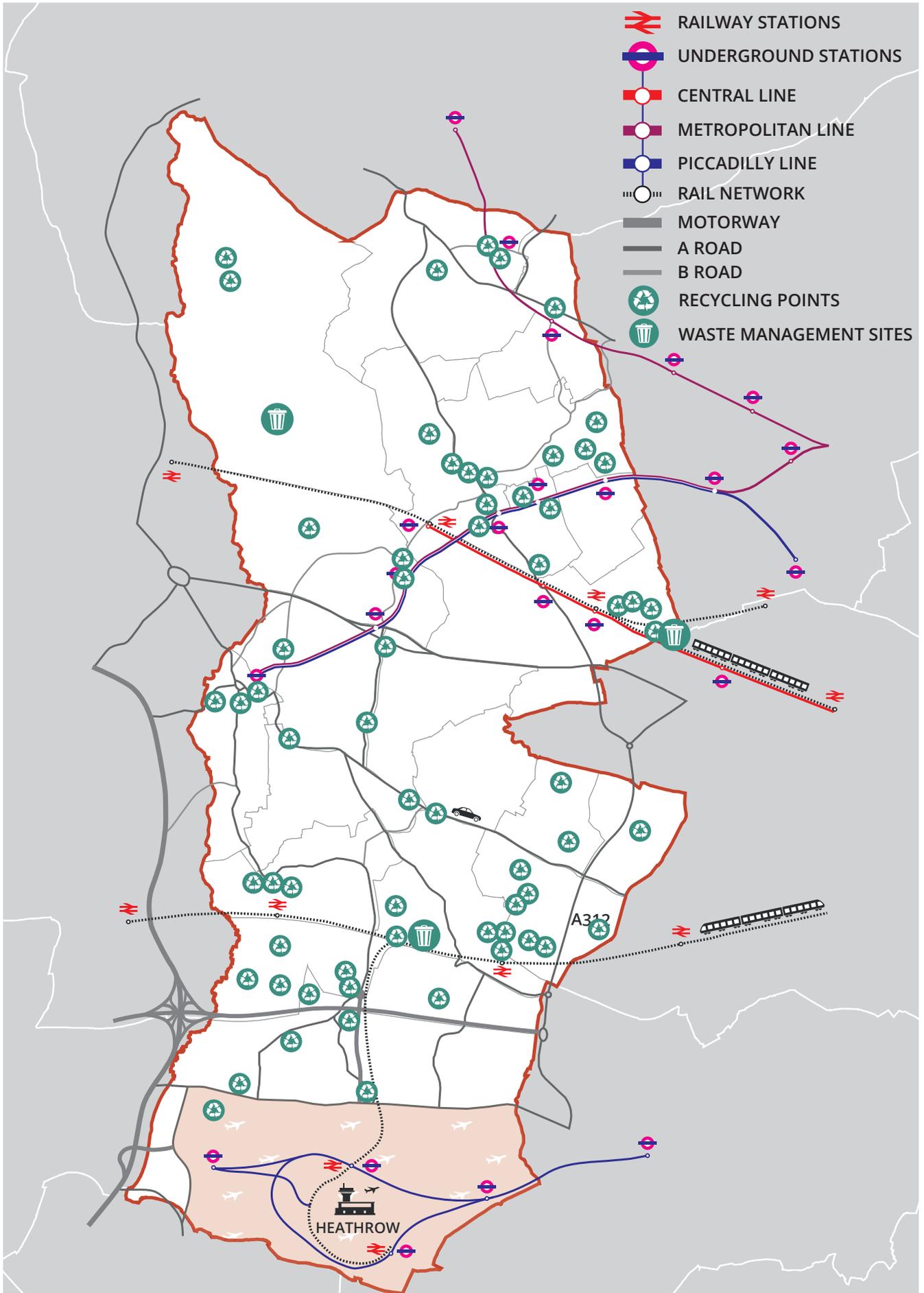
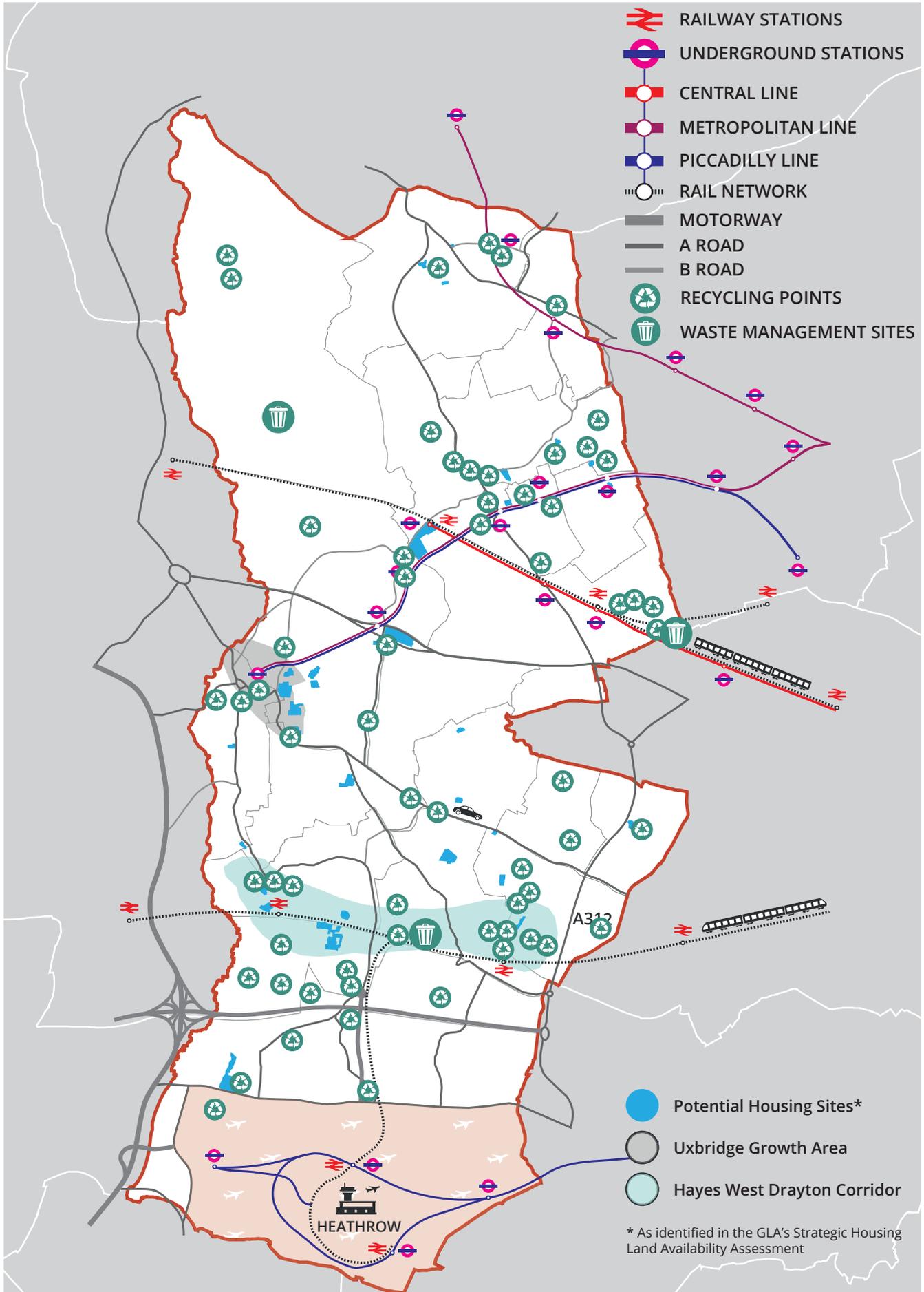


Figure 13. Existing Waste Management Sites in relation to Growth

Source: London Borough of Hillingdon Strategic Infrastructure Plan, March 2013, URS



4.2.2. Electricity and Gas

Context

National Grid operates the national electricity transmission system across Great Britain and owns and maintains the network in England and Wales, providing electricity supplies from generating stations to local distribution companies. The company does not distribute electricity to individual premises directly. It is the role of local distribution companies to distribute electricity to homes and businesses.

The local distribution network operator Scottish and Southern Electricity Network is responsible for operating the local electricity distribution network which supplies electricity from the national electricity transmission system direct to households and businesses. If new infrastructure is required in response to an increase in demand across the local electricity distribution network, Scottish and Southern Electricity Network may request improvements to an existing National Grid substation or a new grid supply point.

National Grid owns and operates the high pressure gas transmission system in England, Scotland and Wales. This consists of around 4,300 miles of pipelines and 26 compressor stations connecting to eight distribution networks.

Existing Need and Capacity

Gas Transmission and Distribution

New gas transmission infrastructure developments (for example pipelines and associated installations) are periodically required to meet increases in regional demand and changes in patterns of supply. Developments to the network occur as a result of specific connection requests to National Grid, for example power stations, and requests for additional capacity on the network from gas shippers. Generally, network developments to provide supplies to the local gas distribution network are as a result of overall regional demand growth rather than site specific developments.

In the UK, gas leaves the transmission system and enters the distribution networks at high pressure. It is then transported through a number of reducing pressure tiers until it is finally delivered to consumers. There are eight regional distribution networks, four of which are owned by National Grid. The gas distributor for Hillingdon is National Grid gas Distribution Ltd. They operate the Harefield-Southall gas pipeline in the north of the borough, which was commissioned in December 2009.

When a connection is requested to the gas distribution network a feasibility study is undertaken and the proposed connection is valid for 90 days. Connections are assessed on a first past the post basis which means that capacity available today, potentially is not there tomorrow and due to the long term nature of development plans, the information that National Grid would be able to provide regarding current available capacity would be out of date by the time any development details were finalised.

National Grid Electricity Transmission

The National Grid Electricity Ten Year Statement (ETYS) was first published in November 2012 to combine the former National Grid electricity publications, the Seven Year Statement (SYS) and the Offshore Development Information Statement (ODIS). The ETYS is published annually by National Grid with contributions from the GB Transmission Owners comprising National Grid Electricity Transmission, Scottish Hydro Electric Transmission and Scottish Power Transmission.

The ETYS is part of the annual electricity transmission planning cycle and shows the likely future transmission requirements of bulk power transfer capability of the National Electricity Transmission System (NETS). This is based on the Future Energy Scenarios (FES), which help capture a wide range of future network requirements.

The transmission requirements presented in the ETYS refer to the wider transmission system reinforcements only. Potential deficits in network capability to meet the requirements identified in the ETYS undergo the Network Options Assessment (NOA) process. From this, the preferred options for network investment are published in the NOA report. The most recent report was published in January 2017.

The ETYS outlines that peak demand in the south as seen by the transmission network is not expected to change significantly but some reduction may be expected due to greater consumer energy efficiency and increasing embedded generation capacity. The transmission network in the south is heavily meshed in and around London (B14) and the Thames estuary.

Boundary B14 encloses London and is characterised by high local demand and a small amount of generation. London's energy import relies heavily on surrounding 400kV and 275kV circuits. The circuits entering from the north can be particularly heavily loaded at peak demand conditions. The circuits are further stressed when the European interconnectors export as power is drawn through London to feed the

interconnectors along the south coast. The North London circuits can also be a bottleneck for power flow from the East Coast and East Anglia regions as power flows through London from north to south.

The NOA2 assesses the impact of the above mentioned potential scenarios and accordingly recommends preferred reinforcements for the South of England transmission region. It does not suggest any reinforcements are required within the B14 London boundary.

Accommodating Growth

The London Infrastructure Plan 2050 sets out that while at present Londoners enjoy an uninterrupted supply of energy over 99.99 per cent of the time, London may be facing an energy crisis in the very near future, as demand begins to outstrip supply, which is largely a legacy of under investment in national energy supply to the grid. Within London there is also the problem of increasing development putting more pressure on an already stressed distribution network (40 per cent of London's substations are already under stress).

The National Grid Electricity Ten Year Statement (ETYS) future energy scenarios consider that during peak demand conditions the European interconnectors may export power to GB. This alleviates loading stress on the North London circuits. Consideration has also been given to interconnectors exporting power out of GB which draws power southwards across London. This increases the north London circuit loading which decreases the boundary capability as less circuit capacity remains to supply London demand.

National Grid Electricity Transmission confirm that based on the most recent Network Options Assessment document, there are no planned works to any electricity transmission apparatus in the Hillingdon area. The works outlined in

the 2013 Strategic Infrastructure Plan have been completed or are no longer required.

National Grid Gas Distribution reviewed the population growth projections for Hillingdon and has confirmed that at this current moment. However, they stressed that as national grid connections process works on a first come first serve basis there is no guarantee that this capacity will still be available at the time an official connections request is sent in.

Scottish and Southern Electricity Networks confirmed that there is likely to be a need for the diversion or alteration of electricity distribution infrastructure and new and / reinforced electricity infrastructure to accommodate new development, and this will be carried out as required by site.

Discussions have highlighted the following broad standards of provision for additional substations to support new residential development:

- Additional Primary Sub-station: 5,000 new homes
- Distribution Sub-station: 300 homes.

These assumptions provide a broad indication of the number of new substations required to support expected housing growth identified in the emerging Local Plan Part 2 between 2016 and 2026:

- New Homes: 7390 to 7998 = 1 or 2 primary substations and 27 distribution substations.

Discussions with electricity suppliers indicate that certain uses, such as data centres, require a dedicated electricity supply from a separate substation. This requirement will clearly influence the nature and extent of development that can take place at key employment sites such as Stockley Park and in Hayes Housing Zone and surrounding employment clusters.

Description	Lead	Need	Requirements	Phasing
Diversion or alteration of electricity distribution infrastructure for new development. New and / or reinforced electricity infrastructure.	Scottish and Southern Electricity	Facilitate new development and provide new or increased supplies	As required by the site	One year or less for low voltage and most 11kV work. Typically two years for 33kV work. Up to five years for 66kV and 132kV work.

4.2.3 Renewable Energy

Context

The EU has set a 15% overall target for UK energy consumption from renewable sources in 2020. Britain's national action plan shows that 30% of electricity, 12% of heat and 10% of transport energy coming from renewable sources would meet our overall target of 15%. It provides the government an indicator to measure progress against, though the UK might meet the overall target by using a different mix of energy, or through other policies. There is a binding 10% target for renewable energy in transport specifically, also set at EU level. The UK can count energy produced elsewhere against its targets.

Delivering London's Energy Future is the Mayor's climate change mitigation and energy strategy. It sets out his strategic approach to limiting further climate change and securing a low carbon energy supply for London. To limit further climate change the Mayor has set a target to reduce London's CO₂ emissions by 60 per cent of 1990 levels by 2025. These targets require a change in approach to energy production and in particular the way in which energy infrastructure can be delivered. The national energy strategy is targeting increased energy production from renewable sources. However there are opportunities to improve renewable energy provision at a local level.

The London Plan and the Mayor's Transport Strategy set out policies and activities underway to reduce CO₂ emissions from new development and transport. The London Plan has established carbon dioxide reduction targets for residential and non residential buildings, requirements for energy assessments, sustainable design principles, a hierarchy for the selection of decentralised energy systems and an expectation that on-site renewable energy generation should be used where feasible. Hillingdon's Local Plan (Part 1) provides the strategic framework to ensure that climate change is addressed at every stage of the development process. This includes ensuring high standards of sustainable design to reduce both energy consumption and carbon emissions.

Existing Need and Capacity

The London Plan notes that the UK is the world's eighth largest emitter of carbon dioxide, and London is responsible for 8.4 per cent of these emissions (the latest annual estimate is 44.71 million tonnes). On a business as usual basis it is expected that annual carbon dioxide emissions will actually fall to 40.34 million tonnes by 2025 (a 10 per cent decrease on 1990 levels). London also has the lowest domestic

carbon dioxide emissions per person per year, at 2.26 tonnes, and the joint lowest transport emission rate per person, at 1.38 tonnes, of all the UK regions. This is largely due to the higher use of public transport and the density of development in London.

There is growing scientific consensus that stabilising atmospheric carbon dioxide emissions to levels at or below 450 parts per million is required to avoid catastrophic climate change. The strategic target in London Plan Policy 5.1 represents the emissions reduction required in London as a contribution to stabilising the world's emissions at this level by 2050. As part of the Climate Change Act 2008 the Government established a target to reduce the UK's greenhouse gas emissions by 80 per cent by 2050 and has proposed carbon budgets as a means to work towards this UK target.

At the heart of the Mayor's vision for London is a strategy to remove 25% of London's energy network from the carbon intensive national grid to local, low carbon heat and power networks. This is broadly referred to as a decentralised energy network. Policy 5.5 of the London Plan requires boroughs to identify and safeguard existing heating and cooling networks and maximise opportunities for providing new networks supplied by decentralised energy.

In addition to the London Plan, the NPPF contains a policy to identify opportunities where development can draw its energy supply from decentralised, renewable or low carbon energy supply systems and for co-locating potential heat customers and suppliers.

Decentralised energy requires a number of bodies to work in partnership to develop and manage new networks. The delivery of new networks can therefore be complicated by:

- Fairly distributing initial capital costs
- Finding suitable locations for new decentralised energy hubs
- Developing pipe work and ensuring a fair distribution
- Requiring new developers to link into networks and removing alternative opportunities that may present themselves in the future.

The Council is focusing on the three areas for potential decentralised energy supply identified within the London Heat Map. The aim is to advise on the most appropriate management structures for the network, and:

- Identify opportunities for district wide combined heat and power opportunities
- Identify potential locations for citing new decentralised hubs

- Identify existing potential sources of heat and power
- Identify feasibility of delivering the required pipe work
- Set requirements for new developers to invest, and link into the new networks as required by the London Plan.

Accommodating Growth

The London Heat Map launched in 2009 identifies opportunities at a strategic level for new heat networks. In Hillingdon, the map identified 3 intensive 'hot-spots':

- Uxbridge
- Hayes
- Heathrow and surrounding areas.

Logistically, the Uxbridge heat network relies on comprehensive redevelopments of Brunel University and Hillingdon Hospital, which are in the headlining planning phase.

Heathrow Airport Limited have installed a district heating network as part of their Terminal 5 project that relies on waste heat from Colnebrook Power station. It provides the terminal building with 85% of its heat on demand and CO2 reductions of 10,877 tonnes per annum.

Hayes Housing Zone offers a prime opportunity for a district wide heating network. The developers of the Old Vinyl Factory site (providing 510 homes and 500,00 sq ft of commercial space) on Blyth Road have provided a site heating network to service new buildings on the site. It also has some additional capacity to service a nearby site.

The developers of the large former Nestle site to the east of Hayes & Harlington station have also committed to providing a site-wide heating network from a Combined Heat and Power (CHP) source, suitable for connection to wider district networks now or in the future. This could potentially act as a catalyst for a district wide heating network as more developments in the zone are brought forward. In line with London Plan Policy 5.7, the developer has investigated the inclusion of on-site renewable energy generation and solar PV is proposed.

4.2.4 Water Supply

Context

Affinity Water supply drinking water to approximately 3.5 million people and 1.4 million properties in the South East of England. Their supply area comprises three distinct geographic regions and the borough of Hillingdon falls within their central area, which provides water to North London and other areas.

For water resource planning purposes, they are required to identify the largest possible zone in which all resources, including external transfers, can be shared, and, hence, the zone in which all customers will experience the same risk of supply failure from a resource shortfall. Affinity Water have therefore subdivided their central region into six Water Resource Zones (WRZ).

Hillingdon falls within the fourth Pinn zone.

Affinity Water have 130 groundwater sources, four river intakes on the River Thames, one impounding reservoir and 12 bulk supply imports from neighbouring water companies that are used to meet our customers demand for water on a day-to-day basis. Approximately 65% of the water is abstracted from groundwater sources and the rest from surface water.

Affinity Water are required to update their assessments on the amount of water they can abstract from their sources following any significant changes in sources or supply system. Following the 2012 drought and as part of the work to inform the PR14 Water Resources Management Plan (WRMP) they reviewed and, where necessary, updated assessments of the yield of groundwater sources.

Affinity Water's Central Region abstracts 60% of its water supply from groundwater sources with boreholes abstracting from chalk and gravel aquifers. The remaining 40% is abstracted from surface water sources and imports from neighbouring water companies: Thames Water, Anglian Water and Cambridge Water.

Surface water from the River Thames is treated at four river water treatment works. The treatment works are also fed by groundwater wells, principally the gravel wells at CHERS. These sources have permanent abstraction licences with no flow constraints under drought conditions and, when combined, are capable of providing sufficient quantities of raw water following prolonged dry spells, such as the dry period encountered during the long hot summer of 1995.

The deployable output of the surface water treatment works is constrained marginally by licence volumes at average conditions and by treatment capacity during the critical period. Maintaining minimum flows in the River Thames is the responsibility of Thames Water. Affinity Water has also secured the use of some bankside storage as protection against short term pollution of the River Thames.

Existing Need and Capacity

Over the last 20 years Affinity Water have made significant progress in its efforts to reduce leakage, improve water efficiency messaging

and increase metering penetration. However, the long term decline in usage has not been achieved in the Central region which is predominantly due to the low metering penetrations which is currently at 44%. Affinity Water commenced its AMP6 Water Savings (WSP) Programme in January 2015, which sets a target of the metering penetration within this region reach 90% over the next 10 years.

To understand the likely future gap between supply and demand, Affinity Water have taken account of the latest Census data (run during 2011, data released in May 2013). They have also reviewed their headroom assessment for their baseline demand forecast to ensure uncertainties around supply / demand balance were fully considered.

Accommodating Growth

Affinity Water Drought Management Plan (2015 annual update) states that over the next 25 years, pressure on water supplies in our supply area is expected to increase. There are a number of factors contributing to this pressure:

- Changes to abstraction licences, known as sustainability reductions (SR), which will reduce the quantity of water Affinity Water can abstract from sources in order to help minimise its impact on the future environment. Affinity Water have agreed sustainability reductions of 70Ml/d with the Environment Agency in its Central region.
- The effects of climate change, which are expected to result in drier summers creating

an increase in demand and reducing the deployable output from some of Affinity Water's sources.

- An overall increase in demand, driven primarily by the forecasted increase in population within its operating area.

Affinity Water's WRMP 2015-2040 (2014) identifies how it intends to maintain the balance between supply and demand over a 25-year period which includes the implementation of a number of new measures and schemes. It states, 'This Plan is substantially different from our previous plans as we no longer have a surplus of resources and it means we have to replace lost resources by managing the demand for water or developing new resources and bringing in new supplies.' Affinity Water aim to reduce demand by over 50 Ml/d over the next five years through an increase in water efficiency measures, metering and a reduction in leakage. Affinity Water have also worked closely with other water companies in the South East of England to explore the potential for sharing regional water resources in the interests of resilience, sustainability, cost and energy efficiency.

As part of the above, Affinity Water are undertaking infrastructure works at Blackford Pumping Station at Moorhall Road, Harefield to ensure continued water supply to the borough. They are also reviewing the potential for burst pipes and are planning the strategic replacement of the key water mains.

Description	Lead	Need	Requirements	Phasing
Infrastructure works at Blackford pumping station on Moorhall Road, Harefield to ensure continued Affinity water supply to the borough. They are also reviewing the potential for burst pipes and are planning the strategic replacement of the key water mains.	Affinity Water	Urgent as AW use groundwater sources that were very low during / after 2012 drought	No longer have surplus of resources. WRMP 2015-40 strategy aims to reduce demand in their central region over next 5 years through water efficiency measure, metering and reduction in leakage and sharing regional water resources with other companies in region	To be determined

4.2.5 Sewerage and Drainage

Context

Thames Water is the statutory body that deals with waste water and manages the sewerage system. These statutory outcomes are pursued through the implementation of its statutory programme and also through representations made to development plan documents.

All wastewater from the London Borough of Hillingdon flows to Mogden STW. In addition flow is received at Mogden from all or part of Barnet, Brent, Ealing, Harrow, Hounslow, Richmond, South Bucks, Spelthorne, Windsor & Maidenhead.

Existing Need and Capacity

An upgrade project was recently completed at Mogden STW to increase treatment capacity by around 35% to reduce the volume of untreated storm flows being discharged to the river and to meet a more stringent quality obligation that came into force on 31 March 2013. The upgrade was designed to accommodate growth to 2021 with a cost of approximately £155m. Although this facility is located in Hounslow, it forms part of Hillingdon's sewerage treatment process.

The latest information from Hillingdon Council is now being used to determine the impact at Mogden and identify any work necessary, the results of this will be fed into Thames Water's application to the regulator for funding for the period 2020 to 2025.

For surface water disposal there is a requirement to follow the London Plan and local policy requirements. This should include the provision of SUDS as part of green infrastructure and open space within developments. Network capacity is dependent upon the method of disposal of surface water in the borough, and Thames Water are currently in discussion with the Lead Local Flood Authority with regards to the level of support that organisation will offer through planning. Dependant on the level of growth and method of Surface Water disposal, higher levels of Surface Water disposal to the Thames Water network would result in a lower headroom for future developments.

The drainage and sewerage treatment facilities provided by Thames Water are key to accommodate growth over the period of the Local Plan. Thames Water's capital programme runs in five yearly cycles and is regulated by The Water Services Regulation Authority (OFWAT). Thames Water is currently in their asset management plan period, which runs from 2015-2020.

Accommodating Growth

The following projects have been identified as required to accommodate growth.

Description	Lead	Need	Requirements	Phasing
Improvements to the Colne Valley Trunk, Crane Valley Trunk and Bath Road Trunk	Thames Water	Additional capacity may be required to address growth in the south of borough, particularly in the Bath Road employment area.	Dependant on level of growth and method of Surface Water disposal. Higher levels of Surface Water disposal to the Thames Water network would result in a lower headroom for future developments	Improvements will be undertaken as required

4.2.6 Telecomms and Broadband

Context

Vodafone partner with O2, Three partner with EE under a company called MBDL and each partnership ensures sufficient mobile network coverage and capacity through the provision of the necessary infrastructure (antennas and masts on sites). BT Openreach provide the necessary infrastructure for broadband provider fixed roll-out.

The Housing White Paper Fixing Our Broken Housing Market (February 2017) set out that to achieve full fibre connectivity it is consulting on requiring local authorities to have planning policies setting out how high quality digital infrastructure will be delivered in their area.

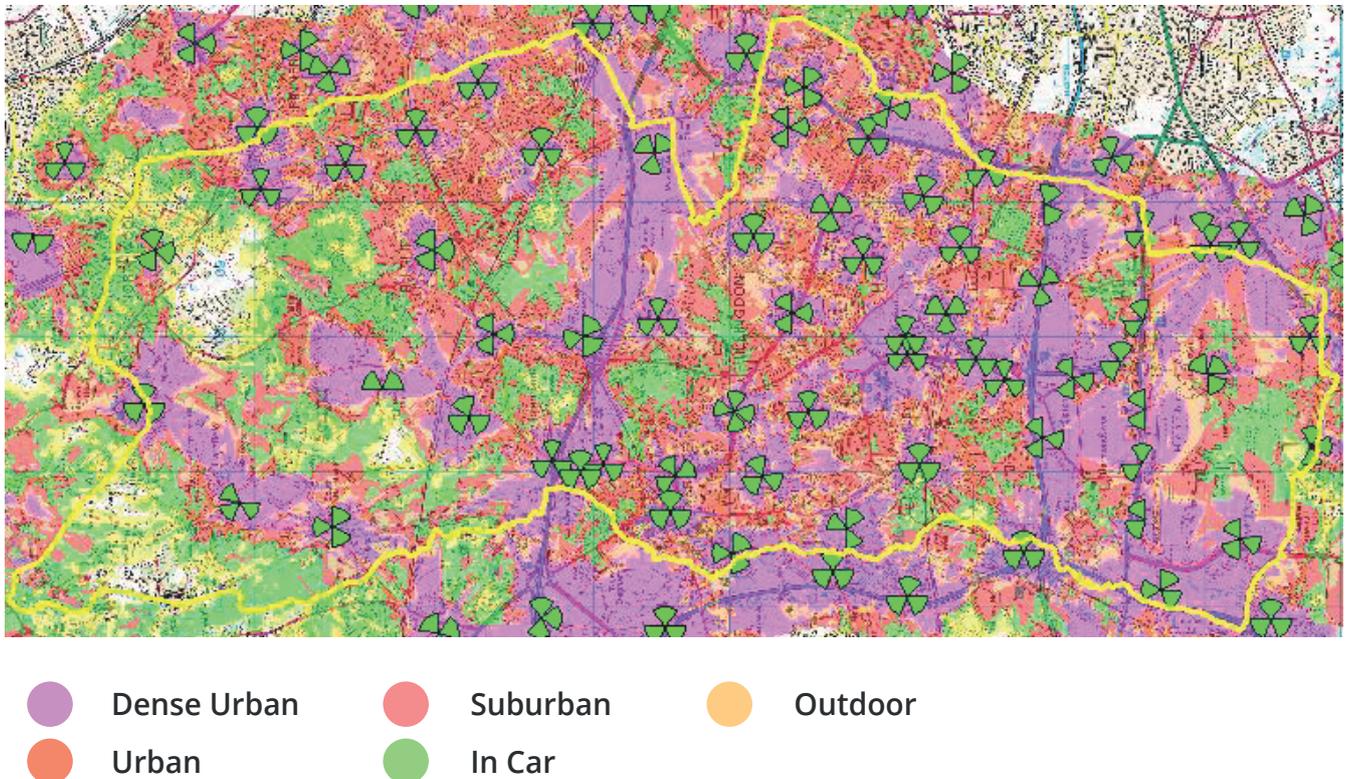
At the 2016 Autumn Statement, the Government announced over £1 billion of new funding to boost the UK's digital infrastructure. This includes £400m of funding for a new Digital Infrastructure Investment Fund to support access to commercial finance for providers to invest in new fibre networks, and £740m to support the market to roll out full fibre networks and to deliver a programme of 5G and integrated fibre trials in local areas.

In assessing bids for these trials from local authorities, the DCLG will take account of which areas can demonstrate that they have policies setting out how high quality digital infrastructure will be delivered in their area. Furthermore, the Local Government Finance Bill published on 13 January 2017 will give a business rates tax break worth £60 million to incentivise telecommunications companies to lay new full fibre broadband.

Existing Need and Capacity

Vodafone and Three have comprehensive mobile network plans for the Borough from a coverage and capacity point of view. Sufficient mobile network coverage and capacity depends on providers being able to acquire planned new sites and replacement sites where and if necessary for masts or antennas on roofs. Vodafone have highlighted that the development plans for Hayes may cause them to lose some of their existing sites. Plans are also dependent on budget continuing to be available. BT Openreach require engaging regarding capacity, existing coverage and future need.

Figure 14. Existing Vodafone Mobile Network Sites (as of 06/03/17)



Source: Presentation: London Borough of Hillingdon Vodafone Coverage Expectations, March 2017

Accommodating Growth

Vodafone are building on 28 new sites in Hillingdon to ensure sufficient coverage in relation to population density. This is self-funded. Vodafone would welcome the opportunity to work with the council to ensure they can provide a good level of service to our customers within the Borough of Hillingdon.

Three are currently working on upgrading the majority of existing mobile network sites to provide 4G coverage. They have:

- 78 live 3G sites in the borough
- 70 are already live on 4G
- 50x 1800MHz-only
- 20x dual 800/1800MHz
- 7 of the remaining 8 are in the 4G upgrade programme (i.e. only 1 is not in the programme)
- 3x dual 800/1800MHz
- 4x 1800MHz-only.

Figure 15. Planned Vodafone Mobile Network Sites (as of 06/03/17)

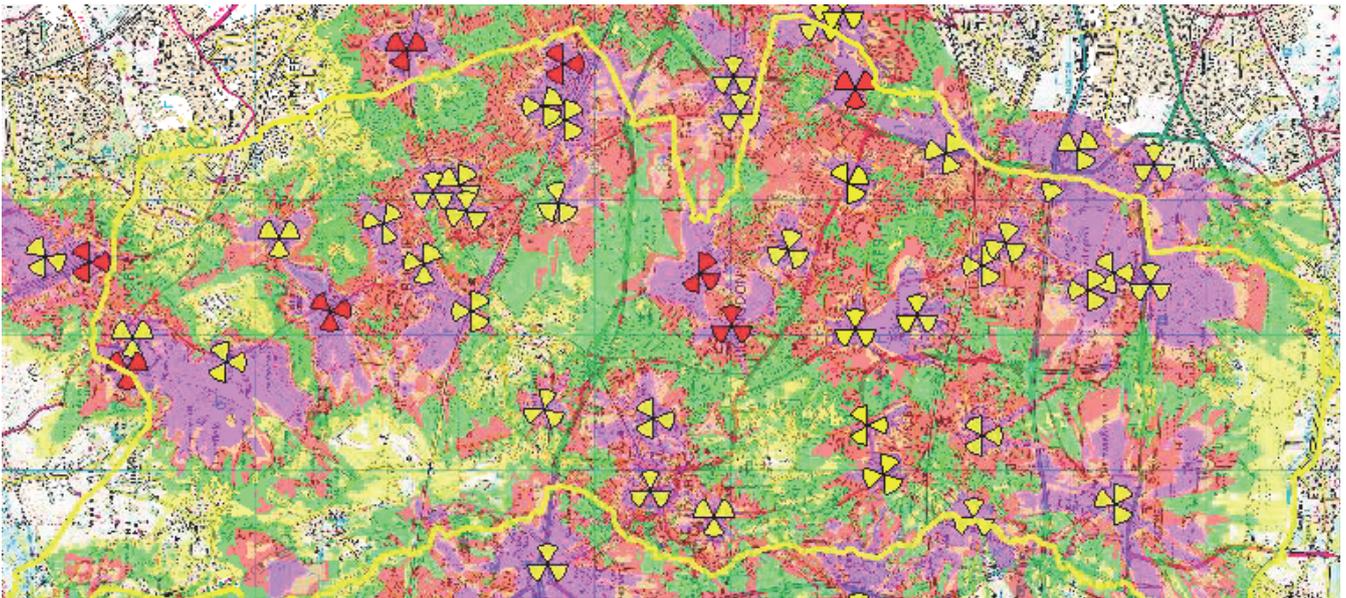
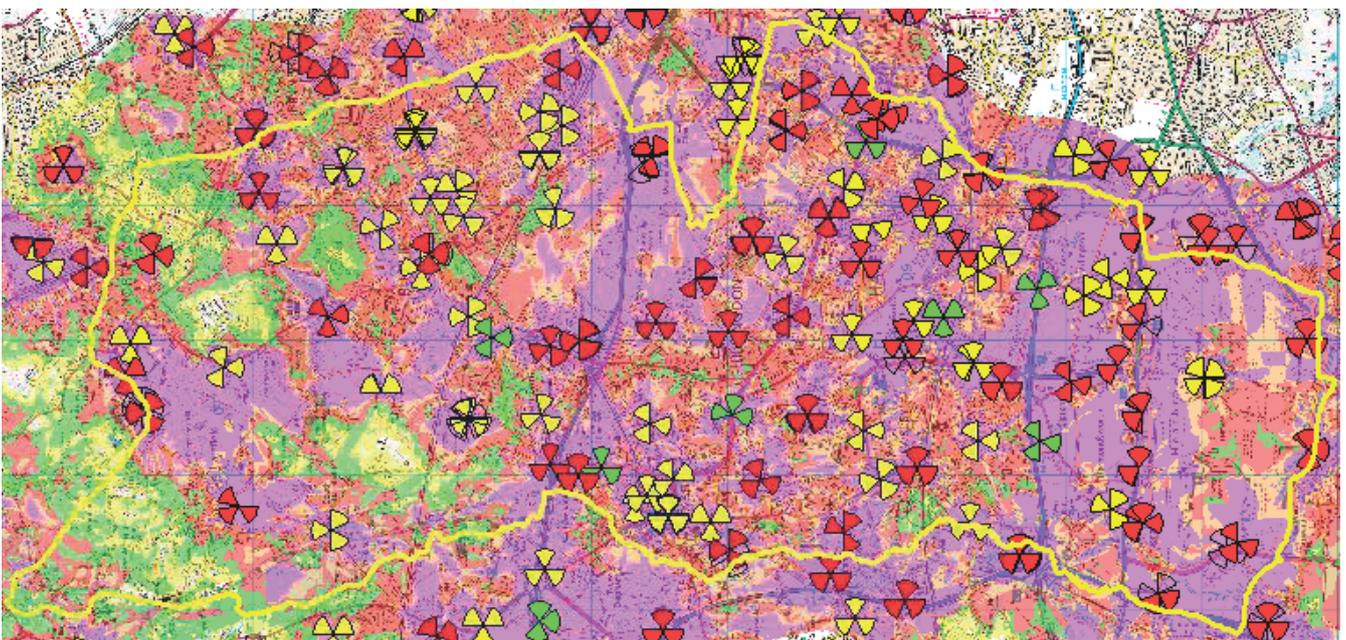


Figure 16. Existing and planned Vodafone Mobile Network Sites (as of 06/03/17)



- | | | | |
|---------------|------------|----------------------|----------------------------|
| ● Dense Urban | ● Suburban | ● Outdoor | ▲ Planned proposed site |
| ● Urban | ● In Car | ▲ Existing Live Site | ▲ Planned Site in progress |

Source: Presentation: London Borough of Hillingdon Vodafone Coverage Expectations, March 2017

4.3 Health

Primary Care

Ensuring a healthy population is a key component of sustainable growth. The London Borough of Hillingdon and NHS Hillingdon produced a Joint Strategic Needs Assessment (JSNA) 2009-14 (published in 2010). This is the main policy document for health service delivery. It seeks to review the health and well-being of the population and reduce health inequalities.

The JSNA presents a statistical overview and borough profile in relation to health, and the wider determinants of health, including population, ethnicity, deprivation, housing needs and disability, mortality and prosperity. The JSNA identifies significant contrasts in health indicators in different areas and establishes a series of aims to reduce health inequalities and improve access to healthcare services, as well as tackling the root causes of poor health.

The primary finding of the JSNA is the different health needs in the north and south of the borough. Residents in the north are more likely to require health promotion in relation to disease prevention, home support and end of life services. The south of the borough is more densely populated with a younger age demographic, higher levels of deprivation and shorter life expectancy. The issues identified in the JSNA form the basis of the Primary Care and Community Health Service Strategy (PC&CHSS). This sets a vision to improve the health and well-being of everyone in Hillingdon and the following goals and objectives.

In addition to discussions with healthcare professionals, other documents have also been reviewed to assess healthcare infrastructure needs over the period of the Local Plan:

- Hillingdon Joint Health and Wellbeing Strategy Refresh 2014-2017 (Hillingdon CCG)
- North West London: Five Year Strategic Plan 2014/15-2018/19
- Hillingdon CCG Strategic Estates Plan (Draft)
- NHS Hillingdon: Analysis of Primary Care.

The Government's Health White Paper 'Equity and Excellence: Liberating the NHS' was published in July 2010 for consultation and established the Coalition Government's plans to reform the health service in England. The paper proposed the abolition of Primary Care Trusts and Strategic Health Authorities which have now been replaced by Clinical Commissioning Groups, of which there are eight in North West London. The CCGs have begun to move clinical

activity out of hospitals into community hubs, where GP services are co-located alongside community health and outpatient services.

The North West London (NWL) CCGs set out how they will work collaboratively to transform the health and care landscape across NW London in its Five Year Strategic Plan, which runs from 2014/15-2018/19. The core principles and values of this strategy are that services and care are:

- Localised
- Centralised / specialised
- Integrated
- Personalised.

As part of this there is an out of hospital strategy which includes a programme for primary care transformation. This transformation of care will move from a system spending the majority of funding on hospitals to one where the majority is spent on services in people's homes and in their communities. This will develop a new model of care which will deliver better care closer to home, and a greater range of well-resourced services in primary and community settings.

Existing Need and Capacity

According to research undertaken by the Hillingdon CCG there are currently 46 GP practices across Hillingdon covering a total registered population of 305,000, and a weighted population of 286,000 (using data from the HSCIC General and Personal Medical Services in England 2005-2015, Provisional Experimental Statistics (Sept 2015). The total GP headcount of 168 and FTE of 135 across Hillingdon GP practices. This falls to a headcount of 149 and FTE of 125 respectively when registrars, retainers and locums are excluded.

Across England, excluding registrars and retained GPs, the data indicates that there is currently an average of 51 GPs (FTE) per 100,000 head of weighted population. Across London there are slightly more, with 52 GPs (FTE) per 100,000. For North West London, the rate is 53 GPs per 100,000. The average rate for Hillingdon is 44 GPs per 100,000 weighted population. Although exact figures vary, analyses of need indicates that Hillingdon needs a significant increase in the number of GPs.

An additional driver of change is a need to improve utilisation of the existing estate and effectively target strategic investment in estate locations that are appropriate for a hub healthcare model. In terms of the current health estate, the Hillingdon NHS Estate is made

up of 43 primary care properties, 20 health centres, 3 hospitals and 1 administrative office. The hub service of care will be required to:

- Develop locations for out of hospital care and integrate services
- Move GPs into high quality premises
- Manage the impact of moving patient lists belonging to GP practices currently delivering poor quality care
- Demonstrate the benefits of co-location for integrated care.

The primary care estate is a vital part of the health estate infrastructure in the Borough and the CCG is committed to ensuring that practices operate from premises which are fit for purpose, provide sufficient capacity to respond to population growth and align with national and local commissioning priorities.

The CCG is in the process of developing a primary care investment plan which will identify where investment in the primary care estate infrastructure is needed in the future. The document will take into account planned investment via the creation of Out of Hospital Hubs. The majority of the health estate are freehold properties, which offer the opportunity to dispose of surplus sites in order to support the hub service strategy. The remainder are leasehold properties, some of which are on long leases, which offer limited opportunities for disposal and are therefore considered as part of the current Estates Strategy.

Figure 17. GP Practices in Hillingdon

Source: Pharmaceutical Needs Assessment 2015, 2014 Ordnance Survey 100019283

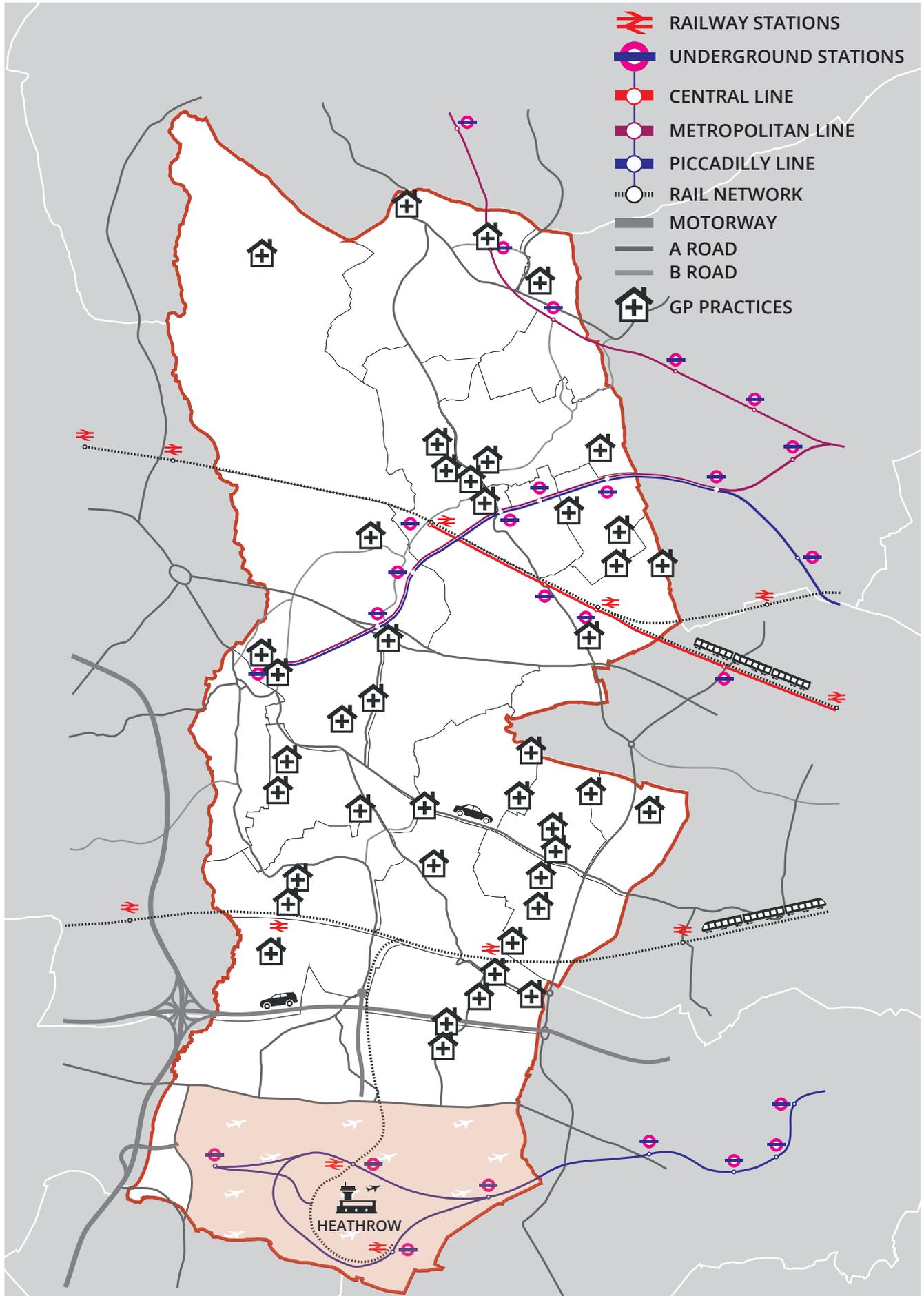
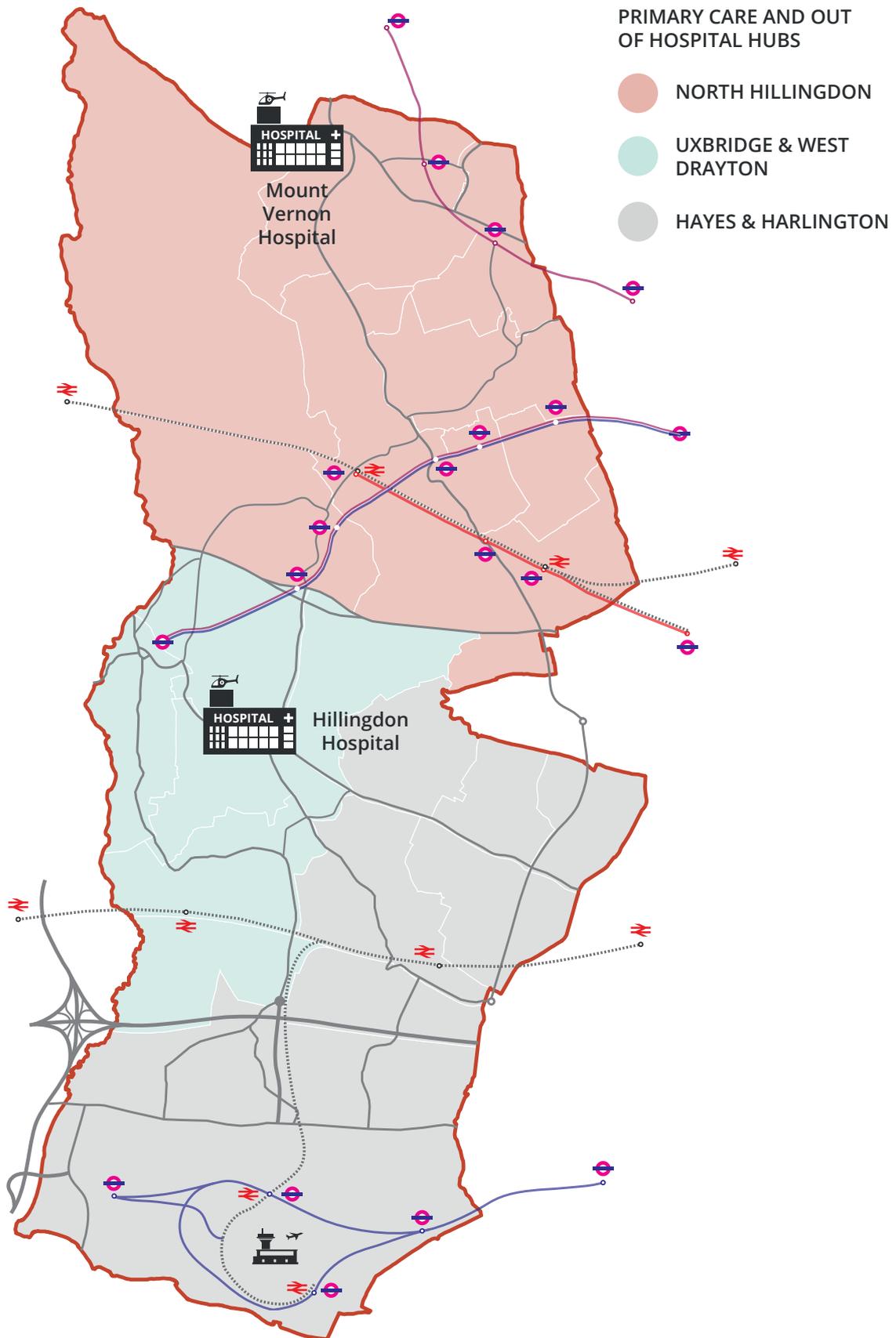


Figure 18. CCG Areas in Hillingdon

Source: Draft Strategic Service Delivery Plan for out of Hospital Care NHS Hillingdon CCG, April 2014



Accommodating Growth

The development of new homes and communities will also lead to increased demand for health facilities. The Healthy Urban Development Unit's (HUDU) model is one method used to calculate the healthcare requirements generated by new development. The HUDU model uses the numbers of anticipated new dwellings and resulting population increase to calculate the amount of hospital beds or floor space required for that population in terms of acute elective, acute non-elective, intermediate care, mental health and primary care. The HUDU model also takes account of the evolving nature of healthcare provision, including integrated primary and community care services.

In addition, the North West London CCGs have developed its own planning model, based on population projections translated into NHS space standards. This is done through an understanding of the number of people per year who visit a GP, and how long each visit is. This equates to a number of attendances, which translates into working days and determines the number of rooms / days required for GPs based on NHS space standards. Using these projections, at borough level it is estimated that the population of Hillingdon currently needs 169 GPs, which is 34 more than present. By 2021, the total need increases to 174 GPs – almost 40 more than at present. In both cases the formula is based on resident population.

The current plans for primary healthcare are based on 2016 GLA population projections. Emerging patterns and priorities from these are that in the north of the Borough, growth is likely to exceed these projections, and the wards in the North of the borough have a higher proportion of older people which may be an indicator of future need, as older age groups are more likely to use Primary Care services than working age adults. For the rest of the borough this may not be the case but further evidence may be required from NHS England.

The population growth profile supports the strategic aims of the CCG to develop hubs in central (Uxbridge & West Drayton) and south Hillingdon (Hayes & Harlington) where population forecasts are expected to rise and a hub in the north (North Hillingdon) where current provision is light. This would provide a service of 2,700 and 3,600m² across 3 sites.

The CCG is currently supporting 2 bids for Estates & Technology Transformation Fund funding in order to support improved access to primary care services which will align with the estates strategy described here. In addition investment has been made using Primary Care Transformation Fund.

Projects identified as required over the period of the Local Plan are as follows.

Description	Lead	Need	Requirements	Phasing
New centralised CCG facility in Yiewsley	Hillingdon CCG / LBH /Private Sector	Renew and improve existing CCG facilities to meet significant expected growth	Identify site of approximately 2,500 sqm floor space & parking.	Delivery aim: unknown
New primary care facility in Hayes & Harlington	Hillingdon CCG / LBH /Private Sector	To provide primary care to new population. Hesa Centre is already in Hayes. However, it needs more capacity and does not offer all services.	New building of approximately 1,000-1500 sqm	Delivery aim: <5 years
Potential development at Eastcote Health Centre	CNWL / Private Sector	Extend and improve existing facilities	To be determined through discussion with the CCG	Delivery aim: by 2019

Description	Lead	Need	Requirements	Phasing
New Out of Hospital Hub in North Hillingdon on Mount Vernon Hospital site (above)	Hillingdon CCG / LBH /Private Sector	To develop out of hospital services and improved access	New building of approx 700 sqm	Delivery aim: 2019
New Out of Hospital Hub in Uxbridge and West Drayton	CNWL/ Hillingdon CCG / Private Sector	To develop out of hospital services and improved access	New building of approx 2300 sqm	Delivery aim: 2019/20
New Primary Care Facility on former Woodside Care Home site	Hillingdon CCG / LBH/ Private Sector	To provide primary care to new and existing population. There is a lack of provision in the area currently.	New building of approx 900 sqm	Delivery aim: by 2018

4.3.2 Acute Care

Context

The NW London Sustainability and Transformation Plan (STP) recognises that a model of acute provision is required that addresses clinical quality and safety concerns whilst meeting expected demand pressures. However concerns remain around the NHS's proposals developed through the 'Shaping a Healthier Future programme' to reconfigure acute care in NW London. Therefore all STP partners will review the assumptions underpinning the changes to acute services and progress with the delivery of local services before making further changes.

There are currently significant pressures on acute care as delivered through hospital services - the STP states that over 30% of patients in acute hospitals do not need to be in an acute setting and should be cared for in more appropriate places, and 3% of admissions are using a third of acute hospital beds.

Therefore, the vision of the NW London STP is to turn a reactive, increasingly acute-based model on its head, to one where patients take more control, supported by an integrated system which proactively manages care with the default position being to provide this care in areas close to people's homes, wherever possible. This will improve health & wellbeing and care & quality for patients. As a result, schemes have been identified which support the shift of patient care from acute into local care settings.

Existing Need and Capacity

There are currently 10 acute and specialist hospitals in NW London. The NW London STP states an aim to centralise and specialise care in these hospitals to make the best use of specialist staffing resources to deliver higher quality care. The NW London STP partners will improve and change hospital estates to consolidate acute services and develop new hospital models to bridge the gap between acute and primary care.

The current position is that there will be no substantial changes to A&E in Ealing or Hammersmith & Fulham, until such time as any reduced acute capacity has been adequately replaced by out of hospital provision to enable patient demand to be met. However there will be specific pressure on hospital services in Hillingdon and the wider North West London area due to the planned closure of the Children's ward at Ealing Hospital.

NHS partners will review with local authority STP partners the assumptions underpinning the changes to acute services and progress with

the delivery of local services before making further changes and will work jointly with local communities and councils to agree a model of acute provision that addresses clinical safety concerns and expected demand pressures.

Accommodating Growth

Within Hillingdon, there are planned improvements to acute healthcare provision in the borough at Hillingdon and Mount Vernon Hospitals. This is due to the chronic condition of physical infrastructure at the hospitals and the need to ensure ongoing sustainability of acute hospital services in the borough, and to ensure sufficient capacity is provided within the Borough for projected increase in demand (from Demographic growth in the Borough) and impact of the wider hospital configuration in North West London.

As is reported in the Further and Higher Education section, Brunel University are actively pursuing a formal Memorandum of Understanding to work jointly with The Hillingdon Hospitals NHS Foundation Trust (THH FT) and Central and North West London NHS Foundation Trust (CNWL FT) to promote an integrated higher education health sciences centre and healthcare campus on a specific site at the University.

Projects identified as required to accommodate growth are as follows.

Description	Lead	Need	Requirements	Phasing
Redevelopment of the Hillingdon Hospital.	Hillingdon Hospitals NHS Foundation Trust	To ensure ongoing sustainability of acute hospital services in the borough.	To be determined	Delivery by Hillingdon Hospitals NHS Foundation Trust. Timing is subject to SOC/OBC and FBC approval and obtaining planning approval.
Reconfiguration and site rationalisation of Mount Vernon Hospital	Hillingdon Hospitals NHS Foundation Trust	To address significant quality and resilience issues with the current estate that is beyond its intended life (in the main).	To be determined	Timing is subject to SOC/OBC and FBC approval and obtaining planning approval.

4.4 Education, Learning and Youth Provision

The London Borough of Hillingdon is responsible for education planning and provision to ensure the adequacy of school places from Primary to post-16. In many parts of the borough, the present school capacity in both the primary and secondary sectors is just sufficient to meet current needs but would not be sufficient to accommodate the impact of further new development. Increasing school rolls, regardless of whether schools have spare capacity, can also place increased pressure on existing school facilities, such as buildings, playgrounds, security and safety, access and ancillary facilities such as toilets and kitchens.

The council also have a responsibility to ensure sufficient early learning and childcare places. In addition, they provide a number of adult community learning centres and also provide adult learning courses within existing community facilities, most commonly in areas of deprivation.

Hillingdon also contains further education colleges and a university which are not the responsibility of Council. These elements of education and learning provision require careful planning to ensure there will be adequate provision to accommodate growth over the planning period.

4.4.1 Early Years and Child Care

Context

Most early years provision and childcare places are provided by the private and voluntary sector, while some are provided by schools and there are also a number of maintained nurseries. Hillingdon Council has a responsibility to ensure sufficient provision and therefore tracks provision and projected population growth among 0-5s.

Hillingdon has 18 children's centres where they provide a range of services, activities, information and guidance tailored to meet the requirements of families with children aged five and under. These include child health clinics, parenting classes, adult learning classes, information, advice and guidance, specialised family support, breastfeeding advice, and stay and play sessions. The centres are situated throughout the borough with the biggest number being in the southeast in and around Hayes.

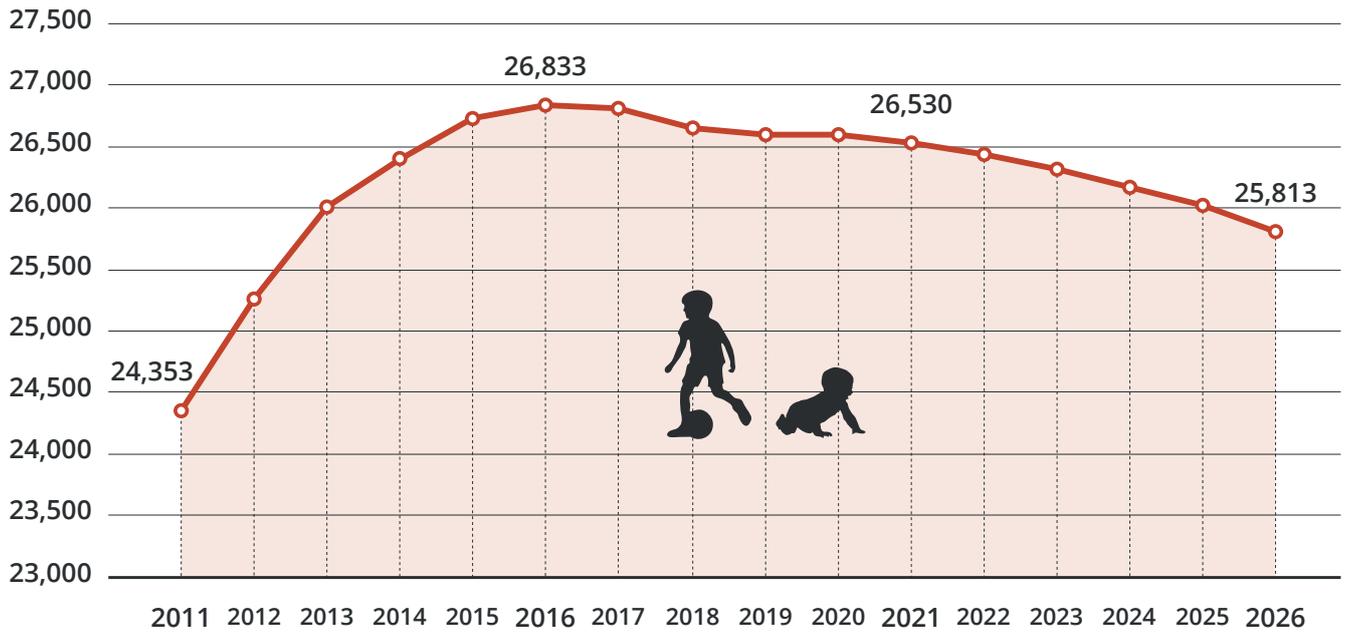
Hillingdon Council have undertaken a review of the current programme and are proposing to create a new children's centre programme comprising of five lead centres. Each lead

centre, or 'hub', will coordinate the work of 16 linked centres in five defined localities. In order to make the changes, the council will assume the future management of all children's centres. As part of the changes, children's centre services will no longer be directly delivered from the current centres located at Hillside and Uxbridge College (Hayes) Campus. Services for the families currently using these facilities will be coordinated by the lead centres in these areas and families can continue to access services at any of the other 16 sites across the borough.

Existing Need and Capacity

Currently, there are a lack of places for disadvantaged two year olds whose parents are entitled to free child care, which is a significant issue in the Hayes area. There is a shortfall of 299 places to meet current need across the borough and 109 in Townfield and 57 in Botwell, where there will be significant growth in Hayes Housing Zone. Provision as a whole for 0-5 childcare is at 98% capacity, so plans need to be put in place to accommodate the significant growth expected.

Figure 19. Projected Population Growth Among 0-5s,2011-2026



Source: 2015 Round of Demographic Projections - Ward projections SHLAA-based; Capped Household Size model, Greater London Authority, 2016

Figure 20. Hillingdon's Children's Centres

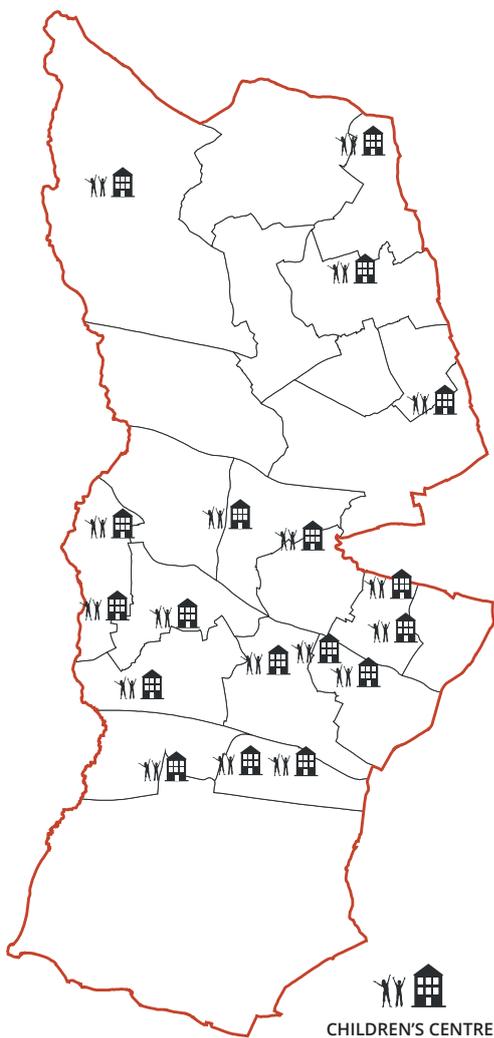


Figure 21. New Hillingdon's Children's Centres Programme

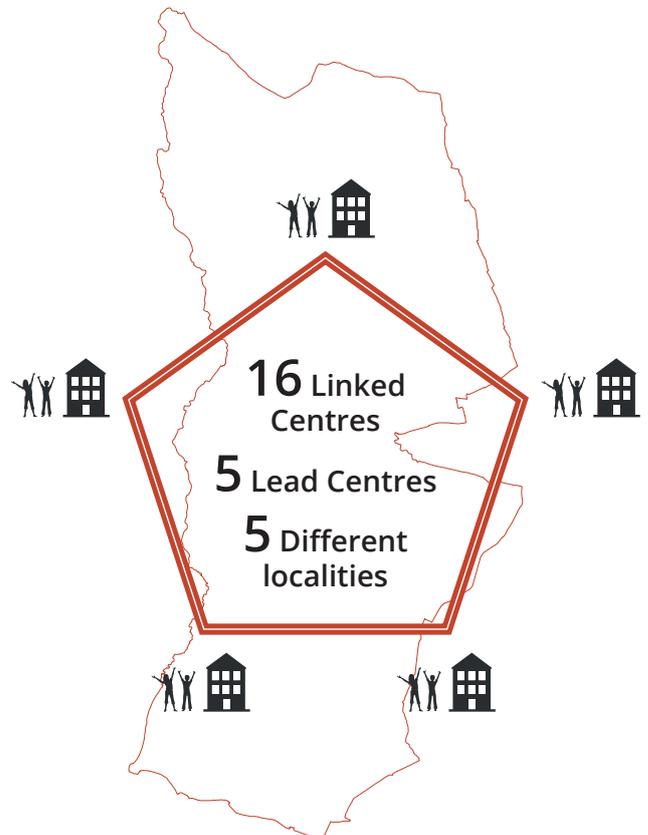
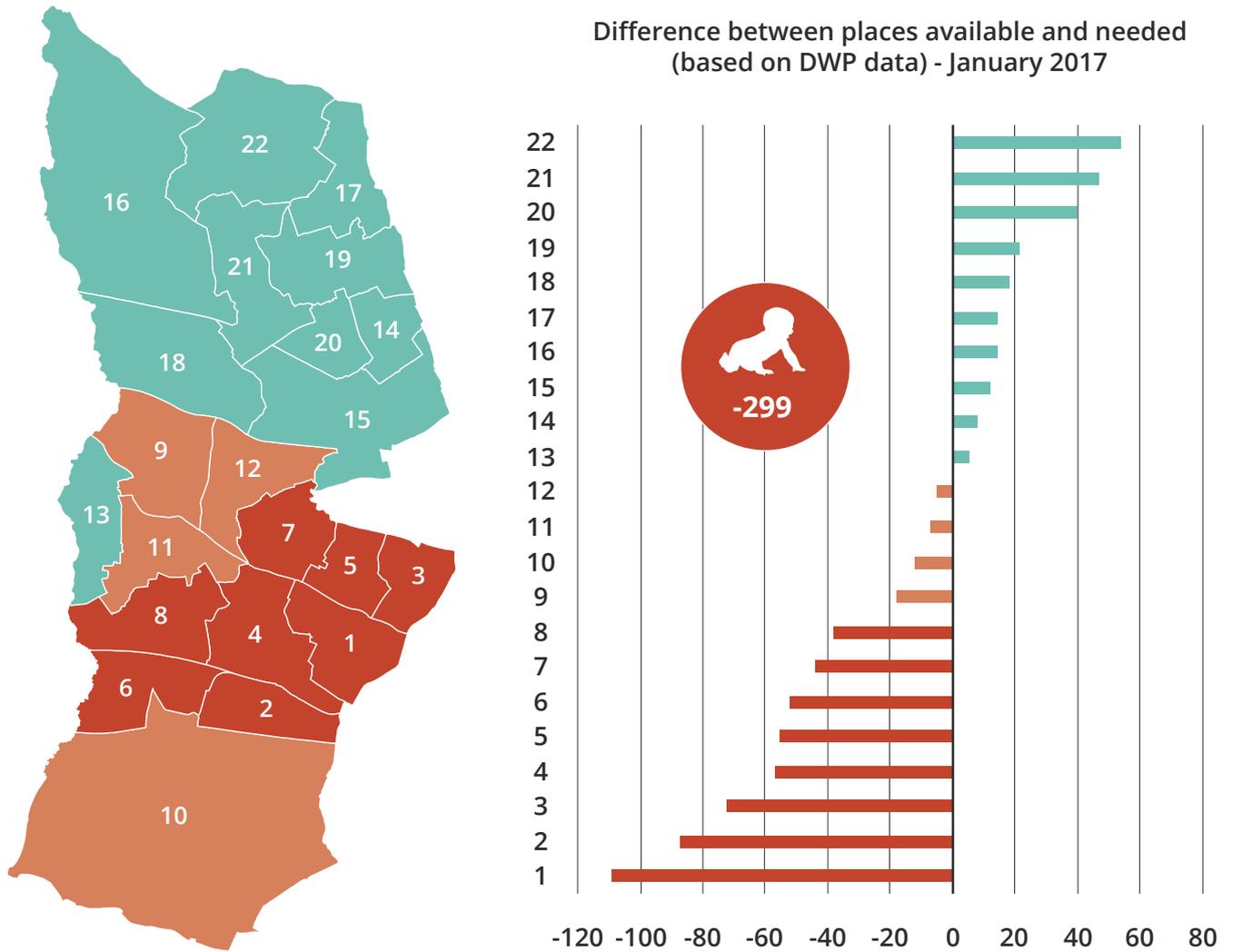


Figure 22. Child Care Need for Disadvantaged Two Year Olds



- | | | | |
|-----------------|-----------------------|---------------------|-------------------------------|
| 1. Townfield | 7. Charville | 13. Uxbridge South | 19. Eastcote and East Ruislip |
| 2. Pinkwell | 8. Yiewsley | 14. Cavendish | 20. Manor |
| 3. Yeading | 9. Uxbridge North | 15. South Ruislip | 21. West Ruislip |
| 4. Botwell | 10. Heathrow Villages | 16. Harefield | 22. Northwood |
| 5. Barnhill | 11. Brunel | 17. Northwood Hills | |
| 6. West Drayton | 12. Hillingdon East | 18. Ickenham | |

Accommodating Growth

Hillingdon plan to engage the private and voluntary sector to ensure sufficient provision to accommodate growth. They have also negotiated for a new nursery to be brought forward on the former Nestle site.

Description	Lead	Need	Requirements	Phasing
Early years / childcare places.	LBH	To ensure sufficient provision though most provided by private / voluntary sector. Shortfall in early years places for disadvantaged two year olds (-299 in borough incl. -109 in Townfield ward and -57 in Botwell Ward) and growth required in all early years provision in borough for 0-5s as current provision at 98% capacity.	Work with private and voluntary sector to ensure enough other provision	To be determined

4.4.2 Primary and Secondary

Context

The current school population in the London Borough of Hillingdon is 51,134 (according to the Spring Census, Jan 2016). Among the maintained schools, academies and free schools, there are: 72 primary schools, 22 secondary schools, 7 special schools, 1 pupil referral unit and 1 nursery. 58 are maintained, 36 are academies and 7 are free schools.

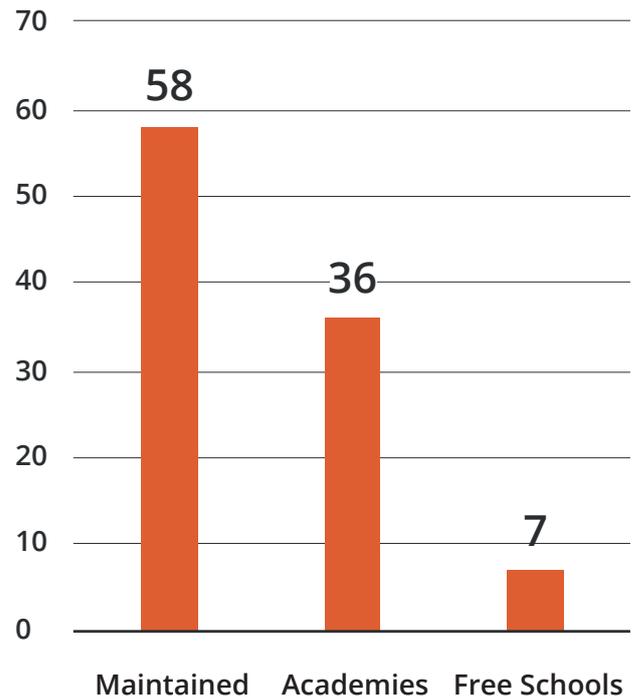
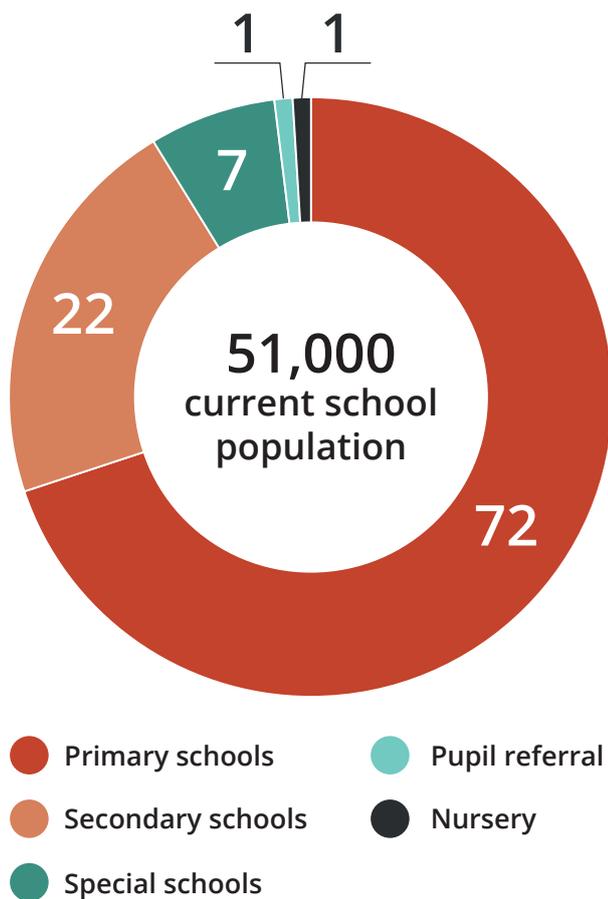
Planning for school places takes place to an annual cycle and includes processes, forecast needs and delivery plans for the next five years.

Given the success in expanding provision on existing school sites, it is likely that most of the

remaining school place need will be met through the provision of new schools, particularly in the secondary phase. In the current legal framework, new schools will be academies or free schools. Whilst the Council has the overarching responsibility for the planning of school places in its area, decisions regarding academy schools are not within its legal remit. Therefore, securing sufficient school places will need to take place in partnership with other organisations.

Planning for school places needs to take into account the impact of individual school's admissions criteria, especially faith schools as they often serve a broader geographical area.

Figure 23. Schools and Other Educational Facilities



Existing Need and Capacity

According to Hillingdon Education Services, the demand for school places in Hillingdon has been rising in recent years and is forecast to continue to rise in line with national and London-wide predictions. Demand for reception places at primary school level is being driven in part by rising birth rates, new house building and families moving into the Borough. Overall, at primary school level, the need for additional school places has largely been met by the successful school places expansion programme to date. Some excess demand is forecast in future years in the north of the borough, as well as in and around Hayes. All on-time applicants were offered Reception places on Offer Day (18 April 2016). For 2016, Guru Nanak Academy offered an additional 30 Reception places.

A new free school, Pinner High School, has opened in Harrow, close to the border with Hillingdon and this has offered an additional choice for Hillingdon residents. All on-time applicants were offered places for September 2016, despite an 8% rise in applications. The recent announcement by the Education Funding Agency of two new secondary Free Schools in the north of the Borough will assist in alleviating the demand pressures. Approval has also been given for a new all-through faith school, which is expected to be based in the south of the borough. At this stage, sites for all of the proposed free schools are subject to confirmation.

The main contract works of Phase 1 of the School Condition Programme has been completed on all the projects started in 2016. Work has continued on developing the next phase of the programme and a number of potential projects for inclusion have been identified. In 2014 the Department of Education (DfE) announced the availability of funding under Phase 2 of Priority Schools Building Programme which is focused on undertaking major rebuilding and refurbishment works for schools and sixth form colleges in the very worst condition. These projects will be managed directly by the Education Funding Agency (EFA). The Council submitted 'Expressions of Interest' for a number of maintained schools of which 5 were successful; The Skills Hub, Minet Infant School, Minet Junior School, Harlington School and Meadow High School. Since the announcement of the successful schools The Skills Hub has become an Academy. A further 3 applications made directly by Botwell House Catholic Primary School, Douay Martyrs Catholic School and Queensmead School were also successful.

The completion of the school capital projects (other than the school expansion projects) will

result in the provision of quality fit for purpose school facilities.

Accommodating Growth

The DfE publishes national pupil projections annually. The most recent projection covers the period to 2025. The nursery and primary school population has been rising every year since 2009 but is forecast to stabilise in 2020, with smaller increases towards the end of the projection period. The secondary population rose for the first time since 2005, as the larger primary cohorts reach secondary school age.

London Council's report on school places 'Do the Maths 2016' states that between 2010-2020 the school age population in London is anticipated to grow by almost 25 per cent, with a total of 110,364 new school places will be needed in London between 2016/17 and 2021/22 to meet forecast demand, consisting of 62,935 primary places and 47,430 secondary places.

Hillingdon Council subscribes to the GLA School Rolls Projection Service and uses its forecasting model to generate the Hillingdon pupil forecast. The methodology is robust, having been developed over many years and uses GAL-generated population projections, as well as those created by individual LAs. The last annual update of the pupil forecasts was in summer 2016. Generating pupil forecasts is a complex and specialist task but a brief description is as follows:

- The SRP model uses a number of other data/advisory sources including Office for National Statistics (ONS) data on annual births, death and migration data and its assumptions on future trends, Department for Communities and Local Government household projections, past dwelling completions (London Development Database) & estimates of future housing development.
- LAs provide school roll data and ward-level population projections. The model allows LAs a choice of three population projection methodologies (this is in the line with the approach taken for national projections)
- The GLA then runs the SRP model and returns projections to LAs.

At the London Borough of Hillingdon, pupil forecasts also take into account confirmed housing development (this is the requirement for submission to the Department for Education). LBH are given a list of developments that meet the DfE criteria by Planning (the most recent version was provided by Hillingdon Council's planning team for the 2016 forecasts that were produced this summer).

Figure 24. Existing School Provision

Source: 2016 Ordnance Survey 100019283, LB of Hillingdon, LB of Hillingdon Strategic Infrastructure Plan, March 2013, URS

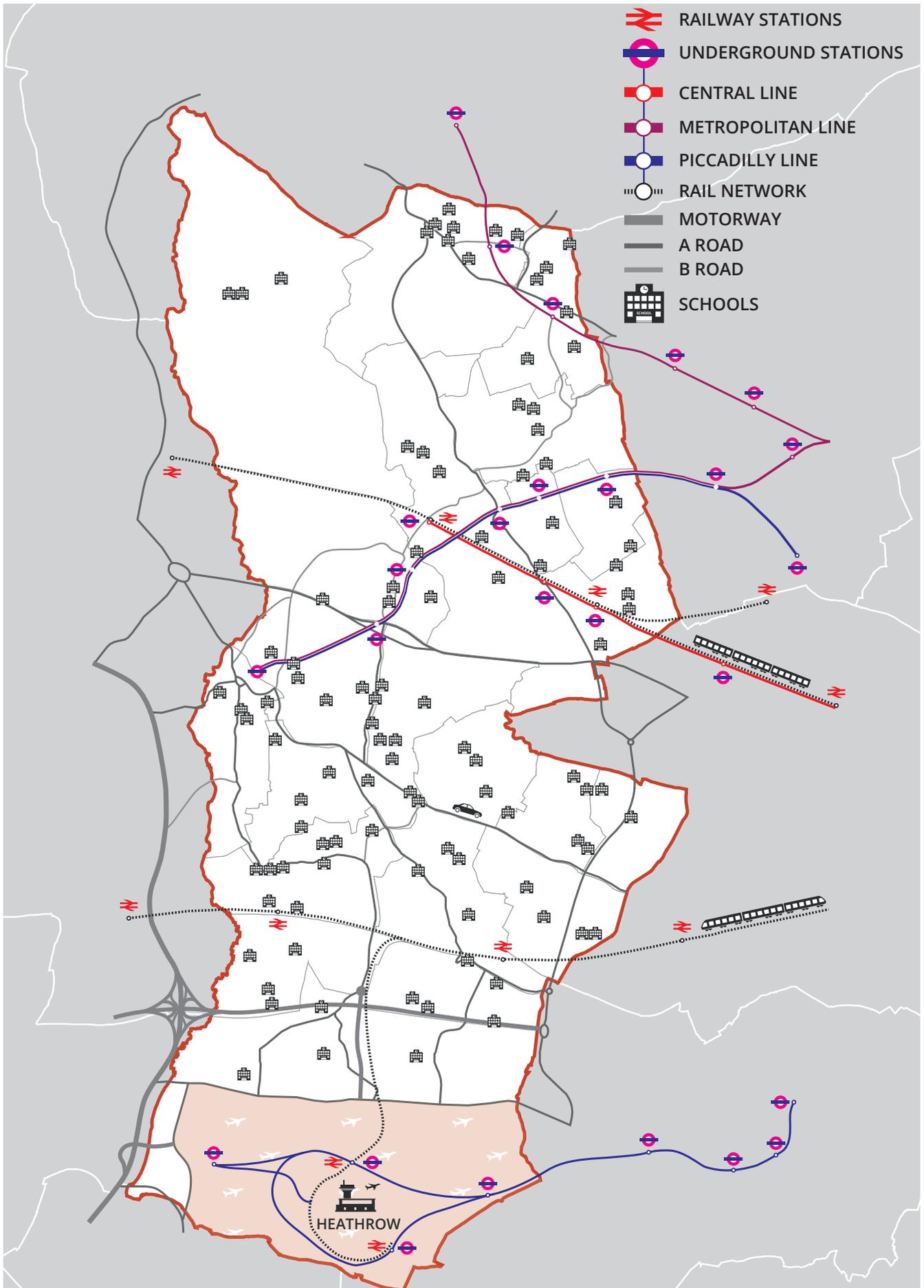
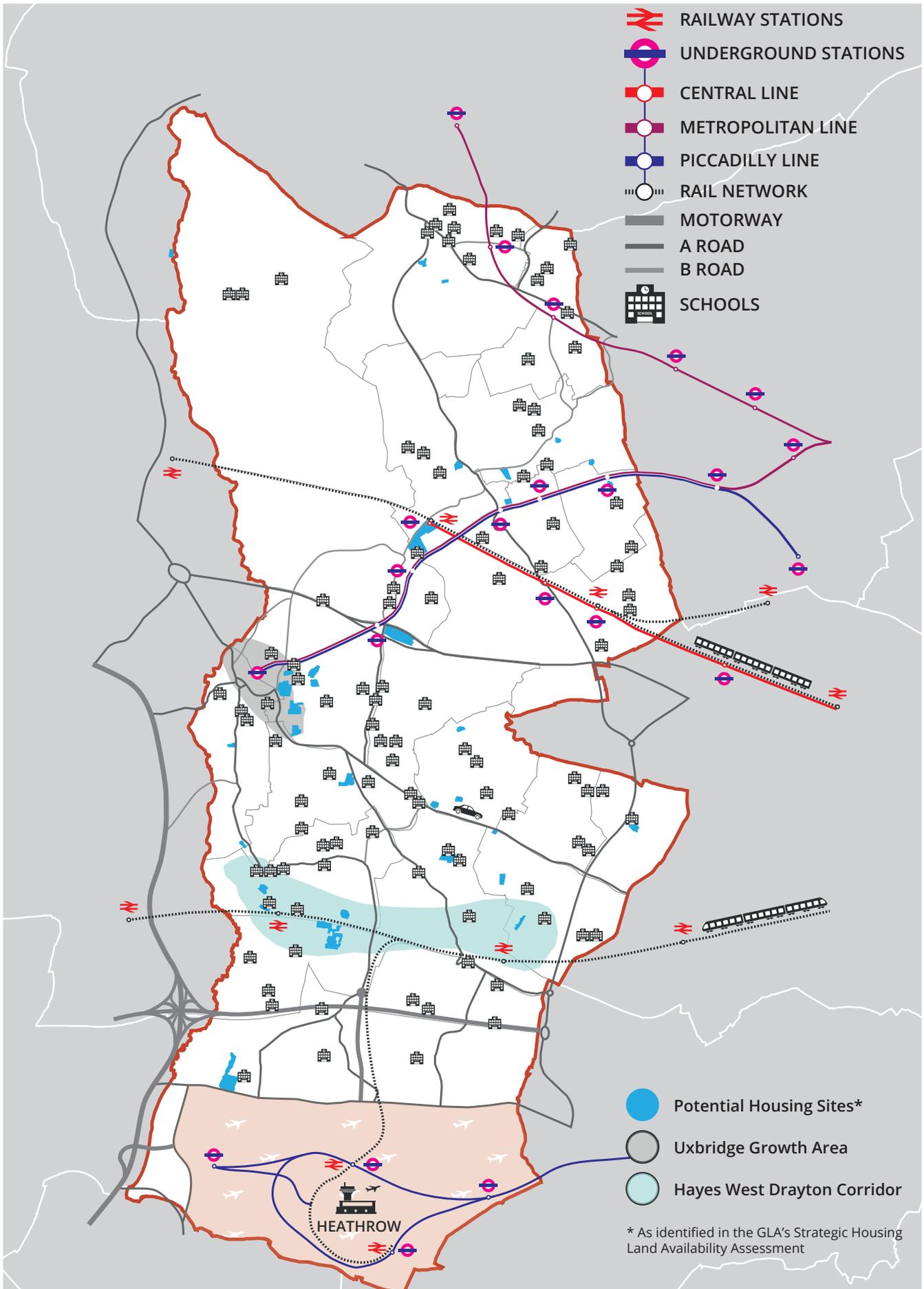


Figure 25. School Provision in relation to Growth

Source: 2016 Ordnance Survey 100019283, LB of Hillingdon, LB of Hillingdon Strategic Infrastructure Plan, March 2013, URS



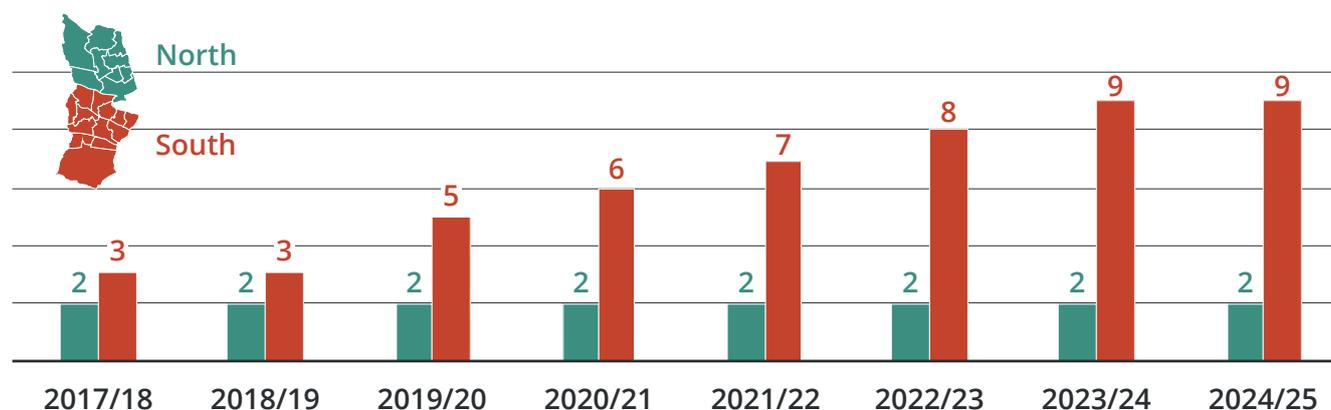
Primary School Places

The updated forecast shows that demand for primary places in the north of the Borough appears to be reaching a plateau. However, there remains a residual need for a small number of additional forms of entry. Thirty additional Reception places have been provided at Hillside Infant School for September 2016. Demand for places in the south of the Borough is still forecast to grow, particularly in the Hayes area where there has been significant housing development, with more expected in the future.

An additional need for 11 primary forms of entry is anticipated by 2021. Hillingdon Council are exploring options to meet this future need.

The success of the extensive programme of providing additional places means that further additional capacity is needed in a limited number of geographical areas only. The following table shows the current assessed future cumulative need in the north and south of the Borough.

Figure 26. Future Cumulative Need for Primary School Places Forms of Entry



In the north of the Borough, planning applications have been submitted for the expansion of Hillside Infant, Hillside Junior School and Warrender Primary. This is expected to meet the forecast need. The principal area of need in the south of the borough is the Hayes area. Two factors have a particular impact on the demand and supply of school places in this locality:

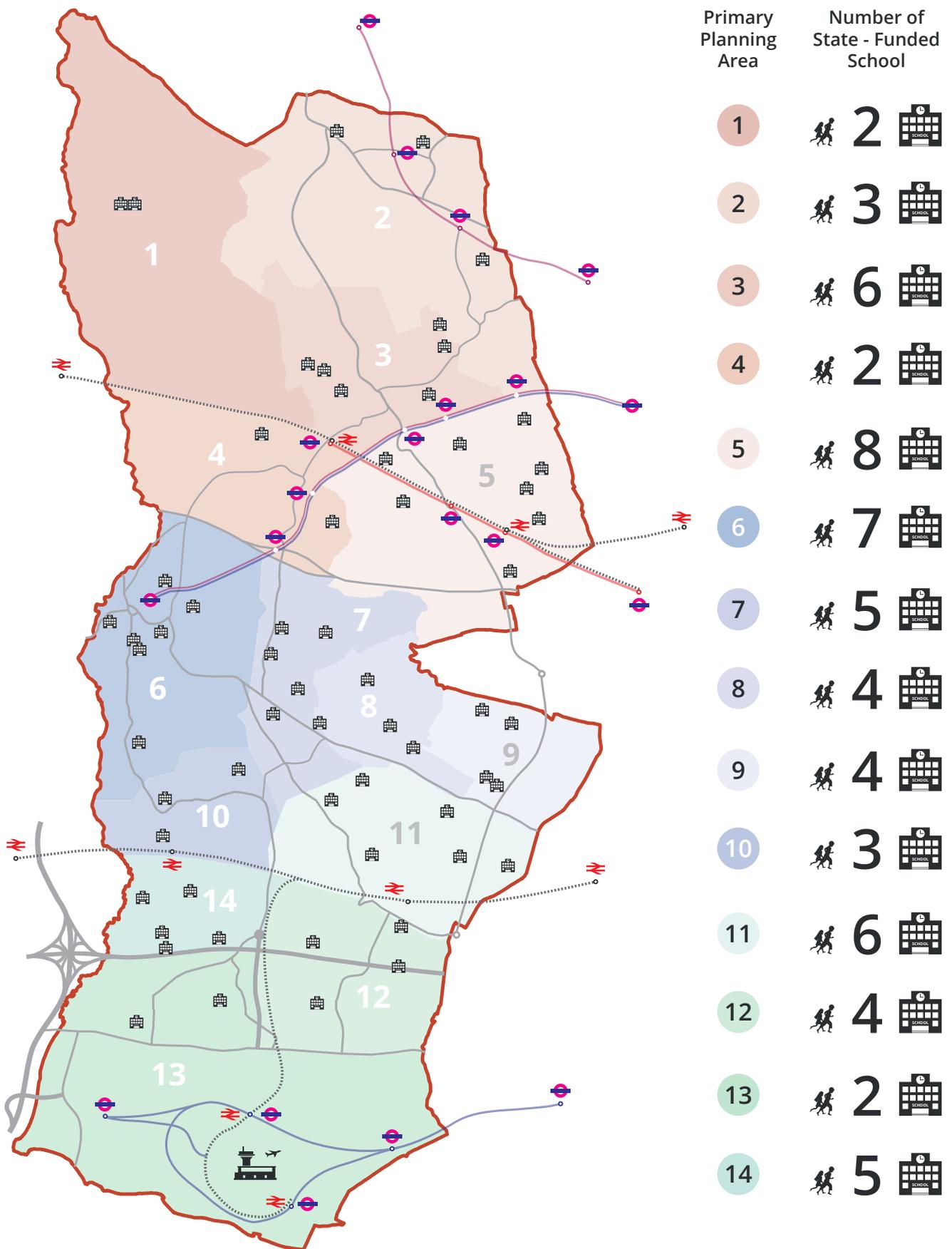
- Suspension of intakes into Nanaksar Primary - this is the primary reason for short-medium term place pressures, as it has reduced planned provision by four forms of entry. The above figures assume that this will continue. If intakes resume, there should be sufficient places up to 2018.
- Volume of housing development.

Given the forecast need and proposed further housing development, the most cost-effective solution to meet the need in the Hayes area would be a new primary school. The current legal position means that this would need to be an academy. A new all-through school has been approved and, if located in the south of the borough, could provide two forms of entry. Temporary expansions may be needed, pending places in new free schools.

In the Uxbridge Area, the popularity of local schools means that more pupils than expected have taken up places in this area. As more families move into the St Andrew's development, further places may be needed. However, there is a possibility that at least some future 'out-of-area' demand will be displaced back to other parts of the Borough where places are available. The position is, therefore, being monitored at present.

The Harmondsworth/Heathrow area is also showing a .5 form of entry place pressure. However, there will be places available in the adjacent West Drayton area.

Figure 27. Primary School Provision



Source: 2016 Ordnance Survey 100019283, London Borough of Hillingdon

Secondary Schools

The rising demand for school places is now moving into secondary schools. The latest forecast shows a longer-term sustained pressure for additional secondary school places, albeit with pressure building at a slower pace than indicated in the 2015 forecast. Over the next five years, it is expected that there will be a need for an additional 12 forms of entry. This is in addition to the existing programme of expansions (Northwood, Abbotsfield and Swakeleys schools, which will add 5.5 forms of entry capacity).

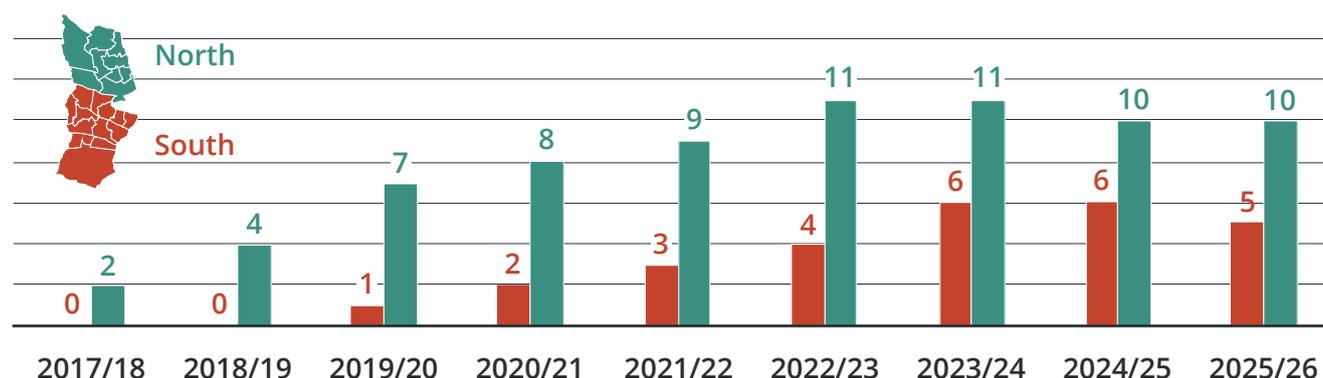
Discussions with a number of secondary schools regarding expansion are progressing.

Arcadis LLP have been appointed as multi-disciplinary consultants for these projects and are working with Officers to take these projects forward through the design stages. The school buildings at Abbotsfield, Swakeleys and Northwood Secondary Schools required

improvement and have attracted funding from the Education Funding Agency (EFA) Priority School Building Programme for all three schools to be rebuilt. New free schools will also result in additional school places - the Education Funding Agency is the lead delivery organisation on free schools and will liaise with proposers. Forecasts generally become less certain beyond a five year horizon. In addition, the forecasts factor in confirmed housing development and therefore do not include all anticipated developments. In addition, the location of new free schools and the type of school proposed would be likely to affect patterns of demand, including the possibility of increasing pupil travel between the north and south of the Borough.

The table shows the forecast future cumulative need for additional secondary school places by forms of entry.

Figure 28. Future Cumulative Need for Secondary School Places



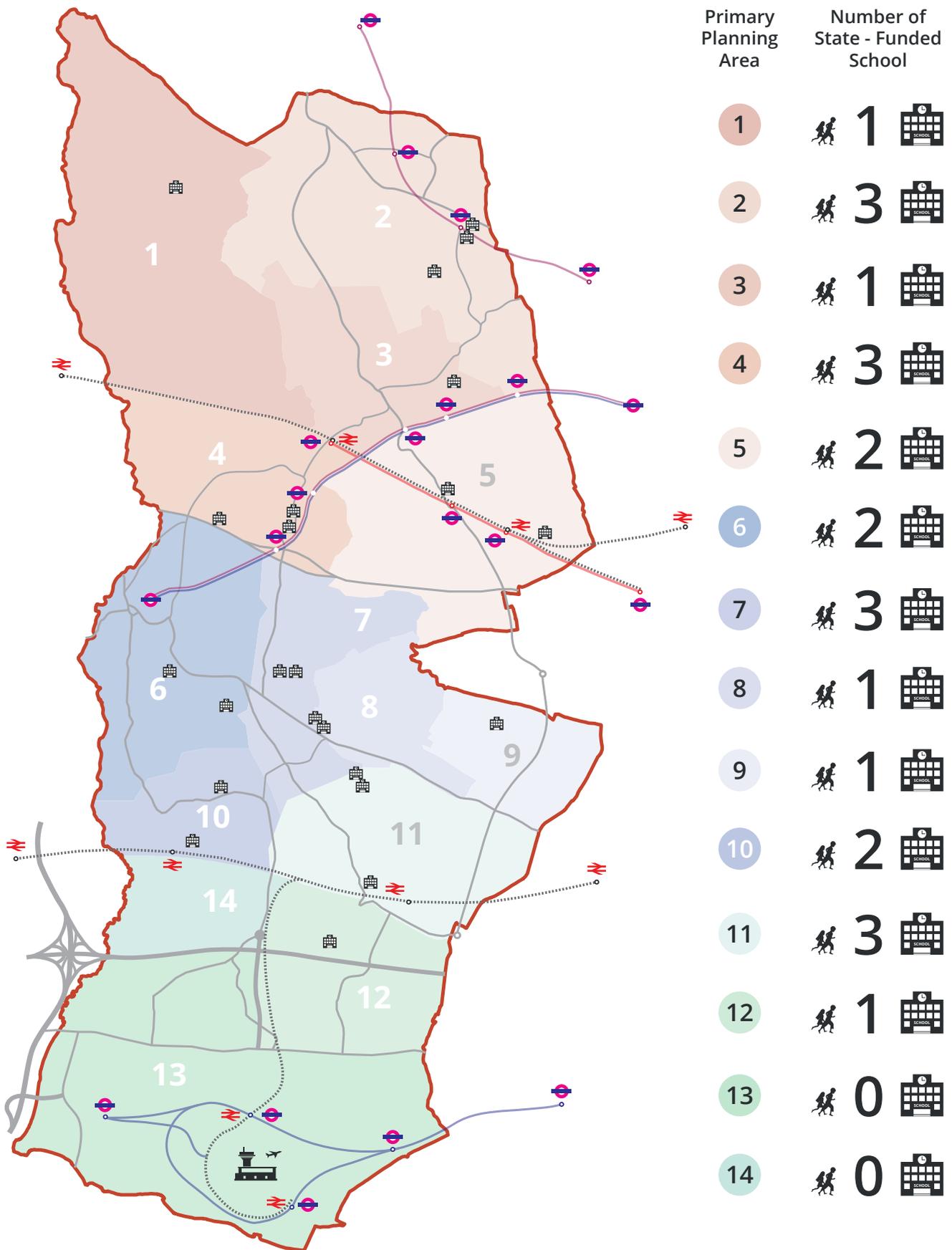
North of the Borough

Two school expansion proposals are being developed, which are expected to provide 3-4 forms of entry. In addition, two free school proposals have been put forward. Therefore, sufficient proposals are being developed to meet projected demand. 'Bulge' year groups (temporary expansions) may be needed to provide sufficient capacity for an interim period during construction of permanent facilities. Demand may be slightly lower if take-up of places at the newly opened free school in Harrow (Pinner High) attracts higher numbers of Hillingdon residents than anticipated.

South of the Borough

Although Harlington School has reduced its admission number, the expansion of Abbotsfield School from 2017 means that there is still a net increase of 47 admission places in 2017. Swakeleys School will increase its admission numbers in 2018 following completion of its rebuild. These measures would mean that there would be sufficient capacity prior to September 2019. Based on previous analyses of school sites, there appear to be two schools that may be candidates for expansion. Alternatively, a new free school could provide sufficient places.

Figure 29. Secondary School Provision



Source: 2016 Ordnance Survey 100019283, London Borough of Hillingdon

Description	Lead	Need	Requirements	Phasing
Additional school places. This is expected to be met through a combination of expansions of existing schools (LBH delivery lead) and new free schools (EFA delivery lead).	LBH/ Education Funding Agency	There has already been a substantial investment in school places. However, a further increase in the school-age population is forecast, particularly in the secondary phase, as the larger primary cohorts of recent years reach secondary age. There is an urgent need for a five form primary school in Hayes	11 primary forms of entry and 15 secondary forms of entry. Special schools - 130 places	Overall programme timescale 2016-2026

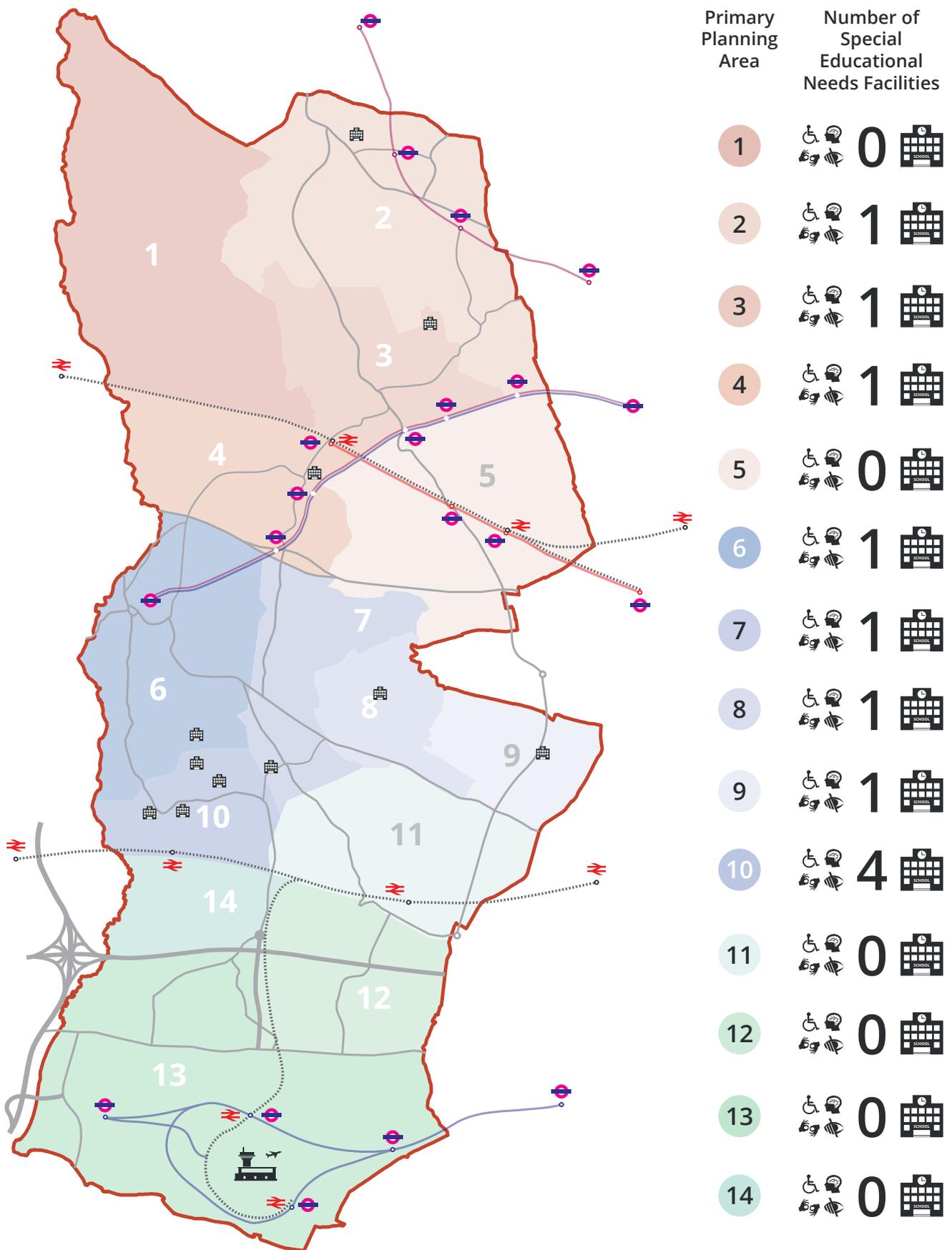
4.4.3 Additional Needs

Local authorities have a statutory duty to make suitable provision to meet the needs of children and young people with special educational needs and disabilities (SEND), up to age 25 for those with an Education & Health Care Plan (EHCP). The Special educational needs and disability code of practice: 0 to 25 years explains the duties of local authorities, health bodies, schools and colleges to provide for those with special educational needs under part 3 of the Children and Families Act 2014.

As at August 2016 there were 1,818 children with a statement of SEN or EHCP who were the responsibility of the borough (either in Hillingdon schools or elsewhere). Planned provision for pupils with SEND is set out in the Additional Needs Strategy: Developing Local Provision for Children and Young People with Additional Needs in Hillingdon 2016 to 2020. It builds on work undertaken over a number of years in developing a range of local provision within mainstream schools e.g. Specialist Resource Provision (SRPs) as well as more specialist provision together with the work on developing the capacity of mainstream settings to include children with a range of additional needs.

As the school age population grows, the number of children with some form of special educational need will also increase. It is anticipated that an additional 130 special school, SRP and Pupil Referral Unit (PRU) places will be required by 2021. Two special free schools have been approved.

Figure 30. Special Educational Needs Facilities Provision



Source: 2016 Ordnance Survey 100019283, London Borough of Hillingdon

4.4.4 Further Education and Adult Learning

Context

Local authorities have a statutory duty to secure sufficient, suitable education and training provision for all young people aged 16-19.

Uxbridge College is a general Further Education College that opened in 1965. It offers a diverse range of vocational and academic courses for young people and adults. The College has two campuses, in Uxbridge and Hayes Town Centres, with approximately 10,000 students. This includes 4,000 full time students (3,000 16-18s and 1,000 19+) and 6,000 part time students (with 4,000 on site and 2,000 in the workplace). It offers A-levels, GCSEs and a range of other vocational and industry standard programmes. Whilst the Uxbridge campus has more of a regional catchment area, many students travel a considerable distance to learn and study at both sites.

Adult community learning is provided through four main centres in Hillingdon: a purpose built building in Brookfield, Uxbridge, two in Ruislip that are attached to libraries and a big centre in Harlington near Hayes Town Centre in an old Victorian school. Adult learning services are provided predominantly in areas of deprivation and existing community facilities such as mosques and children's centres are also used. Services include helping people into work and supporting people's health and wellbeing. Particular groups served include older people, parents, people with brain injuries, faith groups, travellers and care leavers.

Existing Need and Capacity

Uxbridge College has invested over £60 million since 1999 updating and improving its classrooms, specialist facilities and social spaces. It provides space for workshops, garages, studios, media rooms, salons, kitchens, IT suites, labs and more. In most recent years in 2015, a new west block on the Uxbridge Campus was created, providing a multi-purpose hall, classrooms, art workshop and exhibition space. The same year upgrades to the Hayes Campus included a new reception area, a larger refectory and relaxation space, new dance studios and 'The Edge' a revamped theatre with box office.

Uxbridge College is based on two campuses in Uxbridge. Both campuses provide a refectory, student social areas and a Learning Resource Centre. It has a library, media and filming studio, science labs and a new £6m sports and leisure centre, which anyone is able to attend. It provides a sports hall (offering 5-a-side football,

cricket, basketball, netball and volleyball, together with a full-size electronic scoreboard), a fitness suite and two outdoor multi-use games areas.

Hayes College was created in partnership with Hillingdon Council, local health services and voluntary organisations as part of a new centre for the Hayes community. The College is next to a health centre, housing, parkland and a day centre for elderly people, ensuring the campus is at the heart of the community. The college contains a Performing Arts school that has two dance studios and a theatre.

Hayes Business Studio is also located on the campus. It provides competitively priced and equipped office studio space, ongoing support and an accessible location for business start-ups and a meeting room for hire. The Hayes campus also has a fitness centre, bistro-style restaurant and hair and beauty salon that are open to the public. Uxbridge College also hire event, meeting and training space.

Accommodating Growth

Uxbridge College are self-funding a £6m expansion to their Uxbridge town centre campus. It is required to accommodate an increase in student numbers by approximately 250 people. It should be delivered by 2021 and is part of an approved planning application for phased works.

There are no proposals to expand existing adult community learning centres or to create new provision, although quality assessments are planned to ensure they are fit for purpose. Strengths and areas for improvement identified in the annual Ofsted inspections are used to inform plans and funding requirements.

Description	Lead	Need	Requirements	Phasing
Expansion of Uxbridge College Uxbridge Campus	Uxbridge College	To accommodate increase in student numbers at the Uxbridge campus of approx 250 students.	Part of an approved planning application for phased works. South Block Phase C2 Planning ref 1127// APP/2012/2867	Up to 2021

4.4.5 Higher Education

Brunel University is a single campus university based on a 78 hectare site to the south east of Uxbridge town centre, established in 1966. The university had 13,860 students in 2013/14 - 21% from outside of the UK/EU and 7% from Hillingdon. It employs approximately 2,450 2,500 full/part-time staff, of which 882 live in Hillingdon and attracts around 26,500 visitors per annum. It has an annual turnover of around £187m £192m. Over recent years Brunel has sought to align its education and research capabilities more closely with the requirements of the market and the UK's economic growth strategy, which involves it becoming a more research intensive university and placing greater focus on its core subject areas (typically STEM subjects: Science, Technology, Engineering and Mathematics).

As a single campus university in London, its aspiration is to accommodate its needs at its existing Uxbridge Campus as a means of strengthening this position. University staff believe that its single campus format increases its attractiveness to prospective students (especially those from overseas), facilitates practical operational efficiencies (consolidated support services etc.) and reduces the need to travel for staff and students (which carries sustainability and transport capacity-related benefits).

Existing Need and Capacity

Brunel's facilities have been transformed in recent years (2006/7-11) as part of a £300 million investment in campus buildings and infrastructure, including the refurbishment and expansion of existing halls of residence, the construction of the new Isambard Complex and the recent expansion of the Brunel Metals Research Park, with the second Brunel Centre for Advanced Solidification and National Structural Integrity Research Centre. The university is in the process of developing a

strategy covering the next five years and is also developing longer-term estate plans.

Accommodating Growth

The university is preparing for significant growth, with student numbers planned to increase to 21,500 by 2022/2023 with potential of up to 25,000 by 2025/2026 with a focus on growing its research capability, which requires a significant programme of development over the next 5-10 years to provide the necessary accommodation (expected to comprise the refurbishment of existing buildings together with new development). Plans include a new Teaching and Learning Centre, Design Engineering Centre and STEM centre, to advance science, technology, engineering and maths on campus.

The 2017 masterplan identifies a need for approximately 216,500sqm of new academic, research and student residential accommodation over the Local Plan period. The masterplan aims to intensify the existing built-up parts of its campus (Sites 1 and 2), as a means of accommodating a proportion of the University's assessed development needs. However, a significant amount of the identified need remains outstanding without encroaching further into the Green Belt. The key policy issues associated with this is that the existing campus site is currently designated as Green Belt and is on a floodplain. The university is in talks with the Hillingdon Council regarding whether the release of part of their campus from the Green Belt boundaries can be revised as part of the preparation of Local Plan Part 2 reviews, where exceptional circumstances apply.

The university's concept masterplan sets out the University's vision of how its development needs (as defined above) could be met. It also indicates how further undefined future development needs/opportunities could be met (beyond those identified to date), potentially

including those associated with healthcare. In addition, Brunel University is actively pursuing a formal Memorandum of Understanding to work jointly with The Hillingdon Hospitals NHS Foundation Trust (THH FT) and Central and North West London NHS Foundation Trust (CNWL FT) to promote an integrated higher education health sciences centre and healthcare campus on a specific site at the University.

The projects identified as required are as follows.

Description	Lead	Need	Requirements	Phasing
Future development to 2026 associated with the Brunel University Concept Masterplan	Brunel University	To enable the University to deliver international standards of research and teaching facilities, which necessitates continued expansion and improvements to its accommodation alongside associated healthcare facilities	The University has developed a concept masterplan to accommodate the assessed needs, which equate to around 200,000 sqm of net additional	Phased implementation in period to 2026

4.5 Emergency Services

4.5.1 Metropolitan Police Service

Context

The 2017-2020 Mayor of London Office for Policing & Crime and Met Police Services Estate Strategy is currently being drafted. The 2013-2016 strategy sets out that the estate supports the operations of some 54,000 officers and staff within the Metropolitan Police Service (MPS). As at March 2013, the MPS operated from 955,948 square metres (sqm) of space in a total of 671 properties of which: 400 properties have day-to-day operational activities, 97 properties are no longer required for operational use, and 174 properties are residential. Its strategic objective is to deliver a more efficient and higher quality estate which meets the operational needs of the MPS and is significantly lower in cost to run.

The Commissioner has set a vision for the future of the MPS under the banner of 'Total Policing' which has three key targets: to cut crime; cut costs; and change the culture. This will be achieved through changing the way the MPS works, better use of technology and better communication. The operational changes will result in a more efficient use of less property that is better equipped for the operational needs of current and future policing.

Existing Need and Capacity

Hillingdon is unique in terms of its requirements for police provision. Whilst Heathrow has its own dedicated police team, recent development at the airport, including Terminal 5 and the redevelopment of Terminal 2 will have a significant impact. A key challenge over the period of the Local Plan will be the continued need for community policing.

Accommodating Growth

The MPS is reviewing the whole of its property estate to ensure they are making the best use of space, allowing it to exit under-occupied and outdated buildings and to replace them with more modern, efficient and geographically responsive facilities. They are currently working on the new Estate Strategy which is expected to be published alongside or soon after the Police and Crime plan in the coming months. Once the Estate Strategy is confirmed and approved by The Mayor's Office for Policing and Crime (MOPAC), MPS will be able to advise on existing capacity and accommodating growth.

4.5.2 London Ambulance Service

Context

The London Ambulance Service operates from three sites in Hillingdon: Hillingdon ambulance

station, Hayes ambulance station and Pinner and Northwood hospital. There are not currently any plans to carry out any capital projects in relation to these sites.

Existing Need and Capacity

The estate as a whole is not fit for purpose but there are no specific plans as yet.

Accommodating Growth

The service is in the process of developing an estate strategy that should be published in spring 2017.

4.5.3 London Fire Brigade

Context

The London Fire and Emergency Planning Authority (LFEPA) governs the London Fire Brigade and is responsible for strategic direction and determining policy, setting priorities and monitoring performance. The Fire and Rescue National Framework requires fire and rescue authorities to produce an integrated risk management plan (IRMP) that 'identifies and assesses all foreseeable fire and rescue related risks that could affect its community, including those of a cross-border, multi-authority and/or national nature'. This is set out in the London Safety Plan, with the most recent version covering the period from 2013-2016.

The Fifth London Safety Plan explains how, over the coming years, London Fire and Emergency Planning Authority will deliver the Mayor's objective of making the capital a safer city. The plan balances the need to reduce costs with a duty to protect Londoners. More London boroughs will fall within the six minute average attendance time target for the first fire engine to arrive at an emergency and the Brigade's ability to deal with major incidents will be maintained.

Existing Need and Capacity

There are four Fire Stations in Hillingdon, situated in: Hayes, Heathrow – Heathrow Airport, Hillingdon and Ruislip. Station grounds are not consistent with borough boundaries and some of these facilities serve parts of adjoining boroughs.

Accommodating Growth

The London Fire Brigade set out the following plans to accommodate growth in the Borough of Hillingdon between now and 2026.

Description	Lead	Need	Requirements	Phasing
Metropolitan Police Estates Strategy	Metropolitan Police	MPS currently working on the new Estate Strategy which is expected to be published alongside or soon after the Police and Crime plan in the coming months. Once the Estate Strategy is confirmed and approved by The Mayor's Office for Policing and Crime (MOPAC), MPS will be able to advise on this further.	To be determined	2016-2020
Refurbishment of Hillingdon Fire Station	London Fire and Emergency Planning Authority	Maintain the effective provision of fire services in Hillingdon	Upgrade works	2018
Refurbishment of Hayes Fire Station	London Fire and Emergency Planning Authority	Maintain the effective provision of fire services in Hillingdon	Upgrade works	2020/21
Relocation of Heathrow Fire Station	London Fire and Emergency Planning Authority	Maintain the effective provision of fire services in Hillingdon	Upgrade works	Current - 2020/21
Refurbishment of Ruislip Fire Station	London Fire and Emergency Planning Authority	Maintain the effective provision of fire services in Hillingdon	Upgrade works	2019/20

4.6 Community and Leisure

This section identifies the community, sport and leisure provision required to underpin growth.

4.6.1 Sport and Leisure (incl. playspaces)

The recent delivery of new leisure centres at Uxbridge and Botwell Green has significantly improved the quality of leisure facilities available to local residents. Hillingdon has commissioned a Playing Pitch Strategy Assessment to assess the supply and demand of playing pitch facilities in accordance with Sport England's Playing Pitch Strategy Guidance: An approach to developing and delivering a playing pitch strategy. It forms part of a wider Sports and Recreation Facilities Needs Assessment, including an assessment of indoor sports facilities.

The Playing Pitch Strategy Assessment Draft Assessment Report (December 2016) provides detail in respect of what exists in the Borough, its condition, distribution and overall quality. It also considers the demand for facilities based on population distribution and planned growth. The study covers all playing pitches as well as some non-pitch sports.

The full list of sports facilities covered is as follows:

- Football pitches
- Rugby union pitches
- Cricket pitches
- Artificial grass pitches (AGPs)
- Outdoor tennis courts
- Outdoor bowling greens
- Golf courses
- Lacrosse
- Gaelic football.

An Indoor Sports Facilities Assessment was also commissioned in 2016. It assesses what exists in the borough, its condition, location, availability and overall quality. It considers the demand for facilities based on population distribution, planned growth plus factors such as health and economic deprivation. The facilities covered include: sports halls, swimming pools, health and fitness suites, athletics tracks, indoor bowls centres, indoor tennis courts, golf courses and squash courts.

A number of children and young people's play spaces were provided in recent years as part of the Government's Playbuilder scheme.

Existing Need and Capacity

The Playing Pitch Strategy Assessment Draft Assessment Report (December 2016) finds there is a shortfall in:

- Youth football grass pitches
 - There is a current shortfall of, youth 11v11 and 9v9 pitches and mini 5v5 pitches. Taking into account future demand, there are shortfalls across most pitch types (this includes mini 7v7 and mini 5v5) with the exception of adult pitches (this includes mini 7v7 and mini 5v5).
- Cricket wicket quality/pitch for junior and informal use
 - Given that wicket capacity has been adjusted to take account of quality, this has resulted in more pitches being overplayed. In the main, a combination of improving wicket quality/pitch and provision of more NTPs for junior and informal use will address the current level of overplay expressed.
- Rugby Union pitches (and existing pitched should be protected and improved)
- Hockey pitches
 - One more full size sand AGP is required to service future and current demand. Further to this there is potential spare capacity at Guru Nanak Secondary School for more hockey community use which could be explored albeit Eastcote HC states it would be unable to travel the distance required to access the pitch. The quality of a number of existing pitches also need to be improved.

A strategy will require developing to address the supply issues identified.

There is deemed to be sufficient supply of tennis courts, although 33% are assessed as poor quality. Bowls greens require efforts to sustain green quality and clubs should be supported in improving their ancillary facilities. All seven golf courses are assessed as good quality. Demand for lacrosse only exists within the higher education sector, so it can be assumed that current supply of pitches can accommodate demand both now and in the future. Improving the quality of existing rugby provision at Hayes RFC will help to build future capacity to address overplay to accommodate rugby and Gaelic football demand.

The Indoor Sports Facilities Assessment report identifies an undersupply of sports halls (9.5 courts - particularly in the Yeading area) and swimming pools to meet current demand. Sports halls are operating at 99.1% of capacity during the peak period (i.e. they are extremely busy). This makes it difficult to increase capacity within the current stock. Community access to sports facilities on education sites can also be challenging. Community use of school facilities varies markedly; five offer less than 20 hours

per week. The report recommends the use of binding community use agreements for education sites, particularly in light of changes to the education sector. There is deemed to be sufficient supply of squash courts, athletics provision, indoor bowls and indoor tennis.

Hillingdon Council run a rolling replacement programme of play spaces in parks and on housing sites. Play England was set up to deliver active and natural children’s play space but the schemes were not as successful as anticipated and many sites need updating.

Outdoor gyms which serve people aged 13+ are also being rolled out. New playgrounds are funded by Chrysalis, a council scheme where up to £100k is given per scheme up to £1m. S106 money is also allocated for playgrounds and skate parks.

Accommodating Growth

The following projects have been identified as required to accommodate growth.

Description	Lead	Need	Requirements	Phasing
Children’s playspace	LBH	5.79 to 6.27 (Ha) - based on 7390 to 7998 new dwellings in borough between 2016 and 2026	To be determined	As development sites come forward up to 2026
Playing pitches	LBH	Youth football grass pitches, Cricket wicket quality/pitch for junior and informal use, Rugby Union pitches (and existing pitched should be protected and improved), Hockey pitches (one more full size sand AGP is required to service future and current demand. Further to this there is potential spare capacity at Guru Nanak Secondary School for more hockey community use which could be explored albeit Eastcote HC states it would be unable to travel the distance required to access the pitch. The quality of a number of existing pitched also need to be improved). Improving the quality of existing rugby provision at Hayes RFC will help to build future capacity to address overplay to accommodate rugby and Gaelic football demand	To be determined	To be determined
Children’s playspace	LBH	To accommodate growth only (and not under supply), the following is needed according to Indoor Sports Study: 6.1 additional courts worth of sports hall space (1.5 Sports halls); 4.43 additional lanes worth of swimming pool space(1 swimming pool); 511 health & fitness stations (should be at least 20 stations per gym, some have a lot more like 200 at Virgin Active)	To be determined	To be determined

4.6.2 Libraries

Context

Hillingdon Council has recently completed a capital programme that saw the refurbishment of its 17 libraries and made changes to staffing and resourcing, with many libraries now also acting as community hubs and providing a range of health and well-being initiatives, as well as cultural events.

As well as permanent libraries there is a mobile library which operates a weekly service, stopping at 26 roadside points. A home library service is also available to those residents who find it difficult to, or cannot access libraries (e.g. patients in hospital, disabled or elderly residents).

Accommodating Growth

Using standards established in Chapter 9 of the Hillingdon Planning Obligations SPD an estimate of the likely additional library space required to meet future growth can be made. The Planning Obligations SPD uses the standard of 30sqm per 1,000 population as set out in the South East Public Library Tariff, Museums and Libraries Archives 2007. If this standard is applied to the approximately 14,286 expected new people arising from future housing growth between 2016 and 2026, a total of approximately 420 additional sqm of library space would be required over the planning period.

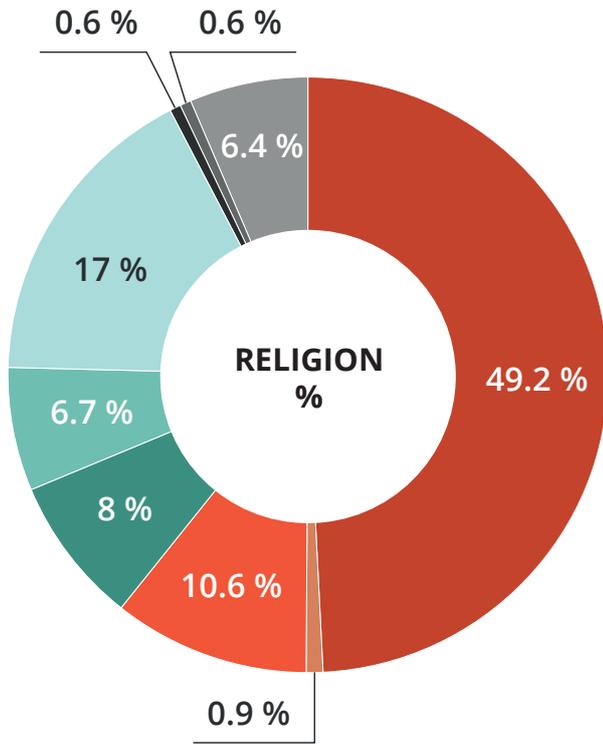
If new developments do not require additional floorspace to be built because existing nearby library facilities have spare capacity, the Planning Obligations SPD sets out an alternative formula for estimating demand. This takes into account the demand on additional computing equipment, books and opening hours and is represented by a charge of £4.60 per person chargeable over a five year period. This represents £23.00 per person.

Due to the recent refurbishment programme, there are no plans for additional libraries.

4.6.3 Places of Worship

Hillingdon's population is diverse and supports a wide range of religious beliefs. Census 2011 data indicated the following split of religious groups in Hillingdon:

Figure 31. Religious Groups in Hillingdon



Christian	134,813
Buddhist	2,386
Muslim	29,065
Hindu	22,033
Sikh	18,230
No religion	46,492
Jewish	1,753
Other	1,669
Not stated	17,495

The Hayes and Harlington locality is expected to see a significant amount of growth within Hayes Housing Zone. It has a slightly lower Christian population than the borough as a whole and a higher Muslim, Sikh and Hindu population.

Existing Need and Capacity

The council undertook work to assess the location of faith groups in the borough. A directory of places of worship was subsequently created in 2011, along with details of the community services they provide. Hillingdon Council engage faith groups through the Hillingdon Inter-Faith network to better understand the needs of faith communities and to provide support and guidance where necessary. There are a decreasing number of community facilities as a whole which impacts on various faith groups.

Accommodating Growth

No specific worship infrastructure proposals have been identified for the period of the Local Plan.

4.7 Green Blue Infrastructure

Natural England defines Green Infrastructure as 'a strategically planned and delivered network comprising the broadest range of high quality green spaces and other environmental features.' Natural England guidance indicates that green infrastructure consists of:

- Parks and Gardens: Urban parks, Country and Regional parks and formal gardens
- Amenity Green space: Informal recreation spaces, housing green spaces, domestic gardens, village greens, urban commons, other incidental space, green roofs
- Natural and Semi-Natural Urban Green spaces: woodland and scrub grass land (e.g. down and meadow), heath or moor, wetlands, open and running water, wastelands and disturbed ground, bare rock habitats (e.g. cliffs and quarries)
- Green Corridors: Rivers and canals including their banks, road and rail corridors, cycling routes, pedestrian paths and rights of way
- Other Green Infrastructure: Allotments, community gardens, city farms, cemeteries and churchyards.

The London Plan outlines the GLA's open space hierarchy, which provides a benchmark for the provision of open spaces within all Greater London boroughs. The GLA produced the All London Green Grid Supplementary Planning Guidance (ALGG SPG) in 2012 to identify across London the range of assets that collectively make up its green infrastructure, and provide guidance to their enhancement, extension, better connection and design, so that London's green infrastructure is capable of shaping and supporting sustainable growth, respond to the challenges of climate change and delivering an improved quality of life. The River Colne and Crane area is identified as a Green Grid Area in the SPG, and identifies a number of strategic green infrastructure opportunities intended to be incorporated in borough-level policy such as Local Plan and open space strategies.

The LB Hillingdon Open Space Strategy (OSS) 2011 – 2026 describes future open space needs in the borough connected to housing growth. It helps to support the Local Plan by:

- Updating and completing the earlier OSS to provide an understanding of the current and future supply and demand for open space
- Developing local standards and allowing the identification of areas of deficiency
- Identifying opportunities to address these deficiencies, and
- Identifying open spaces for improvement.

According to the OSS, a total of 676 separate open spaces have been recorded in Hillingdon, comprising approximately 3,409 hectares (ha). Of these, natural and semi-natural green spaces comprising woodland, grassland and wetland are the most common form making up nearly 55% of all open space by area. 133 outdoor sports facilities cover an area of nearly 730 hectares and make up 21% of all open space, and amenity green space covers an area of 251 hectares comprising just over 7% of all open space. Green corridors such as river valleys and the Grand Union Canal provide important links between open spaces and make up nearly 6% of the total area of open space in the borough.

Improving and maintaining the quality of green spaces is an important element of the OSS, and this is done through a programme of improvement to achieve Green Flag status on its open spaces. The Green Flag Award scheme (supported by the Department for Communities and Local Government [DCLG]), is a national benchmark standard for quality parks and green spaces within the UK. 42 Green Flag sites exist in Hillingdon.

Hillingdon also contains large areas of Green Belt land, regionally important open spaces such as the Colne Valley managed by the Groundwork Trust, Metropolitan Open Land (MOL), trees and woodlands, nature conservation, amenity green spaces, outdoor sports facilities, natural and semi-natural areas, parks and gardens and green corridors.

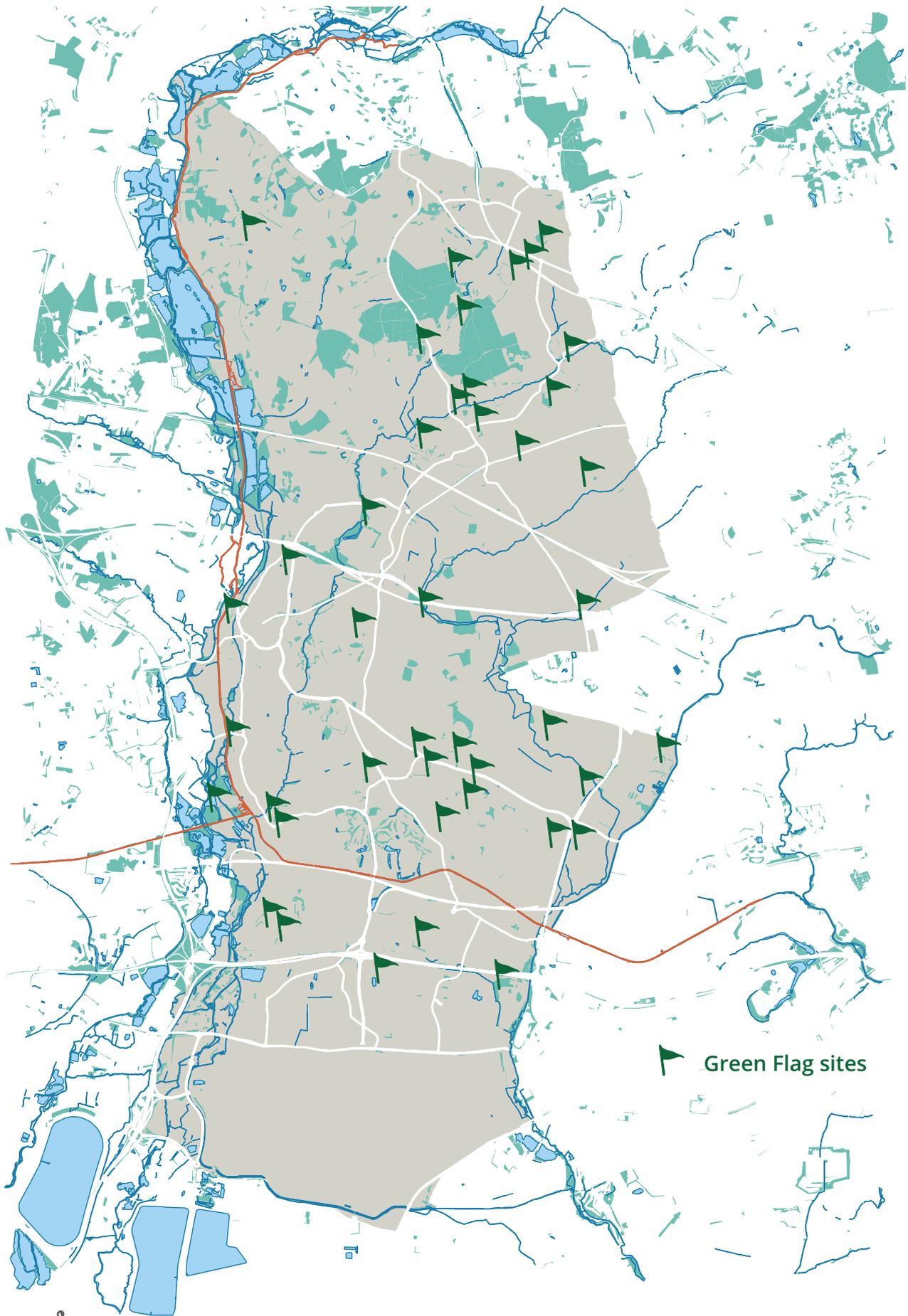
The Blue Ribbon Network (as outlined in the London Plan) is London's strategic network of water spaces. Within Hillingdon and its associated hinterlands, the network forms an important open space feature and flood mitigation zone. Hillingdon has seven rivers, and 20 miles of the Grand Union Canal pass through the borough, including the Paddington and Slough spurs. Watercourses are recognised as potential areas of green growth in the borough.

Existing Need and Capacity

Accessibility

The Open Space Hierarchy is set out in the London Plan and this was used as a basis for the accessibility standards in the Hillingdon OSS, which are access to local and small open spaces; District level (and higher) open spaces and as an aspirational (non-mandatory) standard access to Metropolitan spaces. The accessibility modelling has included the provision of open space in neighbouring Boroughs as this has a significant impact particularly in terms of the supply of higher level (District and Metropolitan) open space.

Figure 32. Green Spaces and Blue Ribbon Network



Source: <http://lbhillingdon.maps.arcgis.com/apps/MapJournal/index.html?appid=b2191bb0fcda43b7a34d3aa994775c7c>

All residents within the Borough should have access to:

- A small or local (or higher level) open space within 400m of where they live
- A district (or higher level) open space within 1200m of where they live
- And where feasible (non-mandatory), metropolitan open space within 3.2 Km of where they live.

Hillingdon's OSS indicates that access to open space in Hillingdon is generally good. A key issue to be considered over the period of the Local Plan will be how the provision of and access to open space will be affected in future by Hillingdon's growing population, particularly in the south of the borough.

Quantity

While there is an estimated total provision of 3,409ha of open space in the borough, the OSS notes that of this, only approximately 1,758ha offer unrestricted access to open space. Of this, 514 ha is classified as recreational open space, which includes amenity green space, civic space, green corridors, outdoor sports, parks and gardens and provision for children and young people. The estimated open space provision per 1,000 Hillingdon residents is outlined below.

The OSS sets out the following broad targets, which were deemed sufficient to meet this minimum quantity standard in 2026:

- 6.0 ha of unrestricted open space per 1,000 population
- 2.0 ha of unrestricted 'recreational' open space per 1,000 population
- Where possible children and young people should be within 400m of an equipped playground
- All residents within the borough should have access to:
 - A small or local (or higher level) open space within 400m of where they live; and
 - A district (or higher level) open space within 1,200m of where they live.

Applying the current population as determined by the 2016 GLA population estimates, and 1,758ha of unrestricted open space (OSS), there is a current level of approximately 5.87ha open space/1,000 population. For recreational open space, there is 1.72ha per 1,000 population.

Quality

The quality of open space provision is reflected in the number of Green Flag sites in the borough. The Council plans to apply for more designated Green Flag sites, indicating that the quality of open spaces will be maintained over the period of the Local Plan.

Figure 33. Supply of Unrestricted Open Space

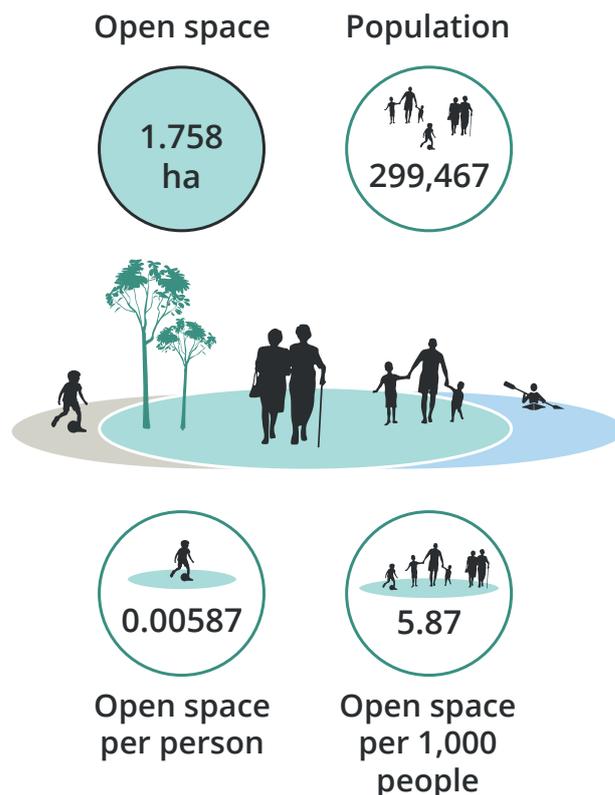
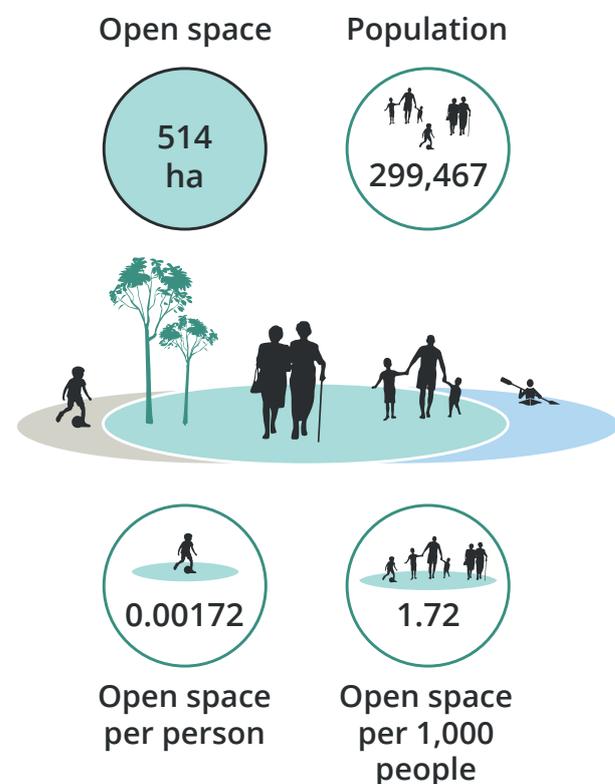


Figure 34. Supply of Unrestricted Recreational Open Space



Accommodating Growth

Accessibility

Against this component of the accessibility standard approximately 7.3% of the Borough has no access to open space. The main areas of deficiency in access to unrestricted open space within 400m lie in the Wards of Heathrow Villages, Townfield, Uxbridge North, Brunel, Ickenham, Harefield and Eastcote and East Ruislip. There is also an area of deficiency in Northwood ward.

However, many of these areas of deficiency lie within Green Belt land. Priority areas outside Green Belt would appear to be the deficiencies in Townfield, Uxbridge North, Eastcote & Ruislip and Northwood Wards.

The main areas of deficiency in access to District (and higher) level spaces are located in a band running from Uxbridge South and Brunel Wards south into Yiewsley, West Drayton and Heathrow Villages (wards) with a 'spur' running into Barnhill and Charville Wards. There is also an extensive area of deficiency covering Cavendish ward and parts of Eastcote & East Ruislip, Manor, South Ruislip, West Ruislip and Ickenham Wards. Parts of Harefield and to a lesser extent Northwood and Northwood Hills also experience limited access to District level open space.

Priority areas outside of Green Belt would appear to be located in Uxbridge South, Brunel, Yiewsley, West Drayton and Heathrow Villages, along with parts of Barnhill, Eastcote & East Ruislip, Cavendish, Manor and West Ruislip ward. There are also areas of Harefield, Northwood and Northwood Hills that lie outside Green Belt designated land.

In addition, there are 100 equipped playgrounds across the Borough within parks and other open space and also provided on housing land close to where children and young people live. Where possible children and young people should be within 400m of an equipped playground.

The accessibility standard requires that all areas with the top 20% highest number of children and young people aged under 16 years (Based on Lower Level Super Output Areas) should have access to an equipped playground within 400m.

Based on the accessibility standard for equipped play the main areas of deficiency are in Pinkwell, Botwell South Ruislip and West Ruislip Wards. There are small areas of deficiency in Cavendish, Manor, Hillingdon East, Yiewsley, Barnhill, Yeading, and West Drayton Wards

Quantity

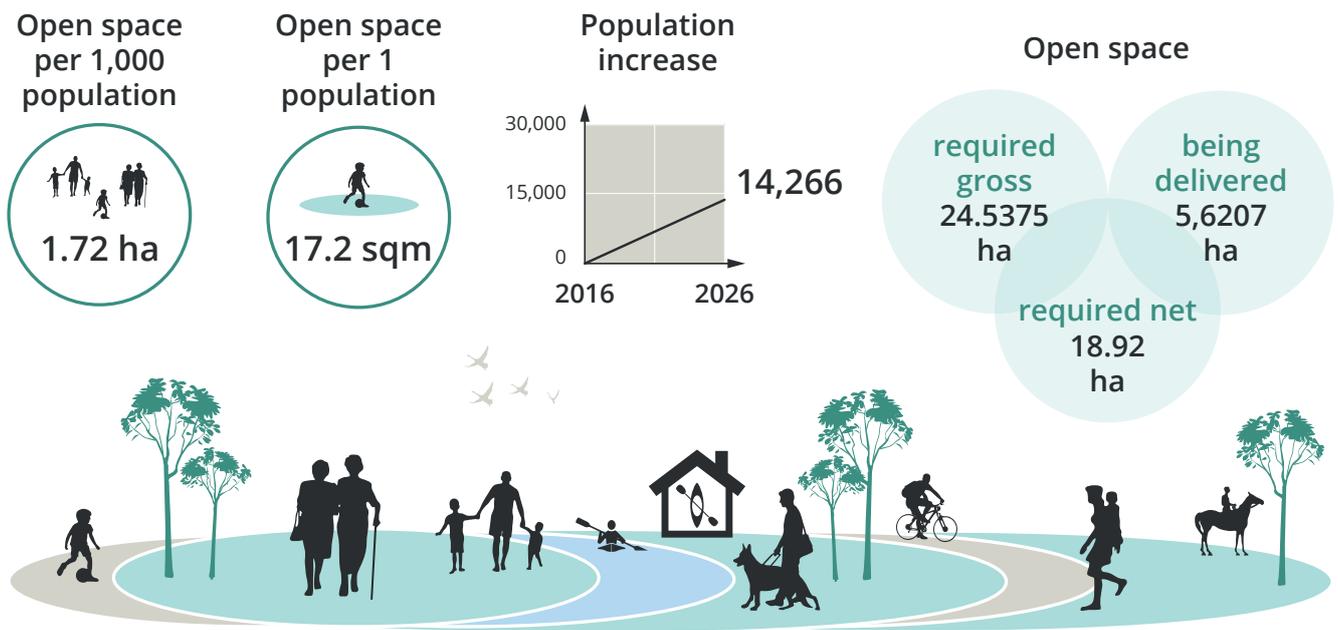
The OSS set a standard of 2ha per 1,000 of the population of unrestricted, recreational open space. This standard was based on the principle that the current amount of open space per 1000 of the population would be sufficient to meet a minimum quantity standard in 2026. Therefore applying this standard to up-to-date assumptions regarding the current and projected population would result in a significant current deficit and therefore require an infeasible increase in open space to meet the 2ha per 1,000 standard.

The principle of this standard has been applied in that the current amount of open space per 1000 of the population is set as the standard, and an amount of open space identified by 2026 to maintain this standard according to population projections. When applying the population increase between 2016 and 2026 according to the GLA 2016 population estimates, there will be a projected shortfall of 18.92Ha of unrestricted recreational open space, and around 11.5Ha of this is likely to be in Hayes Housing Zone (given the proportion of population growth anticipated in this area). This level of provision would maintain the current standard of 1.72ha of recreational open space per 1,000 of the new population.

As such, in order to ensure the proposed quantity standard is achieved when accommodating growth, existing open space will need to be retained, plus a significant amount of new open space created.

A separate calculation has been made for children's play space, given this is identified as a planning requirement for new housing in the Planning Obligations SPD and is also a policy requirement as set out in the London Plan. The GLA provides guidance as to the amount of provision of play space for new development in the Play and Informal Recreation SPG (2012), which states a benchmark of 10sqm of dedicated play space per child. The GLA provides a calculator which, using child yields for various sizes of units (1-4 bed) and tenures (affordable and market), provides a playspace figure based on this benchmark. To calculate the unit and tenure mix to input into this calculator, LPP2 housing targets were used, at a proportion of 35% affordable, and the unit mix for each tenure from the LPP2 was also applied. This resulted in a play space requirement by 2026 of between 5.79ha - 6.72ha.

Figure 35. Required Unrestricted Recreational Open Space



Quality

The Council will aim to resist the loss of open space and improve the overall quality of open space, through the provision of additional Green Flag sites.

Currently identified green infrastructure requirements to accommodate growth in the borough are as follows.

Description	Lead	Need	Requirements	Phasing
Improving the quality of open space provision	LBH	To increase the number of high quality open spaces in the borough	Obtain additional Green Flag designations. (Currently have 42.)	Based on provisions of OSS
Programme to support net gain for biodiversity across projects. This could be through continuing to implement projects included in the green grid e.g. in the River Colne regional park or looking at ways of improving the setting of Heathrow airport.	Natural England	Contribute to sustainable drainage system, sense of place and aid climate change resilience, particularly through contributing to improvements in air quality which is a particular concern in Hillingdon	Individual developments can contribute by adding enhancements for biodiversity for example; designing in bird or bat bricks into the fabric of the building as appropriate; using native species and those rich in nectar suitable for pollinators, and to provide foraging and shelter for birds. There are opportunities to include living walls, and roofs and rain gardens. Development should integrate into the overall multi-functional green infrastructure for the area	Rolling programme
Programme of improvement to the water environment through green and blue infrastructure	Environment Agency (with a view to handing on to the Colne and Crane Catchment Action Partnership)	Improvements to the water environment consistent with commitments in the River Basin Management Plan 2015-2021	Delivery of relevant measures and actions identified in the Thames RBMP and by the local catchment partnership to deliver improvements to the health and function of the water environment in the Borough and to mitigate the greater stress placed on existing green and blue infrastructure by growth in LBH	2016 - 2021
River Pinn (including Yiewsley Culvert), Cannon Brook & Mad Bess Brook Flood Alleviation Scheme	Environment Agency	To address flooding in the River Pinn catchment	Details to be determined. Currently in the early stage of appraisal	Undisclosed

Description	Lead	Need	Requirements	Phasing
Sustainable Urban Drainage Schemes	LBH	Hillingdon's Surface Water Management Plan (2013) identifies 29,300 residential properties and 1,300 non-residential properties in LBH that could be at risk of significant surface water flooding during a 1 in 100 year rainfall event.	The introduction of new SUDS projects, and the integration of them into existing grey infrastructure such as transport hubs and roads, can reduce surface water run-off rates and therefore contribute to a reduction in surface water flood risk. In addition to this, the use of SuDS can reduce the transmission of pollutants to watercourses by reducing surface water runoff and attenuating diffuse pollution.	To be determined
10 berth linear residential mooring scheme on the off-side of the canal above Station Road bridge in Hayes	Canal and River Trust	Permanent presence of water to discourage area's anti-social behaviour issues and to help meet large demand for moorings	Waterway wall works and infrastructure	2017-2018
Possible development of a mooring scheme as part of redevelopment of the Nestle site. The lead for that would be the developer(s). It would be subject to CRT approval (and LBH)	Canal and River Trust	To be determined	To be determined	New strategy due in Dec 2017
Towpath improvements	Canal and River Trust/LBH	To increase walking and cycling	Extend towpath surfacing from West Drayton to Uxbridge (this is not confirmed as a QuietWay extension with TfL yet)	To be determined

Description	Lead	Need	Requirements	Phasing
Visitor moorings and towpath access west of Stockley Road, between Iron Bridge Road North and Horton Bridge Road	Canal and River Trust	To be determined	To be determined	New strategy due in Dec 2017
Increase cemetery capacity	LBH	To provide space for burial, particularly a concern for Muslim population who need to be buried within certain time frame	To be determined	To be determined
"Recreational" or more formal open space includes amenity green space, civic space, green corridors, outdoor sports, parks and gardens and provision for children and young people	LBH	18.92 (Ha) Unrestricted open space required to meet standards set out in Open Space strategy - 1.72ha of unrestricted recreational* open space per 1,000 population	Preference for green space of a substantial size in / near Hayes	To be determined
The Common flood risk mitigation Charville Lane flood risk mitigation Cranford Park flood risk mitigation Field End Road flood risk mitigation	LBH	To reduce significant flooding	At an early stage and consultants only just being commissioned now, so there are no specific outcomes or infrastructure which is required as yet. The aim is to investigate solutions to reduce these flooding issues, to then develop detailed plans gain funding, and implement any flood alleviation	Undisclosed

4.8 Managing Uncertainty

The key areas of uncertainty relating to infrastructure over the period of the Local Plan are as follows. These should be closely managed to ensure positive planning for sustainable growth.

4.8.1 Transport and Connectivity

- The requirements from TfL to accommodate growth predicted within the Local Plan Part 2 - other than those related to the Hayes Housing Zone - are still to be assessed and therefore costs will be additional to those within this document
- Highways England are in the process of discussing methodology requirements for developing the transport assessment to support the Local Plan. Without the transport evidence base, it is difficult to identify and agree infrastructure mitigation. As such, any infrastructure requirements proposed and their associated costs are very preliminary
- TfL, in collaboration with LBH, is undertaking an outcome planning and definition process in order to set the surface transport priorities for Hayes Town Centre. Initial indicators suggest the following may be required:
 - Capacity increase and route amendments to the local bus network, as well as bus priority measures
 - Improvements to the bus interchange at Hayes & Harlington station
 - Junction capacity improvements
 - Additional walking and cycling infrastructure
- It is assumed that new development adheres to London Plan standards in terms of car parking and cycling provision, and that the Mayor's Transport Strategy objectives are met over this time (for example, 5% cycling mode share by 2026). If these targets are not adhered to, significantly more funding will be required to manage congestion and safeguard bus journey times. LBH are currently in discussions with TfL regarding this.
- No schemes have yet been identified to accommodate the increased demand generated by the Local Plan proposals other than those connected to supporting growth in the Hayes Housing Zone
- LBH highlighted an aspiration for the Central Line underground route to be extended to Uxbridge Station and for underground capacity increases.

4.8.2 Energy, Utilities and Waste

- The site-wide heating network on the former Nestle site, and the site-wide heating network at Old Vinyl Factory site (which also has some spare capacity) could potentially act as a catalyst for a district wide heating network as more development in the Hayes Housing Zone is brought forward.
- National Grid is responsible for the transmission of electricity and the transmission and distribution of Gas. They confirmed that network has sufficient capacity to accommodate developments in Hillingdon.
- However, they stressed that as they process works on a first come first serve basis there is no guarantee that this capacity will still be available at the time an official connections request is sent in.
- Affinity Water's infrastructure plans are informed by a review of documents available on their website as a formal response is yet to be received.

4.8.3 Health

- Hillingdon Hospitals NHS Foundation Trust are in talks regarding headline plans for a new combined health and academic facility on the Brunel University campus.
- The impact of the closure of Ealing's children's accident and emergency unit and ward on Hillingdon's acute care infrastructure. Ealing accident and emergency unit will still treat children though those requiring overnight care or further treatment will be transferred to other hospitals in West London.
- Proposed changes to acute care through the NW London Strategic Transformation Plan are still to be agreed with all partners, and so delivery of these are still subject to change

4.8.4 Education, Learning and Youth provision

- Pupil forecast updates (especially regarding housing development impacts) capacity changes initiated by schools, availability of sites for new schools.
- How Hillingdon will fulfill its legal duties for ensuring sufficient school places in a much more complex environment and one in which other bodies control the direct provision of places and decisions regarding changes to schools. For example, LAs do not have powers to make changes to academy schools or to set admission numbers.

Therefore, achieving sufficient school places requires the cooperation and support of standalone academies, multi-academy trusts, free school proposers and other organisations such as Foundation trusts and local diocesan boards.

- The impact of devolution and the associated value reviews and rationalisation of estates, for example the West London Further Education Review on further education colleges and adult learning provision.
- The Brunel University masterplan aims to intensify the existing built-up parts of its campus (Sites 1 and 2), as a means of accommodating a proportion of the University's assessed development needs.
- However, a significant amount of the identified need remains outstanding without encroaching further into the Green Belt. The key policy issue associated with this is that the site is currently designated as Green Belt. The university is in talks with Hillingdon Council regarding whether the release of part of their campus from the Green Belt boundaries is possible within Local Plan Part 2.
- As a single campus university in London, Brunel's aspirations are to accommodate its needs at its existing Uxbridge Campus as a means of strengthening its position.
- Brunel University's concept masterplan indicates how future development needs could be met. Brunel is actively pursuing a formal memorandum of understanding with the Hillingdon Hospitals NHS Foundation Trust and Central and West London NHS Foundation Trust to promote an integrated higher education health sciences centre and healthcare campus on a specific site at the university.

4.8.5 Emergency Services

- The London Ambulance Service are in the process of developing an estate strategy that should be published in spring 2017. This may set out relevant infrastructure plans as it was confirmed that the estate as a whole is not fit for purpose.

4.8.6 Community and Leisure

- For the London Borough of Hillingdon to develop a strategy to address the playing pitch and indoor sports facility issues identified.

4.8.7 Green Infrastructure

- The Canal and River Trust are in the process of working on a London Mooring Strategy

that will be published in December 2017. The following have been identified as opportunities to consider further:

- Possible development of a mooring scheme as part of the redevelopment of the Nestle site
- Mooring scheme on the off-side of the canal east of Stockley Road in West Drayton
- Visitor moorings and towpath access west of Stockley Road, between Iron Bridge Road North and Horton Bridge Road.
- The London Borough of Hillingdon recently expanded West Drayton Cemetery into Hillingdon adjoining land. Hillingdon has a large Muslim population and they have a criteria to be buried as soon as possible. Cemetery supply and demand needs mapping as no evidence currently exists on need.
- The implementation of sustainable urban drainage will be crucial to supporting growth in Hayes Housing Zone. To date, there have been problems due to the fact when sites were originally developed water discharge was unrestricted. Now, in order to control flows on site in accordance with national guidance, most sites are trying to use underground tanks where water then needs to be pumped up to the Thames Water sewer level. Sufficient space needs to be left for above ground SuDs in order to have a sustainable scheme. The implementation of SuDs is also important in helping achieve benefits for the Air Quality Management Area, which covers parts of Hayes.
- There is a requirement for increased access to and from the canal which is appropriately accessible (the Blue Ribbon Policy). This is proving difficult on some sites as the embankments are high and new development coming forward often leads to ramps being removed and not replaced. It is therefore a key requirement that new points of access and environmental corridors alongside, or in addition to, any cycle corridors are identified and safeguarded.
- Botwell Lane and Pump lane are shown to be at risk of surface water flooding on the Environment Agency Flood Risk maps. Any changes to road infrastructure in these areas should provide additional space for water to deal with these issues over and above the Thames Water required sizing.
- There is a need to identify other deculverting infrastructure due to there being a pressure on de-culvert rivers underground to ensure that future development does not prejudice future deculverting.

- Green infrastructure requirements should take into account climate change and planning for infrastructure resilience.

Socio-economic Recommendations

- Appropriate infrastructure provision should ensure that the existing community in areas of high growth such as Hayes Housing Zone will be in a position to benefit from the opportunities that investment will bring, and also to ensure that new developments will not exacerbate existing problems but will support the public health of existing and new residents, and the many people that work in the area, particularly in light of the fact the housing zone, and much of the south of the borough, falls within an Air Quality Management Area.
- The need for specialist forms of housing for older people and vulnerable people, such as those with disabilities must also be proactively planned for, particularly given the significant population growth planned in Hayes Housing Zone and that the redevelopment of Jupiter House will cause 54 family units of temporary accommodation and a foyer for 100 young single people to be lost.

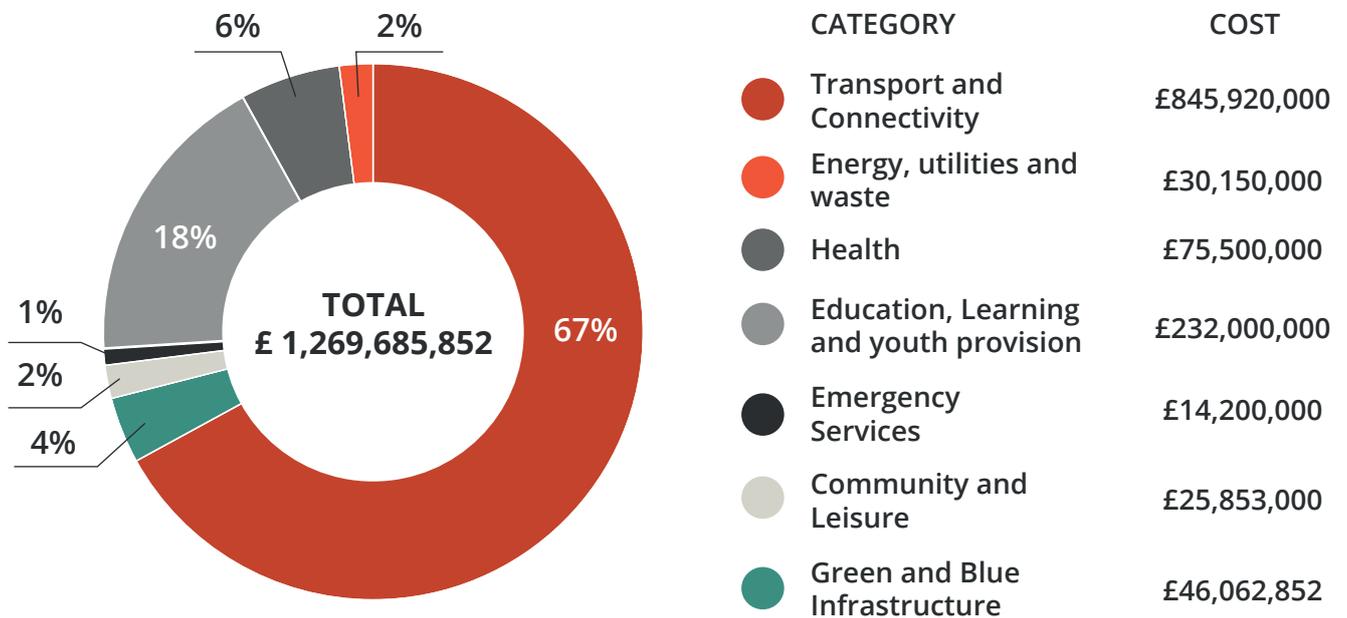
4.9 Infrastructure Cost

The total cost of infrastructure necessary to support growth in the borough is **£1.27bn**. Infrastructure projects required deemed:

- 'Essential for planning permission' by LBH total **£305.14m**
- 'Necessary for sustainable growth' by LBH total **£919.97m**
- 'Desirable for placemaking' by LBH total **£43.96m**

The pie chart below summarises the costs of infrastructure required by category in Hillingdon over the planning period to meet the identified unmet need generated by expected future housing growth.

Figure 36. Infrastructure Cost



4.9.1 Overview of Costs by Infrastructure Category

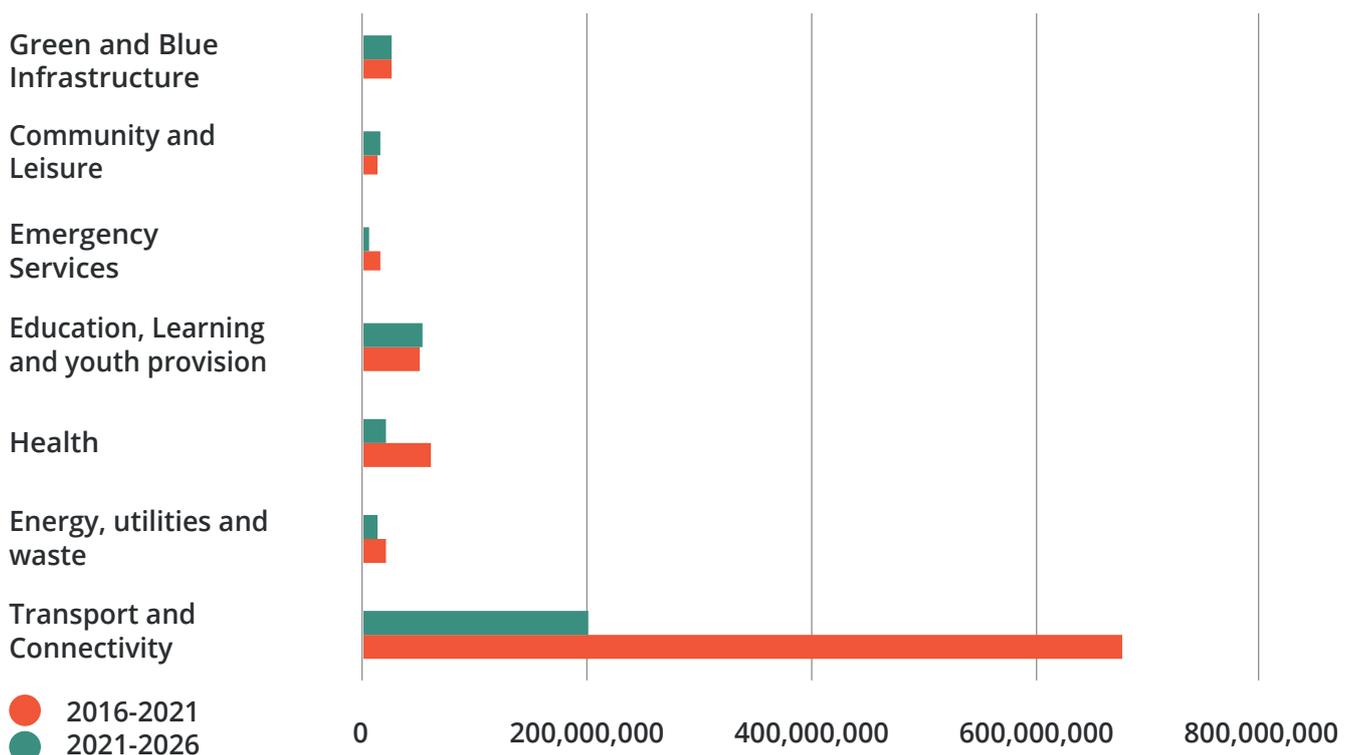
- Transport and Connectivity projects deemed: ‘Essential for planning permission’ by LBH total £10.4m; ‘Necessary for sustainable growth’ by LBH total £811m, and ‘Desirable for placemaking’ by LBH total £24.5m. Some significant Highways England projects have been excluded from the infrastructure schedule that fall within the borough, as they are fully funded and not directly related to supporting growth in the borough but are required to address existing capacity issues. There will also be additional Transport and Connectivity projects and costs to accommodate growth that have not yet been identified.
- Education, Learning and Youth Provision project costs cover the LBH school expansion programme, the Uxbridge College expansion and allow for the construction costs of a new primary and secondary school. No costs were provided for the provision of early years childcare places, as these will be provided by private sector providers. Brunel University will also self-fund their growth plans and did not provide project costs.
- £20m of health costs is for acute care facility redevelopment and expansion and £55.5m for primary care provision.
- Green infrastructure projects costs cover the provision of recreational open space,

improving the quality of open space, programmes to support biodiversity and to improve the water environment, SUDS schemes, flood risk mitigation, towpath improvements and mooring schemes.

- Utilities project costs include the costs of: Scottish and Southern delivering two new primary substations and the 23 distribution substations; the redevelopment of Rigby Lane Waste Transfer Station to increase West London waste management capacity, and Thames Water making improvements to Improvements to the Colne Valley Trunk, Crane Valley Trunk and Bath Road Trunk to accommodate growth. Costs for Affinity Water works necessary to support growth are not included due to a lack of detail provided but the works will be self-funded by the utilities provider.
- Community and Leisure facilities costs cover the provision of children’s playspace, sports playing pitches and the indoor sports facilities required.
- Emergency Services projects cover the London Fire Brigade relocation and refurbishment of fire station plans.

To enable the London Borough of Hillingdon, and its partner organisation, to positively plan for sustainable growth, an expert cost consultant was employed to estimate the likely cost using the latest best available evidence where costs were not given by the infrastructure provider.

Figure 37. Infrastructure Cost Cashflow



5 INFRASTRUCTURE DELIVERY

5 INFRASTRUCTURE DELIVERY

Hillingdon currently receives developer contributions. Since CIL was introduced, s106 is limited to three tests which has reduced the scale of s106 contributions. S106 will however continue to be used to mitigate the site specific impacts of a development in accordance with the Regulations.

The CIL rates used to underpin this financial forecast are the proposed rates in Hillingdon's revised Preliminary Draft Charging Schedule 2017. This report justifies the need to charge CIL based on an estimated gap in the cost of infrastructure compared to the known sources of income at the time of drafting.

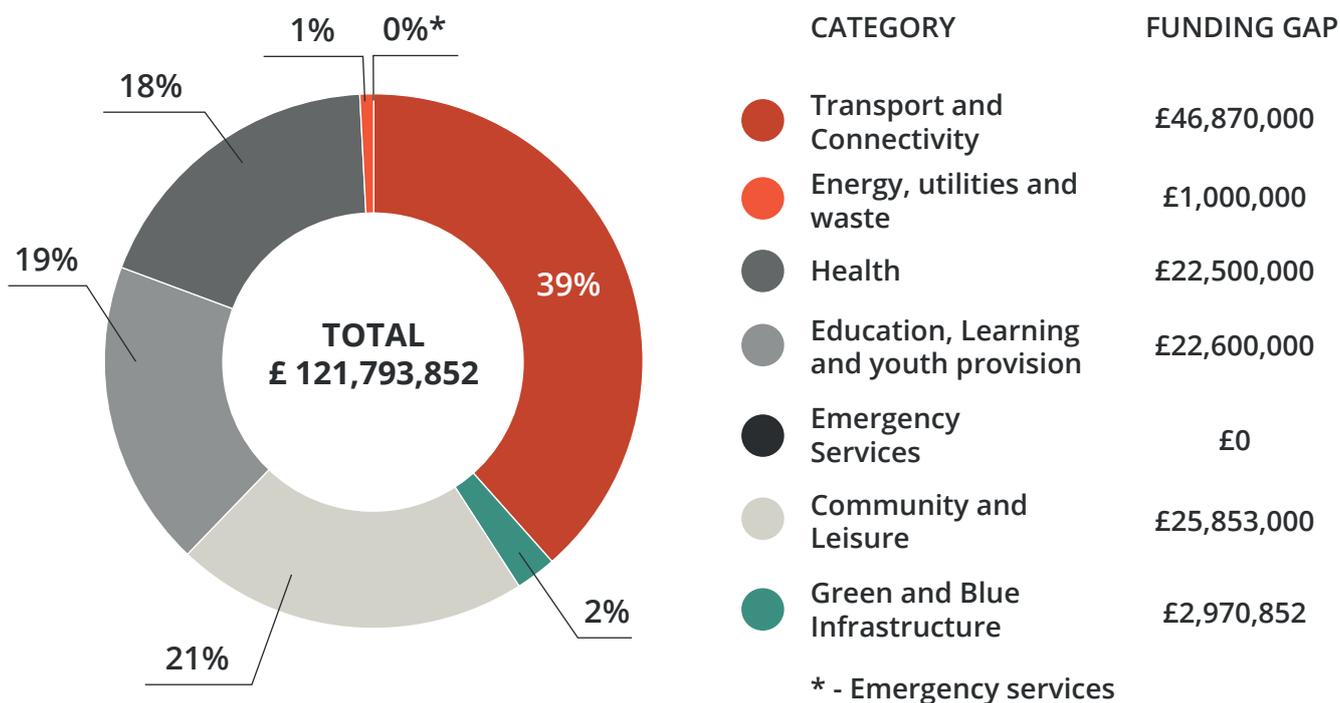
5.1 Infrastructure Funding and Funding Gap

According to infrastructure providers and the advice of LBH Finance, funding is/will be identified for **£1.15bn**.

Category	Cost	%	Funding	Confirmed and Potential Funding Sources
Transport & Connectivity	£845,920,000	67	£799,050,000	Highways England, DFT, Crossrail, TFL, Heathrow Airport Ltd, LBH, CIL, S106, other growth funding, Friends of Cranford Park, Heritage Lottery Fund
Green Infrastructure	£46,062,852	4	£43,092,000	DEFRA (Regional Flood and Coastal Committee), Environment Agency, Colne, LBH, Developer (development management), CIL, S106, Canal & River Trust, Colne Valley Landscape Lottery Programme, Colne Valley Park HS2 Additional Mitigation Programme
Community & Leisure	£25,853,000	2	£0	Sport England, LBH, CIL, S106
Emergency Services	£14,200,000	1	£14,200,000	London Fire and Emergency Planning Authority, London Ambulance Service, Metropolitan Police Service
Education	£232,000,000	18	£209,400,000	Education Funding Agency, Free schools and academy schools, LBH, CIL, S106, Brunel University, Uxbridge College
Health	£75,500,000	6	£53,000,000	Hillingdon Hospitals NHS Foundation Trust, Hillingdon CCG, CNWL, LBH, CIL, S106
Utilities	£30,150,000	2	£29,150,000	Developer (development management), Thames Water, Affinity Water, Vodafone, Three, BT Openreach, Affinity Water, LBH, CIL, S106
Total	£1,269,685,852		£1,147,892,000	

This leaves a funding gap of **£121.79m**.

Figure 38. Forecast Funding Gap



5.2 Infrastructure Funding Sources and Approach

It is expected that LBH income from CIL and S106 will go some way to meeting this gap though other sources of funding will need to be explored, particularly in relation to supporting growth in Hayes Housing Zone.

The projected income from CIL and S106 from 7998 net additional residential dwellings in the borough up to 2026 would be between £64.08m to £67.34m (CIL: £56.08m to £59.34m and S106: £8m). This would leave a forecast residual funding gap of **£54.45m to £57.71m**. It is therefore recommended that:

- The CIL rates in the revised Preliminary Draft Charging Schedule 2017 are adopted
- S106 agreements continue to be utilised on a site-by-site basis through the normal planning application process, and supported by an updated Developer Contributions SPD
- A plan-monitor-manage approach is adopted, so that the London Borough of Hillingdon work actively with infrastructure providers to continue to ensure growth is sustainable in so far as sufficient infrastructure can be put in place at the right time to support housing and employment activities

- If necessary, the infrastructure projects identified in the infrastructure schedule as 'essential for planning permission' and 'necessary for sustainable growth' are prioritised
- The recommendations in the Development Infrastructure Funding Study for Hayes Housing Zone are acted on.

5.2.1 Funding Infrastructure to Support Growth in Hayes Housing Zone

The Development Infrastructure Funding Study for Hayes Housing Zone indicates that about **£47.81m to £53.79m** of this funding gap is likely to be related to the cost of infrastructure necessary to support the significant growth in Hayes Housing Zone. The study sets out recommendations for how the London Borough of Hillingdon could go about meeting this funding gap, including considering:

- A Strategic Infrastructure Tariff, in addition to the Local Infrastructure Tariff and S106, if the CIL Review Team Recommendations are implemented by the Government
- A Hillingdon Council mechanism to aid cashflow to fund infrastructure, such as:
 - Private finance & public-private partnerships - It is understood that the Council would consider land acquisitions that could potentially provide opportunities for commercial income streams. The rationale for this investment is based on generating a sustainable income stream to cover the on-going costs of any infrastructure investment. The study recommended that the Council undertake an options appraisal and business case examining the potential sites which could be acquired and the delivery structures which would best meet the Council's objectives and requirements.
 - Prudential borrowing (e.g. Public Loan Works Board) - The study recommends prudential borrowing should be considered to enable growth, seeking to make use of the potential 'Local Infrastructure Rate,' which the government is currently consulting on. It will offer £1 billion of discounted lending to local authorities, available at a new Local Infrastructure Rate to support local infrastructure projects that are high value for money. Qualifying authorities would be able to access the allocation from the Public Works Loan Board for a period of three years to support upfront investment.
 - Tax Increment Financing and retaining up to 60% of business rates from Hayes Housing Zone and its two adjacent employment clusters: Millington Road and Rigby Lane - 60% retention would generate an additional £56.1m (in addition to the existing 15% retention)
 - Heathrow Business Rates Retention - The majority of Heathrow's business rates - which were around £118m in 2016 - go out of the borough of Hillingdon.

However, given Heathrow's impact on air pollution and noise in the south of the borough, the study recommends LBH and the GLA hold discussions with The Treasury about whether a proportion can be retained to support improvements to green and sustainable infrastructure in and surrounding Hayes Housing Zone to mitigate the associated risks. This would be in addition to funds associated with the Heathrow Sustainable Action Plan.

- £2.3bn Housing Infrastructure Fund - The Housing White Paper: Fixing our Broken Housing Market (February 2017) sets out that it will target the £2.3bn Housing Infrastructure Fund at the areas of greatest housing need. The capital grant programme will be open to bids in 2017, with funding available over the next four years for a variety of infrastructure projects (including transport and utilities) where these will unlock the delivery of housing and enable economic development. Joint bids from across local authority boundaries are encouraged to open up new homes on a wide scale. The study recommends that LBH partner with Ealing Council to submit a bid, given that Hayes Housing Zone is so close to Southall Housing Zone and that a joined-up approach would be beneficial to infrastructure delivery given there are overlapping demands for schools, roads and open space to name but a few types of infrastructure.
- A Strategic Infrastructure Investment Programme for London - As set out in A City for All Londoners, the Mayor is committed to developing a Strategic Infrastructure Investment Programme for London to increase public transport investment, deliver more housing and improve London's air quality whilst moving towards a zero carbon city by 2050. Given Hayes Housing Zone falls within an Air Quality Management Area, funding opportunities should be pursued particularly related to helping meet the Mayor's objectives. The study recommends Hillingdon engage the Local Enterprise Action Partnership for London (LEAP) to see how they could work together to demonstrate what can be achieved by focusing on making significant improvements to a pollution hotspot in London: Hayes Housing Zone and its surrounding areas.
- London Finance Commission 2017 report - There is an ongoing debate about how the retention of tax from development can be reinvested to support growth and meet policy objectives. The GLA are currently exploring whether there is a case for

retaining stamp duty locally and what impact this is likely to have. If Hillingdon were able to retain the Stamp Duty Land Tax associated with the housing zone, the housing zone-related funding gap would be significantly smaller up to only £6.58m. The LFC is currently working on the final report due to be released in early 2017.

5.2.2 Sector specific funding mechanisms

Possible sector-specific funding mechanisms include:

Transport

- TfL funding including the rolling Local Implementation Plan
- Highways Agency / Department for Transport funding

Health

- CCG funding
- Through direct provision of space as part of a Section 106
- Through direct rental of space to be taken at a commercial rent

Education

- Through developer contributions such as S106 and CIL
- Mainstream local authority capital funding
- DfE funding
- EFA
- Free schools or academy trusts

Emergency Services

- Section 106
- Police - through the Metropolitan Police Estates Strategy

Community Facilities

- Provision of flexible community space for a variety of users through Section 106, or CIL given this is strategic and nature and not relating to one development

Open space and play space

- The funding for open space and play space is likely to come through Section 106 and / or CIL. Some of this space (particularly play space) will be provided on-site as part of the development

Utilities

- Some utilities infrastructure will be provided by utilities providers as part of their cyclical business planning or asset management plan. Local connections are paid for through development.

- The Housing White Paper: Fixing Our Broken Housing Market considers how new development can be capitalised on to enhance broadband coverage. In the 2016 Autumn Statement, the government announced over £1 billion of new funding to boost the UK's digital infrastructure. In assessing bids for these trials from local authorities, DCLG will take account of which areas can demonstrate they have policies setting out how high quality digital infrastructure will be delivered in their area. (The Local Government Finance Bill published in January 17 will give a business rates tax break worth £60 million to incentivise telecommunications companies to lay full fibre broadband.)

5.2.3 Other Possible Sources of Funding

The Council funds the costs of meeting future unmet community infrastructure need through a variety of means. Potential funding sources are described in more detail below.

Council Tax and other revenue

Hillingdon will receive approximately £594.9m of Council Tax between 2016/17 to 2020/21 (inclusive). However, any growth in council tax will fund day-to-day services and is unlikely to be available to fund capital investment in infrastructure. Revenue is also generated from fees and the Housing Revenue Account (HRA). This source of funding is either minimal in the case of fees or is ring fenced for housing maintenance and improvements in the case of HRA.

New Homes Bonus

The New Homes Bonus (NHB) commenced in April 2011 and will match fund the additional Council Tax raised from new homes and empty properties brought back into use, with an additional amount for affordable homes, for the following six years. However, any New Homes Bonus funds will be directed into social care to cover budget deficits.

Grants

Hillingdon expects to receive approximately £75.4mm in Revenue Support Grant between 2016/17 and 2020/21 (inclusive) and this goes some way towards meeting the funding of existing infrastructure requirements. However, it can not be taken into account when assessing the cost of future need related to new housing growth. There is also an issue of a time lag between when the GFG is provided and when the housing is delivered and the actual need required.

The Hayes Housing Zone allocation secured up to £2m in grant funding for LBH from the GLA

for infrastructure works. An Overarching Borough Agreement (OBA) was put in place in November 2016. The first Borough Intervention Agreement is anticipated to be in place by the end of 2017 for the Austin Road Skeffington Court Estate redevelopment. The infrastructure works identified in the housing zone bid include: 'canal side improvements and possibly a pedestrian/cycle bridge linking new developments on either side of the canal including the Nestle site. Further work with the landowners is required to establish the full extent of these pedestrian connections. This will also involve the Canals and Rivers Trust, British Waterways, Hayes Town Centre Partnership, National Rail or TfL to improve schemes or connections with enhanced public realm. Within the potential development schemes, enhanced open space and squares could be achieved increasing the sustainability of these housing sites.'

However, this £2m is available on a first come first serve basis and a large portion of the funds have already been drawn-down on, so this £2m needs to be requested as soon as possible.

Capital Receipts and Council Reserves

Funding to meet future infrastructure need can be generated through capital receipts gained through the sale of Council owned assets. Also, the Council will have financial reserves that could potentially be used. However, neither of these sources are long term sustainable solutions to meet the infrastructure needs generated by future housing growth.

General Fund Capital Programme

The Council's Medium Term Financial Forecast for 2016/17 to 2020/21 identifies a General Fund Capital Programme of £311.3m to spend on capital projects, many of which are linked to growth. Projects within the programme are developed with reference to the Prudential Framework and tested for affordability, sustainability and prudence. The current Capital Programme is focused on the provision of school places. Projects in the capital programme are funded from a number of sources including the General Fund, prudential borrowing, capital receipts, Section 106 and CIL income, grants from central government and agencies such as TfL. Hillingdon Council advised on where any of this Fund would be available for the required infrastructure identified in this study, and this is reflected in the infrastructure schedule.

5.3 Constraints and Contingency

CONSTRAINTS	CONTINGENCY
<p>Infrastructure providers plan in ways that do not necessarily tie in with the Local Plan. This makes it difficult to obtain information regarding the total amount of infrastructure required to deliver the Local Plan.</p>	<p>The SIP sets out what infrastructure is required, who is going to fund and provide it, and how it relates to the anticipated rate and phasing of development, for at least the first five years of the Local Plan. For the later stages of the planning period less detail may be provided. It is therefore important to put in place suitable governance that ensures all providers continue to be briefed on growth forecasts and actual growth to ensure infrastructure planning is coordinated.</p>
<p>Given the early stage of planning and design of infrastructure projects there is inherent uncertainty in long-term infrastructure cost estimates.</p>	<p>To accurately quantify the funding required to meet future needs, expert cost consultants were employed to estimate costs based on best available data and agreed methods of forecasting to fill gaps in information.</p>
<p>There is an inherent level of uncertainty when it comes to the scale of growth expected to take place in Hayes Housing Zone</p>	<p>The Development Infrastructure Funding Study for the housing zone was informed by working closely with all stakeholders and subsequently plans for three possible growth scenarios for the Hayes Housing Zone, with the larger two thought to be most likely and infrastructure requirements set out support that latter level of growth</p>
<p>There are inherent uncertainties in planning for the delivery of future infrastructure provisions</p>	<p>Where the deliverability of critical infrastructure is uncertain, the Strategic Infrastructure Plan addresses the consequences of this, including possible contingency arrangements and alternative strategies.</p>

6 APPENDICES

6 Appendices

6.1 Infrastructure Providers Engaged

Infrastructure providers were engaged between November 2016 and February 2017 by email initially. The majority were also spoken to by phone and/or at face-to-face meetings and/or workshops.

Category	Organisation	Job title	Person	Responsible for / type of Infrastructure
Transport & Connectivity	London Borough of Hillingdon	Transport & Projects Manager	David Knowles	Transport & Connectivity
		Transport & Aviation Manager	Alan Tilly	Road network, walking and cycling, public transport
		Community Engagement & Town Centres Team Leader	Helena Webster	Town centres
		Accessibility Officer	Ali Kashmiri	Accessibility
	Transport for London	West Area Manager, Borough Planning	Alison Cowie	Trunk road network, public transport, walking and cycling
	Highways England	Spatial Planning Manager	Janice Burgess / Heather Archer	Spatial planning for strategic road network
	Heathrow Airport Ltd	Town Planning Manager	Stephen Allen	Estate planning and sustainable action planning for wider area including south Hillingdon borough
Energy, Utilities and Waste	National Grid	Design Analyst, Network Strategy	Ross Blake	Gas distribution
		DCO Liaison Officer, Land & Acquisitions Team	Nick Dexter	Electricity distribution

Category	Organisation	Job title	Person	Responsible for / type of Infrastructure
	UK Power Networks	Director of Connections	Mark Adolphus	Gas and electricity connections
		Major Connections Manager East of England	Jim Vasey	Major connections
		Infrastructure Planner	Paul Ramsbotham	Infrastructure planning
	Scottish & Southern Electricity	Asset Management Lead	Stewart Reid	Asset management
	Savills (on behalf of Thames Water) Networks	Associate Director, Savills Planning	David Wilson	Planning for Thames Water
		Senior Planner, Savills Planning	Carmelle Bell	Planning for Thames Water
	Affinity Water	Director of Asset Strategy	Mike Pocock	Water supply asset management
	London Borough of Hillingdon	Principal Environmental Officer	Ian Thynne	Decentralised energy and renewable energy
	Vodafone	London Planning & Mobile Network Design Team	Kevin Curley	Mobile network coverage and capacity
	Three	RAN Property Manager	Jane Evans	Mobile network coverage and capacity
Health	London Borough of Hillingdon	Director of Public Health	Steve Hajioff	Public health
	West London CCGs	Head of Strategic Estate Development	Sue Hardy	Primary care and out of hospital provision
	Hillingdon CCG	Head of Primary Care Hillingdon	Rigoberto Pizarro	Primary care in Hillingdon
	The Hillingdon Hospitals NHS Foundation Trust	Director of Strategic Estate Development & Asset Management	Robert Steele	Acute care

Category	Organisation	Job title	Person	Responsible for / type of Infrastructure
	Central and North West London NHS Foundation Trust	Director of Estates	Gillian Stafford	Health and community estate owner, foundations trust and service provider
Education, Learning and Youth Provision	London Borough of Hillingdon	Head of Business Performance, Policy & Standards (Education, Housing, Community safety & Public Health)	Daniel Kennedy	
		Policy Manager Education	Venetia Rogers	Primary, secondary and additional needs
		Adult Education Service Manager	Debbie Hunn	Adult learning
		Assistant Director, Early Intervention and Prevention Services Children and Young People's Services	Thomas Murphy	Early years
	Bilfinger GVA (on behalf of Brunel University)	Director	Nick Alston	Estate planning
		Senior Planner	Andrew Deller	Estate planning
	Uxbridge College	PA to Sara Sands, Vice Principal – Finance & Corporate Services	Joyce Dhatt	Estate planning
Community and Leisure	London Borough of Hillingdon	Head of Green spaces, sport and culture	Paul Richards	Leisure centre, green space, children's play space, libraries and youth centres
		Stronger Communities Manager	Fiona Gibbs	Engagement of faith groups and other community groups about their needs and how the council can support them
	Greenwich Leisure Ltd	Partnerships Manager	Gary Starkey	Leisure centres: Botwell, Highgrove and Queensmead

Category	Organisation	Job title	Person	Responsible for / type of Infrastructure
Green Infrastructure	London Borough of Hillingdon	Flood and Water Management Specialist	Victoria Boorman	Flood risk mitigation and water management
	Environment Agency	Sustainable Places, North London	Edward Chrome	Flood management and green infrastructure development proposals in north London
	Natural England	Sustainable Development, Thames Team	Sally Harries	Biodiversity and green infrastructure
	Canal & River Trust	Planning Manager	Steve Craddock	Mooring strategy and towpath improvements
Emergency Services	Dron & Wright (on behalf of London Fire Service)	Associate	Mel Barlow-Graham	London Fire Service infrastructure plans
	Metropolitan Police Service	Head of Estates & Asset Manager	Tony Cooper	Estate planning
	London Ambulance Service NHS Trust	Head of Estates	Martin Nelhams	Estate planning
		Assistant Director of Operations	Ian John	Operations in Hillingdon area

6.2 Summary of DIFS and SIP Infrastructure Cost and Funding Calculations

Summary of infrastructure cost and funding calculations for Hayes Housing Zone Development Infrastructure Funding Study (DIFS) and the London Borough of Hillingdon Strategic Infrastructure Plan (SIP).

	DIFS		SIP	
	Possible scenario	LPP2 scenario	Hayes Possible scenario	LPP2 scenario
Infrastructure cost	£ 245,542,358		£1,269,685,852	
Identified / assumed funding	£163,459,200		£1,147,892,000	
Funding Gap	£82,083,158		£121,793,852	
Projected income from CIL & S106	£34,269,774	£28,289,151	£64,080,114	£67,338,891
Residual funding gap	£47,813,384	£53,794,007	£57,713,738	£54,454,961

Projected from CIL & S106

	DIFS		SIP	
Hayes Housing Zone				
No. resi unit Hayes	5191	4321		
Percentage affordable housing	See finance model	See finance model		
Percentage market housing	See finance model	See finance model		
CIL rate / sqm south of A40	115	115		
Average size (sqm) of resi unit in Hayes	70	70		
Elsewhere in borough				
No resi units elsewhere in borough			If Hayes possible scenario 2807	If Hayes LPP2 scenario 3677
35% affordable housing			982.45	1286.95
65% market housing			1824.55	2390.05
CIL rate / sqm North of A40			185	185
Average size (sqm) of resi unit north of A40			80	80
Total CIL income	£29,078,774	£23,968,151	£56,082,114	£59,340,891
S106 £1000 per resi unit	£5,191,000	£4,321,000	£7,998,000	£7,998,000
Total CIL and S106 income	£34,269,774	£28,289,151	£64,080,114	£67,338,891

Difference between SIP borough & DIFS Hayes residual funding gap

	Possible scenario	LPP2 scenario
SIP residual funding gap	£57,713,738	£54,454,961
DIFS residual funding gap	£47,813,384	£53,794,007
Difference	£9,900,354	£660,954

7 ANNEXURE

7 Annexures

7.1 Strategic Infrastructure Schedule for borough

The Strategic Infrastructure Schedule for the borough is available in a separate document.

7.2 Hillingdon - CIL Viability Report (BNP Paribas Real Estate)

The Hillingdon CIL Viability report is available in a separate document.

7.3 Funding Models for the Three Development Scenarios for Hayes Housing Zone

The Hayes Housing Zone for the three development scenarios are available in separate documents.