



# > Waltham Forest Strategic Infrastructure Plan Executive Summary and Strategic Infrastructure Plan

Client - London Borough of Waltham Forest  
In association with Integrated Services & Utilities Ltd

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**WALTHAM FOREST STRATEGIC INFRASTRUCTURE PLAN – INFRASTRUCTURE  
REQUIREMENT TABLES**

## GLOSSARY

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Acronym/Abbreviation	Definition
CIL	Community Infrastructure Levy
DCLG	Department for Communities and Local Government
DPD	Development Plan Document
GLA	Greater London Authority
HUDU	Healthy Urban Development Unit
KV	Kilovolt
LB	London borough
LDA	London Development Agency
LDF	Local Development Framework
LPA	Local Planning Authority
LSC	Learning and Skills Council
MVA	Mega Volt Ampere
MUSCo	Multiple Utility Service Companies
PCT	Primary Care Trust
PPS	Planning Policy Statement
NLWA	North London Waste Authority
SFRA	Strategic Flood Risk Assessment

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## 1. INTRODUCTION

### Purpose and Scope

Waltham Forest is a densely populated London borough covering an area of 38km<sup>2</sup> with a population of over 226,000. It is a dynamic and ethnically diverse borough in the North East of London. The area is at the confluence of a number of social, economic and environmental opportunities, being part of the Lea Valley, the London-Stansted-Cambridge corridor and in strategic proximity to the Olympic Development Opportunity Area.

The Sustainable Community Strategy sets out that the key to a successful future for the borough is increasing the prosperity of all its residents. Jobs, the relevant skills and good access to them, are the priority. Our Place in London sets out what the Council needs to do and how increasing prosperity will change life in the borough for the better. In summary, the Council's ambition for the future is that:

1. The borough is vital to London's success, particularly relating to the legacy of the Olympics and Stratford City
2. People aspire to live here
3. All its children are happy, resilient and successful
4. None of its residents live in poverty
5. Vulnerable people get the support they need
6. It is the greenest borough in London

The predicted increase in London Borough of Waltham Forest's (hereafter referred to as 'LB Waltham Forest') population and housing provisions over the next 20 years, as determined by the Greater London Authority, will create increased pressure on the existing infrastructure within the borough and will in turn generate a need for the provision of further green, physical and social infrastructure.

In order to be genuinely sustainable, the anticipated housing and employment growth will need to be supported by the timely delivery of the necessary infrastructure. Strategic infrastructure, including transport and utilities will be needed, as well as more localised social infrastructure, such as schools, healthcare services and community facilities including police and emergency services.

As such, this Strategic Infrastructure Plan assesses these needs and has been developed through a process of collaboration with the Council and the Local Strategic Partners. This study sets out the infrastructure capacity and future needs for the borough. The plan will be utilised to inform land use and growth allocations in the Local Development Framework (LDF).

The types of infrastructure examined fall under three main categories (as set out in **Box 1**). These three categories form the basis for the three technical infrastructure need assessment documents (covering social, transport and utilities and physical infrastructure) that are referenced throughout this summary. This work provides a part of the evidence base for LB Waltham Forest's emerging LDF and may also feed into the development of a methodology for the Community Infrastructure Levy (CIL) so that LB Waltham Forest is ready to apply the levy to new development proposals once the relevant legislation takes effect.

### **Key Driver for the Study**

A key driver for this work is the need to deliver the ambitious targets for population and employment growth in LB Waltham Forest in a sustainable manner, in line with the guidance on infrastructure planning in the revised Planning Policy Statement (PPS) 12<sup>1</sup>.

In particular, Planning Policy Statement (PPS) 12 – *Local Spatial Planning* requires planning authorities to place infrastructure planning at the heart of the planning process. Accordingly, it supports evidenced infrastructure planning to corroborate LDFs and their core strategies, as well as housing growth targets and the creation of sustainable development and communities. PPS12 states that:

*The Core Strategy should be supported by evidence of what physical, social and green infrastructure is needed to enable the amount of development proposed for the area, taking account of its type and distribution. This evidence should cover who will provide the infrastructure and when it will be planned.*

PPS12 further articulates that in identifying infrastructure required to support development, infrastructure planning should consider the costs, sources of funding, timescales for delivery and gaps in funding. The Statement encourages a strategic, collaborative and comprehensive approach to the forward planning of infrastructure that involves key infrastructure providing agencies in identifying requirements in alignment with the Core Strategy planning process. However it recognises also that 'the budgeting process of different agencies may mean that less information may be available when the Core Strategy is being prepared than would be ideal'. Accordingly PPS12 states that the 'test should be whether there is reasonable prospect of provision'.

Accordingly, understanding the scale of residential and commercial growth in LB Waltham Forest is essential in light of PPS12's additional requirement to identify the type and level of infrastructure required to support growth.

### **Report Structure**

The remainder of this document is structured as follows:

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<sup>1</sup> DCLG, 2008, *Planning Policy Statement 12: Local Spatial Planning*.

- **Section 2** explains how the development trajectories, forecasting rates of residential and commercial development growth over the life of the LDF, were arrived at
- **Section 3** explains some of the key factors taken into consideration in the process of assessing the demand that growth will create for infrastructure
- **Section 4** details the resulting findings of the infrastructure needs assessments carried out for social, transport and utilities and physical infrastructure leading to the identification of the strategic infrastructure plan for LB Waltham Forest
- **Section 5** concludes by setting out the issues regarding prioritisation of infrastructure needs and by making a number of recommendations

**Box 1:**

**Infrastructure Assessment Categories and Types**

**Social Infrastructure**

- Education
  - Early Years Education
  - Primary Education
  - Secondary Education
  - Further Education
  - Adult Learning
- Health
  - Primary Health
  - Secondary Health
- Sports and Leisure
  - Swimming Pools
  - Sports Halls
  - Outdoor Sports Space
- Parks and Open Space
  - Parks and Open Spaces
  - Children's Play Areas
- Libraries
- Cemeteries
- Job Brokerage
- Community Space and Faith Facilities
  - Meeting rooms and halls
  - Faith facilities

**Transport Infrastructure**

- Pedestrian and cyclist infrastructure
- Public realm in around and connecting public transport interchanges
- Public transport including London Buses, London Underground, Overground and National Rail
- Highways

**Utilities and Physical Infrastructure**

- General Utilities
  - Water
  - Energy (Electricity / Gas / Heating)
  - Telecommunications
- Foul and Surface Water Drainage
  - Sewerage
  - Flood Risk
- Waste
  - Waste Management
- Emergency Services
  - Police
  - Ambulance
  - Fire Service

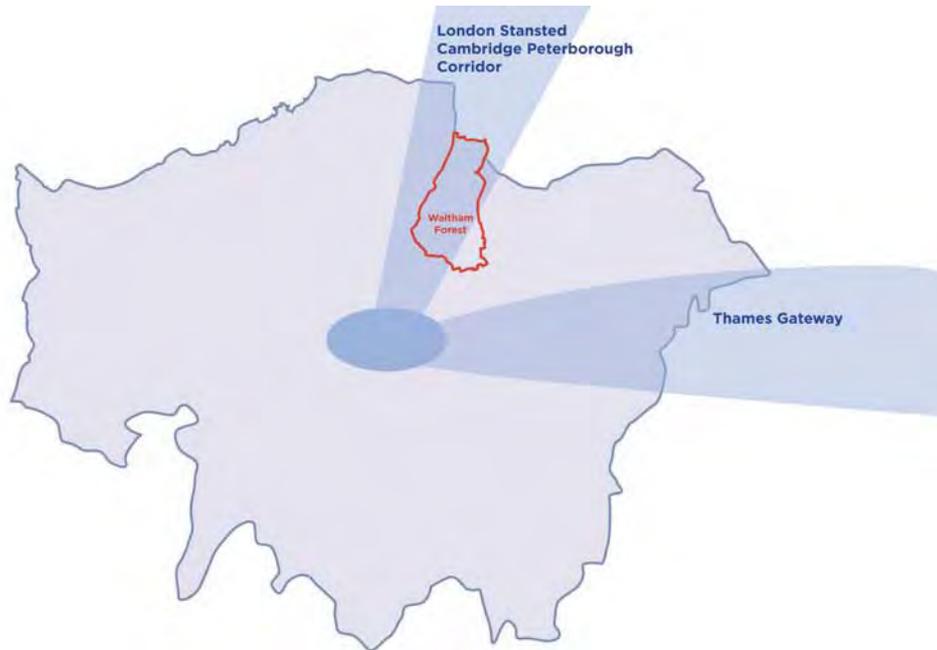
**2. UNDERSTANDING LB WALTHAM FOREST’S GROWTH FIGURES**

Understanding the quantum of development that is envisaged for LB Waltham Forest over the forthcoming planning period is a critical first step to examining the consequential infrastructure requirements of growth. To do so it is necessary to acknowledge the context for growth in LB Waltham Forest.

**The Context for Growth**

The CLG’s Sustainable Communities Plan (2004) identifies four growth areas in London and South East England that are expected to accommodate the bulk of an additional 200,000 new homes. LB Waltham Forest lies at the confluence of the Thames Gateway and London–Stansted–Cambridge–Peterborough Growth Areas – see **Figure 2-1** below.

**Figure 2-1 LB Waltham Forest in Relation to Growth Corridors**



Source: URS

The regional spatial strategy for Greater London, *the London Plan*, was published in 2008 and contained targets for new housing development for each London borough. The London Plan sets a target of 665 new homes per annum for LB Waltham Forest from 2007/08 to 2016/17 and an indicative target of 300-460 new homes thereafter to 2026/27. These targets were informed by the 2004 London Housing Capacity Study. The most recent information from the draft London Plan of October 2009 proposes an annual

target of 760 new homes per annum for Waltham Forest. This may form a new target once adopted, but is premature for consideration in this study.

The Issues and Options paper of the Core Strategy for LB Waltham Forest was released for public consultation from June to September 2008<sup>2</sup>. This paper draws upon the Waltham Forest Housing Land Availability Study conducted by Entec in 2008<sup>3</sup> which identifies the potential for some 10,633 new homes over a 15 year period. **Table 2-1** compares this to the target set for the borough of 665 new homes per annum in the London Plan<sup>4</sup>.

**Table 2-1 Housing Supply in LB Waltham Forest in the LDF Issues and Options Document, 2008**

Phase	Years	London Plan Target	I&O Potential	Difference
Phase 1	2008-2013	3,325	3,586	+261
Phase 2	2013-2018	3,325	3,694	+369
Phase 3	2018-2023	3,325	3,353	+28
Total	2008-2023	9,975	10,633	+658
Average per annum		665	709	+44

*Source: LB Waltham Forest Issues and Options of the Core Strategy, 2008*

The more recent Waltham Forest Housing Land Availability Study of 2008 supersedes the research that informed the 2008 London Plan. However, the Council are constantly updating their database of potential new housing sites and development densities through the Annual Monitoring Framework process.

In early 2009 a revised housing development trajectory was provided by Waltham Forest Council to the GLA to inform their demographic projections for the borough. The phases are broadly comparable but Phase 3 has a duration of seven years rather than five. See **Table 2-2**.

<sup>2</sup> This Strategic Infrastructure Plan will inform the production of the next stage of documents in the Local Development Framework process, the Preferred Option (or Pre-Submission Draft) of the Core Strategy, due for public consultation in January 2010.

<sup>3</sup> Note that the report was drafted in 2007 and relies on data from 2006

<sup>4</sup> The Issues and Options paper projects the current target forwards 15 years.

**Table 2-2 Housing Supply in LB Waltham Forest in the 2008 Round Demographic Projections, 2009**

Phase	Years	London Plan Target 2008	GLA 2009 Information	Difference
Phase 1	2009-2014	3,325	3,445	+120
Phase 2	2014-2019	3,325	3,445	+120
Phase 3	2019-2026	4,655	4,520	-135
Total	2009-2026	11,305	11,410	+105
Average per annum		665	671	+6

*Source: 2008 Round Demographic Projections, 2009 (GLA DMAG) background tables*

### **Sub Areas of LB Waltham Forest**

In planning infrastructure for growth, PPS12 confirms that it is often relevant to consider the location of growth and relative issues of growth in different locations. Accordingly, the Waltham Forest Strategic Infrastructure Plan examines demand for facilities principally at a sub-area level to ascertain where, and what types of infrastructure, will be required in the context of LB Waltham Forest's pattern of growth and the phased development trajectory. This is particularly so for specific types of infrastructure that need to be provided close to people's homes such as children's play space or primary schools. In the case of other types of infrastructure, such as strategic level utilities and physical infrastructure and transport and social infrastructure serving a wider catchment area such as rail line upgrades or further education provision the spatial distribution of growth is less relevant.

We have divided the borough up into four sub-areas, determined largely by urban character and locations for major new housing development. The sub-areas follow ward boundaries. There are three main character areas in Chingford to the north (Northern Waltham Forest), Walthamstow centre (Central Waltham Forest) and Leyton to the south-east (Southern Waltham Forest). Blackhorse Lane lies to the west of Walthamstow town centre and is a focus for significant regeneration. **Box 2** provides the context of each sub-area. The focus and level of our analysis responds to the type of infrastructure in question to draw out specific recommendations where the impact of growth will result in locally significant infrastructure requirements.

**Box 2:****Waltham Forest's Sub-Areas****Northern Waltham Forest**

Northern Waltham Forest largely comprises of the low density suburban area of Chingford. It is bounded by Epping Forest to the north and east, Thames Water reservoirs to the west and the North Circular road to the south. There are isolated sites of potential new housing development but in comparison to the other sub-areas Northern Waltham Forest is expected to experience relatively low rates of growth.

**Central Waltham Forest**

Walthamstow in Central Waltham Forest is the only town centre in the borough classed as a 'Major Centre' in the London Plan. The centre was the focus of a masterplanning process in partnership with The Prince's Foundation for the Built Environment resulting in a final masterplan and Interim Planning Policy Framework to support development. The vision is for a vibrant, sustainable town centre building on the cultural diversity of the community with specialist shops and market stalls, a well developed cultural and leisure offer and new homes adding to the vitality and viability of the centre.

**Blackhorse Lane**

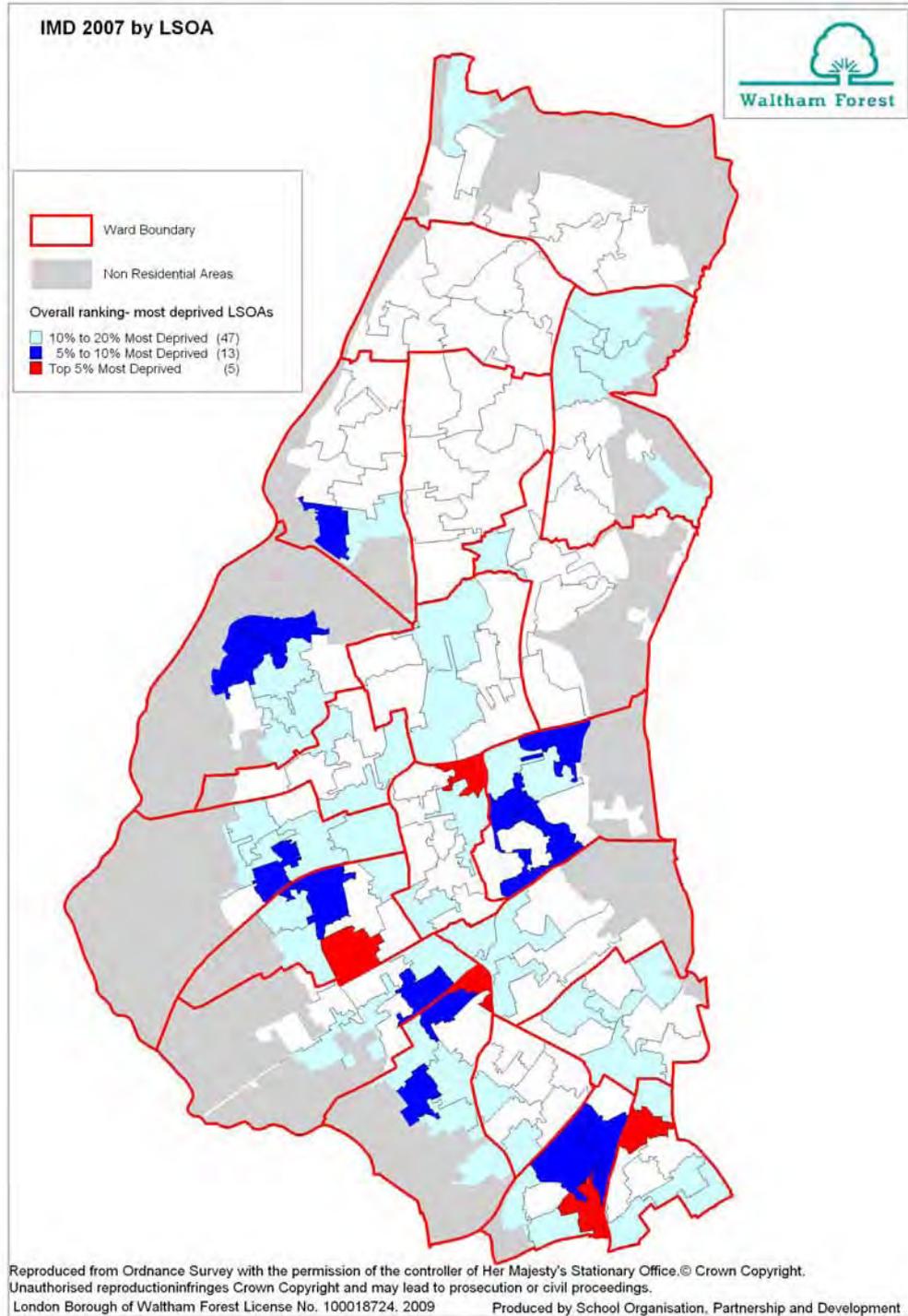
Blackhorse Lane is currently an industrial location of regional importance but because of its location as a gateway entrance point to the borough, high levels of public transport accessibility and land availability it has been identified for significant regeneration and renewal. A comprehensive planning framework is to transform Blackhorse Lane into a high profile gateway to the borough with a much stronger connection to the adjacent greenspace and waterways of the Lee Valley Park and a new high density mixed use urban quarter around the key transport hub, Blackhorse Road Station.

**Southern Waltham Forest**

The Southern Waltham Forest sub-area is identified as a significant location of regeneration activity in the borough, extending northwards from Stratford and the Olympics Park. The Lower Lea Valley Opportunity Area Planning Framework identifies an excess of 40 hectares of vacant or underused land in the area, most of which is currently being redeveloped. The area will benefit from access to the Olympics Park and the sports facilities at Eton Manor during and after the 2012 Olympic and Paralympic Games. A detailed masterplanning exercise is underway for large parts of the area – the North Olympic Fringe and Lea Bridge Gateway.

**Figure 2-2** shows the most deprived (super output) areas in Waltham Forest as measured by the Indices of Multiple Deprivation in 2007. This image can be compared to **Figures 2-3** and **2-4** on the following pages to see how the pattern of deprivation relates to the sub-areas. The image shows that there are a number of pockets of relative deprivation spread across the central and southern areas of the borough.

Figure 2-2 Indices of Multiple Deprivation in Waltham Forest, 2007, by Super Output Area



Source: Waltham Forest Council

## Growth Scenarios

The LDF process sets out how new development will be planned for and managed over the next 15 years. However, for consistency with the London Plan, LB Waltham Forest will plan forwards to 2026. To ensure that the assessment of infrastructure requirements is as robust as possible, forecasts for development have been divided into two five-year development periods to 2019 and one seven year development period extending to the planning horizon of 2026. As there is a greater level of uncertainty of the precise nature of development post 2019 it is not as important to apply the five-yearly phasing framework from this point on.

This study uses two growth scenarios:

- The lower growth scenario is based on the 2008 London Plan's housing target for Waltham Forest of 665 new homes per annum
- The higher growth scenario tests the impacts of a greater level of growth in Waltham Forest to understand the impact on associated infrastructure requirements. In consultation with the Council this has been set at 1,251 new homes per annum.

The lower growth scenario will inform the next stage of the LDF process, whereas the higher growth is a test of the upper parameters of possible housing development. **Table 2-3** presents the two housing development scenarios.

**Table 2-3: New Housing Projections by Sub-Area, 2009-2026**

Sub-area	2009-2014		2014-2019		2019-2026		2009-2026	
	L	H	L	H	L	H	L	H
Northern WF	224	224	245	745	656	656	1,125	1,625
Central WF	1,916	1,916	2,196	2,446	2,982	3,132	7,094	7,494
Blackhorse Lane	384	1,763	377	1,460	140	140	902	3,364
Southern WF	921	1,311	627	2,699	742	4,768	2,290	8,778
<b>Total</b>	<b>3,445</b>	<b>5,214</b>	<b>3,445</b>	<b>7,350</b>	<b>4,520</b>	<b>8,696</b>	<b>11,410</b>	<b>21,260</b>

*Source: 2008 Round Demographic Projections, 2009 (GLA DMAG) background tables<sup>5</sup>, Waltham Forest Council*

**Figures 2-3** and **2-4** show the development trajectories for the borough by sub-area. They also include changes projected in the supply of commercial office, industrial space (from the *Waltham Forest Employment Land Review 2009*, URS), retail space (*Waltham*

<sup>5</sup> The housing trajectory for Waltham Forest is estimated by sub-area by applying the Council's expected locations and quantum of growth to the figures. See **Appendix A** for more information on how this data is applied

*Forest Retail and Leisure Study 2009, Nathan Litchfield and Partners)* and the likely employment resulting from these changes.



Figure 2-3: Waltham Forest's Development Trajectory, 2009 to 2026, Lower Growth Scenario

Waltham Forest 2009 - 2026 Lower Growth Trajectory

NORTHERN WALTHAM FOREST				
	2009 - 2014	2014 - 2019	2019 - 2026	Total (2009-2026)
	224	245	656	1,125
	280	338	1,318	1,936
	0	0	0	0
	-5,647	5,647	-7,906	-19,200
	4,790	7,260	9,984	22,034
	-47	36	87	76

TOTAL BOROUGH				
	2009 - 2014	2014 - 2019	2019 - 2026	Total (2009-2026)
	3,445	3,945	4,520	11,910
	5,787	7,140	7,282	20,209
	+15,243	+15,243	+15,243	+21,340
	-23,177	-23,177	-23,177	-32,447
	16,413	23,768	34,030	74,212
	926	1,228	1,750	3,904

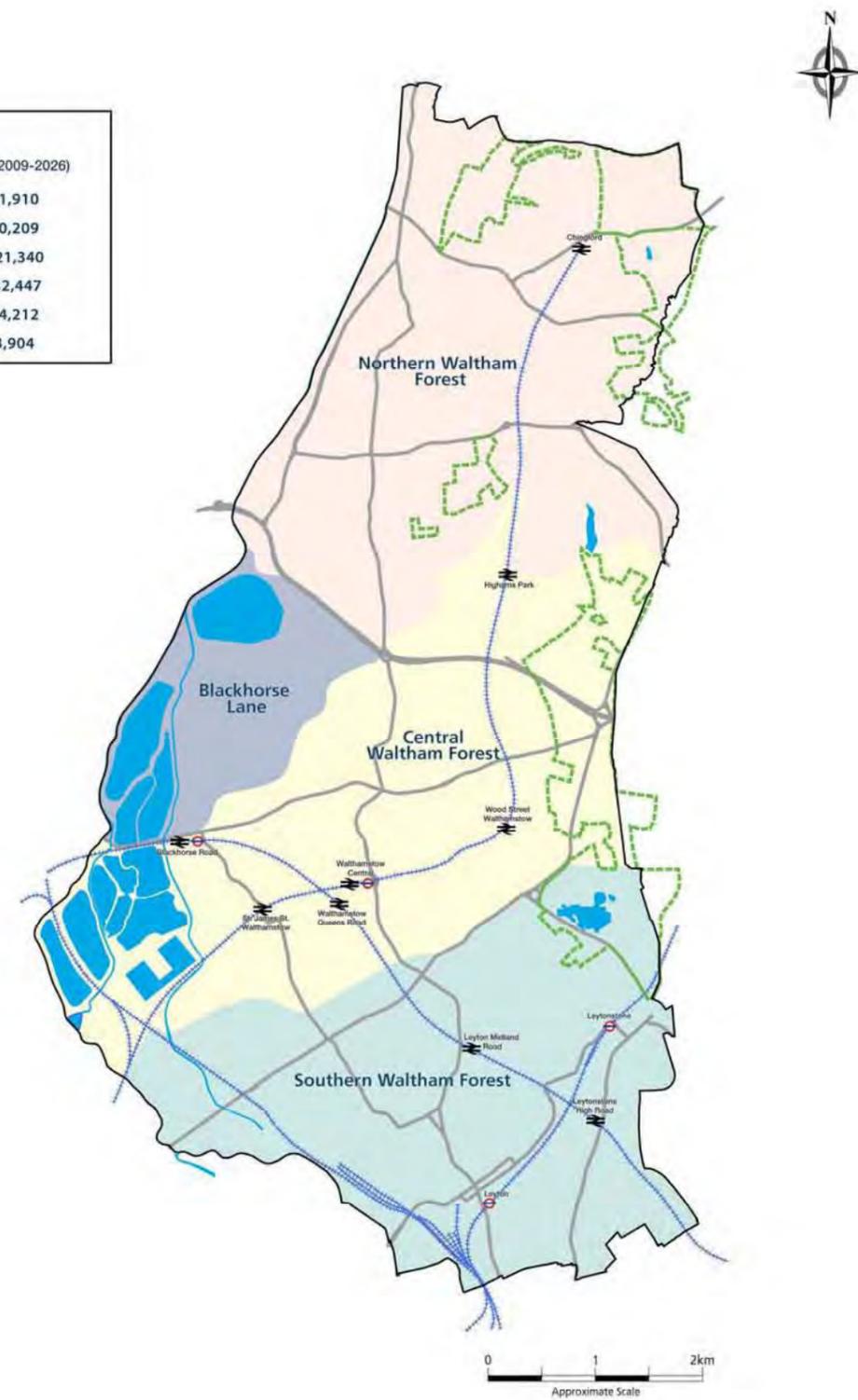
BLACKHORSE LANE				
	2009 - 2014	2014 - 2019	2019 - 2026	Total (2009-2026)
	384	377	140	902
	738	719	-43	1,413
	+2,338	+2,338	+3,274	7,950
	-9,647	-9,647	-13,506	32,800
	0	0	0	0
	-98	-98	-138	-334

CENTRAL WALTHAM FOREST				
	2009 - 2014	2014 - 2019	2019 - 2026	Total (2009-2026)
	1,916	2,196	2,982	7,094
	2,994	3,752	5,005	11,751
	+2,868	+2,868	+4,015	9,751
	-2,824	-2,824	-3,953	3,953
	9,157	12,026	16,882	38,064
	458	576	808	1,843

SOUTHERN WALTHAM FOREST				
	2009 - 2014	2014 - 2019	2019 - 2026	Total (2009-2026)
	921	627	742	2,290
	1,775	979	1,002	3,756
	+10,037	+10,037	+14,051	34,125
	-5,059	-5,059	-7,082	-7,082
	2,467	4,483	7,164	14,114
	613	714	992	2,318

**LEGEND**

London Underground Stations	Dwellings (units)
Railway Stations	Population
Railway	Commercial Office (gross m <sup>2</sup> )
A-roads	Industrial (gross m <sup>2</sup> )
Green Spaces	Retail (gross m <sup>2</sup> )
Lakes / Ponds / Reservoirs	Jobs (number)



Source Based on Joint analysis by London borough of Waltham Forest and URS Corporation

Figure 2-4: Waltham Forest's Development Trajectory, 2009 to 2026, Higher Growth Scenario

Waltham Forest 2009 - 2026 Higher Growth Trajectory

NORTHERN WALTHAM FOREST				
	2009 - 2014	2014 - 2019	2019 - 2026	Total (2009-2026)
	224	745	656	1,625
	280	1,691	1,318	3,290
	0	0	0	0
	-5,647	-5,647	-7,906	-19,200
	4,790	7,260	9,984	22,034
	-47	36	87	76

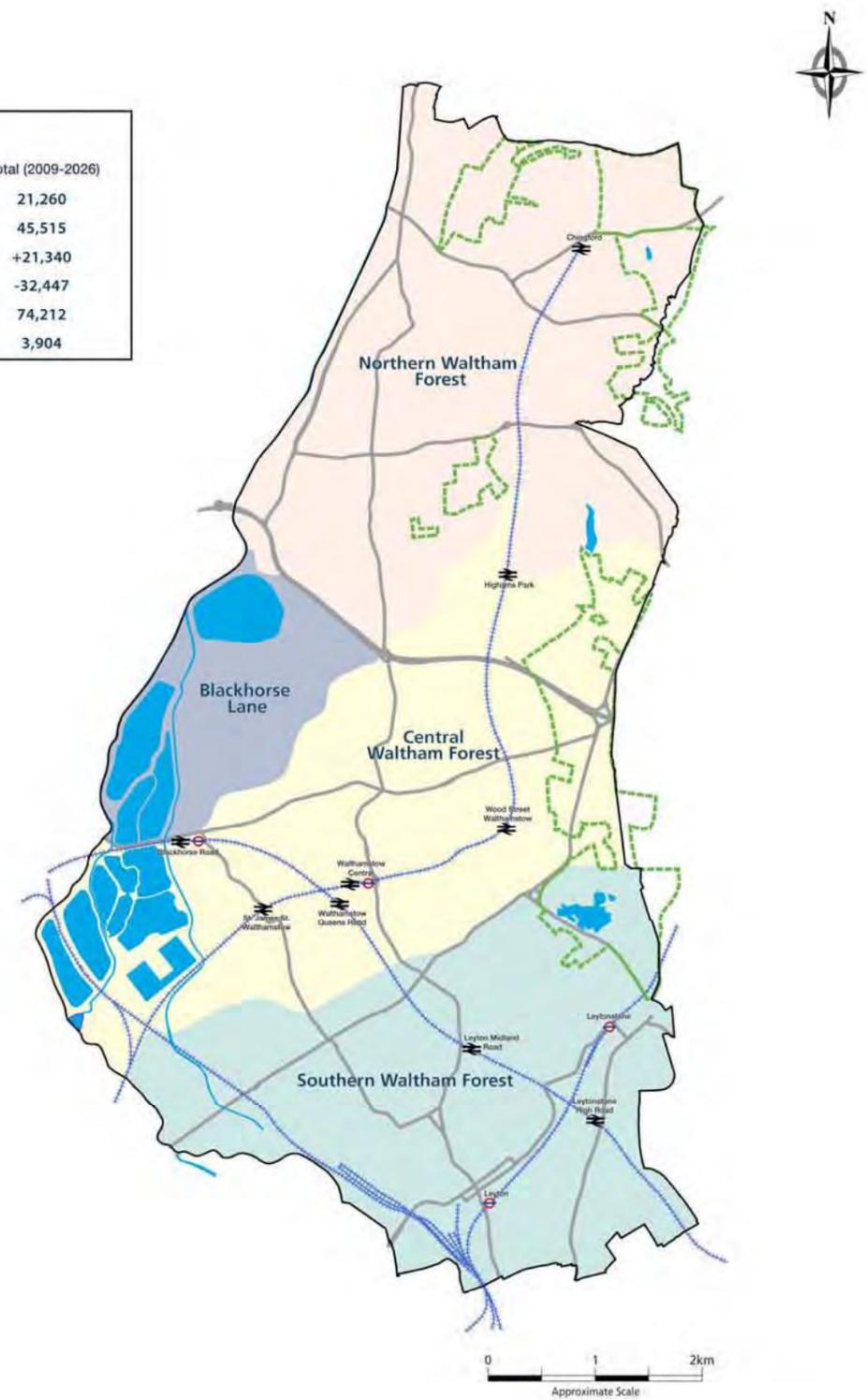
TOTAL BOROUGH				
	2009 - 2014	2014 - 2019	2019 - 2026	Total (2009-2026)
	5,214	7,350	8,696	21,260
	10,575	16,356	18,584	45,515
	+15,243	+15,243	+15,243	+21,340
	-23,177	-23,177	-23,177	-32,447
	16,413	23,768	34,030	74,212
	926	1,228	1,750	3,904

BLACKHORSE LANE				
	2009 - 2014	2014 - 2019	2019 - 2026	Total (2009-2026)
	1,763	1,460	140	3,364
	4,470	3,650	-43	8,076
	+2,338	+2,338	+3,274	7,950
	-9,647	-9,647	-13,506	32,800
	0	0	0	0
	-98	-98	-138	-334

CENTRAL WALTHAM FOREST				
	2009 - 2014	2014 - 2019	2019 - 2026	Total (2009-2026)
	1,916	2,196	3,132	7,494
	2,994	3,752	5,411	12,834
	+2,868	+2,868	+4,015	9,751
	-2,824	-2,824	-3,953	3,953
	9,157	12,026	16,882	38,064
	458	576	808	1,843

SOUTHERN WALTHAM FOREST				
	2009 - 2014	2014 - 2019	2019 - 2026	Total (2009-2026)
	1,311	2,699	4,768	8,778
	2,831	6,586	11,898	21,315
	+10,037	+10,037	+14,051	34,125
	-5,059	-5,059	-7,082	-7,082
	2,467	4,483	7,164	14,114
	613	714	992	2,318

**LEGEND**

Source Based on Joint analysis by London borough of Waltham Forest and URS Corporation

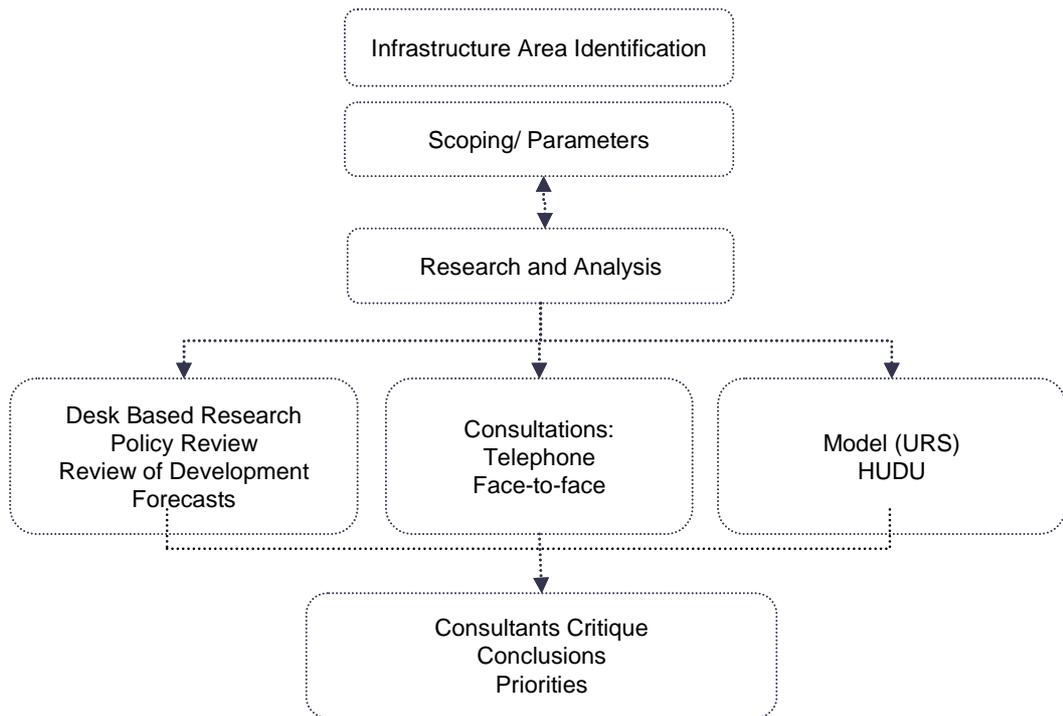
**3. ASSESSING LB WALTHAM FOREST'S DEMAND FOR INFRASTRUCTURE**

**Overall Methodological Approach**

A consistent approach has been employed for investigating LB Waltham Forest's future requirements for social, transport and utilities and physical infrastructure. The study commences by exploring current provision. It then examines the forecasts and plans of providers in terms of the quantum of provision, costs and planned investment. Existing or potential future gaps in provision are highlighted, as are risks to delivery. Alongside this, where suitable and possible we independently model demand for infrastructure and the associated costs. This includes identifying the timing or location of need and provision.

A summary of the approach to this study and subsequent plan is set out in **Figure 3-1** below.

**Figure 3-1: LB Waltham Forest Infrastructure Plan, Methodology**



## Modelling the Scale of the Growth

Key to the assessment of infrastructure demand, particularly for social infrastructure, was the establishment of a *Waltham Forest Infrastructure Model*, the detail of which is explained in **Appendix B**.

To put our analysis into context it was necessary to look at overall expected growth and the relationship of the infrastructure assessment exercise to various factors affecting overall scale and distribution of demand for services.

The anticipated changes in population, dwellings and commercial floorspace that formed the starting point of the modelling exercise are summarised in **Table 3-1**. Estimated baseline figures showing the current position are also provided to give a clear impression of the scale of additional development that is envisaged.

**Table 3-1: Baseline and Projected Residential and Commercial Growth**

Category	Baseline (2009)	Growth 2009 to 2026	Growth as % of Existing
Residential Development	(number)	(number)	
Dwellings – lower growth	94,108	11,910	+13%
Population – lower growth	224,788	20,209	+9%
Dwellings – higher growth	94,108	21,260	+23%
Population – higher growth	224,788	45,515	+20%
Commercial Floorspace <sup>6</sup>	(sqm)	(sqm)	
Business/Office	136,004	47,012	+35%
Business/Industrial	657,020	-78,801	-12%
Retail	7,868	74,212	+943%

*Source: Population and dwellings: 2008 Round Demographic Projections, 2009 (GLA DMAG) background tables, URS Waltham Forest Infrastructure Model. Commercial floorspace (office/industrial): draft Waltham Forest Employment Land Review 2009 (URS); Commercial floorspace (retail): draft Waltham Forest Retail and Leisure Study (Nathan Litchfield and Partners)*

**Table 3-1** illustrates that growth over the plan period is significant – new housing will increase the baseline population by between 9% and 20% by 2026. The type of employment space is expected to change in line with the general restructuring of the national economy with offices becoming a larger provider of employment space and industrial sites less so. These figures have been used as the inputs driving our analysis and infrastructure requirement forecasts.

<sup>6</sup> The Waltham Forest Employment Land Review 2009 – the source of business office and industrial data – projects demand for employment space using a low and high growth scenario. However we use the quantum of land use change as recommended in the final chapter (effectively a mid-point of the two scenarios) here as demand for employment space is not necessarily linked to the rates of housing development.

The Model and the results generated are only an indication of demand at a snapshot in time. The Core Strategy planning period extends over almost two decades to 2026 and within that time a host of circumstances that affect the demand for social infrastructure, the sufficiency of existing provision and the modes of infrastructure provision and delivery are likely to change in ways that have not been possible for this study to accurately anticipate at the present time.

For these reasons, the longer-term infrastructure demand forecasts and related recommendations are, by their nature, subject to a margin of variation. Accordingly, it will be necessary to review, update and monitor the requirement for infrastructure in future years.

### **Existing Information, Strategy and Planned Investment**

Through our research and stakeholder consultation we sought to establish the degree to which providers themselves had forecasted demand associated with new growth, and planned for it. This exercise frequently proved difficult because of gaps in provider strategy and information. Reasons for these issues include:

- Strategic planning requirements and priorities for service providers do not match with the LDF framework. The LDF process considers growth and infrastructure requirements over a minimum 15-year planning period. For many infrastructure providers the development of strategies and funding on such long-term timescales is not meaningful or necessary.
- There is little incentive for some service providers to engage in the LDF planning process. For example electricity, gas and water utilities providers tend to plan local infrastructure on a reactive basis in response to the market and regulator requirements and assume that others will fund provision, such as developers. They have little reason to plan more strategically.
- The regulatory environment encouraging competition tends to discourage or prevents co-ordinated strategic planning.
- Some providers are behind schedule in their strategy planning exercises. For example the London Strategic Health Authority has not yet started preparing an overall estate strategy.

In summary, for the following infrastructure areas providers' strategy and information were well or at least reasonably developed in a format that related well to our demand forecasts:

- Children's services (including education)
- Parks, sports and leisure
- Primary healthcare
- Cemeteries
- Emergency services (police)
- Sustainable energy generation

In some cases service providers have shorter term funding arrangements and strategic planning horizons than the scope of the study and therefore URS has sought to fill gaps in the input received from various service providers and / or made assumptions based on benchmarking data which has informed the URS Waltham Forest Infrastructure Model. This is relevant to the following services:

- Transport
- Further education and adult learning
- Libraries
- Secondary healthcare
- Emergency services (fire, ambulance)
- Community and faith facilities, job brokerage
- Gas, electricity and telecommunications
- Waste
- Flood risk
- Sewerage

A more detailed analysis of service providers' plans is given in **Appendix C**. This outlines the adequacy of the providers' planning documents and processes in the context of identified LDF growth. It can be seen that in most cases providers' estimates of forecast demand were not available.

## 4. RESULTS: STRATEGIC INFRASTRUCTURE PLANS AND PRIORITIES IN LB WALTHAM FOREST

### URS Assessment of Demand

To provide an independent assessment of the likely demand associated with planned growth in LB Waltham Forest we modelled the requirements for various infrastructures for the borough to 2026, consistent with the planning horizon for the Core Strategy.

It was not meaningful or feasible to quantify demand for all infrastructures and therefore in some cases the scope of the exercise was necessarily broad brush and strategic. This is for instance the case with the physical infrastructure associated with flood risk, waste management and emergency services.

In the case of utilities it is not possible to come to a definite conclusion on the physical requirements associated with the estimated increase in demand deriving from the projected growth. For this reason we were limited to quantifying the scale of demand, by employing a pragmatic approach to the modelling exercise, and to identifying worst-case infrastructure requirement scenarios that utilise strategic and design standards used currently by utilities companies. Ultimately, this point emphasises the significance of meeting demand for energy and water through low carbon and/or renewable sources, and these issues, particularly for energy, are examined within **Section 3.7** of the Utilities and Physical INA report.

### Infrastructure with Existing Capacity

Where possible the existing capacity or slack in the current system was accounted for before proposing new infrastructure. This was the case where the Council had commissioned studies into the quantity and quality of specific types of infrastructure and this information was made available, such as sports and leisure facilities in the *Sports and Leisure Report: Assessment of Need and Options Appraisal* (Strategic Leisure Limited, 2007). Information derived from personal interviews and correspondence with Council Officers and service providers was also used where appropriate. Spare capacity was established in the following infrastructure elements.

### Social Infrastructure

- For education: based on information provided by the Waltham Forest School Organisation, Partnership and Development team it was estimated that there is approximately 300 surplus places at early years facilities in the borough. In terms of adult learning, correspondence with the Head of Waltham Forest Council's Community Learning and Skills Service showed that 16,000 adults used that ClaSS service in 2005 whereas approximately 11,000 attended in 2009 due to cuts in central Government funding
- Parks and open space: the *Draft Open Space Strategy* shows that the borough has 1,205 hectares of open space, of which 943 hectares are publicly accessible.

This equates to 4.16 hectares of open space per 1,000 residents – significantly above the standard of 2.4 hectares per 1,000 set by Fields In Trust<sup>7</sup> (FIT). Consultation with Waltham Forest Parks and Open Space team revealed that the borough's outdoor sports space facilities are currently underutilised.

- Libraries: consultation with the Culture and Leisure Services team showed that the Council is developing greater efficiencies from their current building stock. This trend is likely to continue and allied with changing patterns of service delivery the expectations are that new demands from population growth can be met without the need for additional sites
- Community facilities: anecdotal evidence from Waltham Forest's Asset Management team indicates that community meeting spaces are empty '50% of the time' and that greater efficiencies can be achieved from the current building stock before new space is proposed
- Cemeteries: consultation with the Cemeteries Management team shows the expectations are that there will be sufficient cemetery space in the borough to meet requirements until 2021

### Transport Infrastructure

The existing capability of the transport infrastructure has been determined through reference to current capacity assessments performed by TfL surface transport, London Underground, London Overland, Network Rail and ITIS survey data, and compared with the modal travel requirements for employment based trips based upon census data. The results have identified available capacity current within the existing infrastructure as follows:

- There is capacity available upon the Chingford to Liverpool Street overland rail network throughout the day, although available capacity is limited during the peak travel periods
- Capacity is available on the London Underground Victoria and Central Lines in both directions outside of the peak periods, but only in the northbound direction on the Victoria Line and Eastbound direction on the Central line during the AM peak travel period and vice versa during the PM peak travel times
- There is likely to be some capacity available in the bus network both during the peak travel periods and the off-peak periods, although the actual service routes upon which capacity is currently available would require further analysis beyond the scope of the study

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<sup>7</sup> Formerly the National Playing Fields Association (NPFA)

- Capacity is available throughout the cycle and pedestrian routes, although there are some points of congestion on these routes, generally located at road crossing facilities
- The road network can be said to operate with a reasonable degree of operational capacity during off-peak travel periods providing an acceptable level of delay within the relative land use areas within the borough, but generally operates at saturation levels of operational capacity during the AM and PM peak travel periods.

### Utilities and Physical Infrastructure

For the assessment of utilities and physical infrastructure it is a more complex process to determine capacity in the existing system. Local planning authorities are often not directly responsible for the infrastructure items considered in this report such as water, electricity, sewerage and emergency services. The information is not developed with the 15-year LDF in mind but on a more short-term basis in five year plans and at spatial levels unrelated to administrative boundaries.

At a strategic level, the strict regulatory environment should ensure that sufficient capacity will be planned in the long-term, with projects such as the proposed desalination plant at Beckton ensuring new supplies of potable water and the proposed Thames Tideway tunnel adding capacity to the sewerage infrastructure of London. Information more pertinent to Waltham Forest is difficult to obtain. Research into publicly available material and personal consultations showed that there seems to be sufficient capacity in the current system to accommodate growth in the local gas network. The reported National Grid and BT position is that the capability is there to accept the predicted growth and therefore no shortfall is assumed to exist.

### The Resulting Strategic Infrastructure Requirement

The respective INA reports set out the conclusions on LB Waltham Forest's strategic infrastructure needs arising from envisaged growth within the borough for the period to 2026. The results of each INA report are represented in **Appendix D: Strategic Infrastructure Plans**.

To assist with understanding the location and timing of infrastructure requirements **Figures 4-1 to 4-5** illustrate the social, transport and utilities and physical infrastructure needs respectively as they are required by sub-area and where possible by development phase period<sup>8</sup>.

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<sup>8</sup> The following points should be noted with regard to the results as presented in **Figures 4-1, 4-2 and 4-3**:

- The figures provide a summary only. More detail regarding specific infrastructure investment requirements is provided within **Appendix D, Tables D-1 to D-5** and within the three respective *Infrastructure Needs Assessment* reports.

## Social Infrastructure

For social infrastructure **Figure 4-1** (lower growth scenario) and **Figure 4-2** (higher growth scenario) illustrate the quantum of each type of infrastructure required to support projected growth. Given that several items of social infrastructure required over the LDF planning period have already been planned for or committed, the figure indicates where this is the case. Accordingly, the remaining infrastructure requirements that have been identified are those which have not yet been accounted for by the relevant provision agency or extend beyond the timelines for which they have planned.

To provide an indication of the scale of likely requirements URS have estimated the quantum of utilities infrastructure that could be required as a result of the scale of growth envisaged. These requirements are set out below.

### *Early Years Education*

URS calculations show that there will be demand for between 212 and 563 early education places after all spare capacity is utilised, for the lower and higher growth scenarios respectively, over the period 2009-2026. In the lower growth scenario there is considered to be enough spare capacity across the borough to meet demand, and for the higher growth scenario, there is expected to be a need to plan for extra capacity in the Southern WF and Blackhorse Lane sub-areas.

### *Primary Education*

There are currently 43 established maintained primary schools in the borough and six infants and junior schools. These are organised into ten educational planning areas. There is currently a planned increase in provision of nine forms of entry (FoE) to meet need for places for the next five years to 2014. In addition to this, URS estimates of demand show that the Council need to plan for a further 13.5 and 15.9 FoEs, for the lower and higher growth scenarios respectively over the period 2014 - 2019 with demand then quietening down over the remainder of the planning period. Demand for these FoEs will be greatest in the Southern and Central WF areas.

### *Secondary Education*

There are currently 15 established maintained secondary schools in Waltham Forest, with further provision being provided at one all-through (3-16 year olds) school. The borough's BSF programme plans to increase secondary school provision by 14 FoEs by 2018/19, eight FoE being found at a newly built school. URS estimate that, in addition to this

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- Infrastructure requirements are presented for aggregated sub-area level or higher as while demand for an infrastructure scheme / facility might be wholly arising from a particular sub area; it does not immediately follow that the need must be catered for within that area.
  - Infrastructure requirements may potentially be met elsewhere depending on the type of infrastructure and whether or not the nature of the infrastructure dictates that demand be met locally (there are practical considerations to take into account when locating infrastructure and it is not for this study to determine a precise location for most elements of infrastructure identified).

planned provision, there will be a need to provide an additional 2.6 and 8.5 FoEs over the period 2014-2026 to account for new demand (there is little requirement for new capacity in the first phase 2009-2014). This additional capacity will largely be required to serve demand in the Southern WF area.

#### *Further Education*

There are three further education colleges in Waltham Forest in addition to secondary schools that also provide post-16 education. As part of the BSF programme, by 2010-11, thirteen secondary schools in the borough will see their offer expanded to include post-16 education, and three schools will see their existing post-16 offer expanded. This will result in approximately 830 additional post-16 places being provided. URS estimate that this provision will meet demand arising from population growth, under both scenarios, to 2019. It will also meet demand arising from the lower scenario over the entire planning period, but there will be a requirement to provide an additional 100 post-16 places to meet demand arising from the higher scenario over the latter phase.

#### *Adult Learning*

URS estimates of demand for adult learning places estimates that there could be demand for up to 3,192 part-time places over the period 2009-2026. Given that the number of ClaSS service learners has declined considerably in the last four years, and that there are numerous facilities in the borough capable of accommodating classes, URS consider that there will be sufficient capacity to accommodate the estimated growth in demand for places over the entirety of the Core Strategy planning period.

#### *Primary Health Care*

There are currently a total of 46 GP practices in Waltham Forest, including one polyclinic, accommodating 136 FTE GPs. There are 267,644 patients registered with GPs in the borough, which is considerably larger than the population of Waltham Forest. Planned investment includes six new or refurbished primary care centres to be provided in deprived areas. URS assessment of demand arising from growth indicates that there is demand for 11.2 and 25.3 GPs for the lower and higher growth scenarios respectively. Based on a three GP per surgery model this equates to a requirement for between four and nine GP surgeries to be provided over the planning period 2009-2026. The majority of this requirement arises 2014-2026, with Southern and Central WF being the focus for this requirement.

#### *Dentists*

There are currently 34 dentist practices and a mobile Community Dental Service (CDS) in the borough, accommodating 100 dentists in total. This equate to approximately 2,223 residents per dentists, which is below the Department of Health (DoH) standard of 2,000 residents per dentist. URS estimates show that there is a need for 10.1 and 22.8 dentists for the lower and higher growth scenarios respectively over the period 2009-2026, in order to plan for new population growth in line with the DoH standard. The Southern and

Central WF areas require the greatest increase in provision, with most of this being required over the period 2014-2026.

#### *Secondary Health Care*

There is currently one NHS Foundation Trust with in LB Waltham Forest, the North East London NHS Foundation Trust (NELFT). There is one hospital located in the borough – Whipps Cross University Hospital Trust – and a number of other hospital trusts, located outside the borough, provide a range of specialist services to borough residents. URS have used the HUDU Model to quantify and cost potential secondary healthcare requirements in LB Waltham Forest. The model estimates that there will be a requirement, for the lower and higher growth scenarios respectively, of an additional 71.7 to 128 total acute and mental health care beds, 10.3 to 18.4 intermediate beds, and 10.3 to 18.4 intermediate day spaces, over the period 2009-2026. As these results do not take into account baseline conditions, the outcomes should be treated with caution and further consultation with the PCT should be explored to ascertain requirements.

#### *Swimming Pools*

There are currently three public swimming pools in the borough and two pools at private health clubs. The Sports and Leisure Report: Assessment of Need and Options Appraisal (2007) calculated that there is an existing deficit of provision and that there would be a need to provide 696 sqm of water space (two six-lane 25m pools) over the period to 2016. Waltham Forest's residents will benefit from the legacy of the London 2012 Olympic and Paralympic Games with the £244 million Aquatics Centre. URS has estimated that there is a requirement to provide between three and four six-lane 25m swimming pools over the period 2009-2026 to meet the needs of the new population and account for existing deficiency.

#### *Indoor Sports Halls*

The existing supply of accessible sports halls of four courts in size or greater in Waltham Forest is nine. The Sports and Leisure Report: Assessment of Need and Options Appraisal (2007) calculated that there is an existing deficit of provision (of approximately 2.9 sports halls) and there is a need to provide four new sports halls over the period to 2016. URS has estimated that in addition to this provision there is a requirement for 4.2 and 5.7 indoor sports halls for the lower and higher growth scenarios respectively over the (longer) period 2009-2026. Under the lower growth scenario, the requirement for additional halls is relatively modest in all areas except Central WF, and in the higher growth scenario there is more significant demand in the Southern WF area.

#### *Parks and Open Spaces*

Waltham Forest has a total of 211 open spaces, equating to 4.16 hectares per 1,000 residents. The borough's Draft Open Space Strategy (2009) recommends local standards of 2.4 hectares of space per 1,000 residents in Northern WF (inc. Highams Park) and 1.6 hectares per 1,000 residents in the rest of the borough. It also identified that 6.5% of the built-up areas of the borough are deficient in access to local parks. URS has assessed

future provision of open space, based on the two population growth scenarios, and has concluded that although the amount of open space per 1,000 population will decrease in all sub-areas over the timeframe of the LDF, the area based provision standards set out in the Draft Open Space Strategy (2009) will not be compromised by projected population growth in either scenario. It is recommended that the Council focus new provision on addressing existing areas of smaller local park deficiency that are identified in the Strategy.

#### *Child Play Space and Games Areas*

Waltham Forest contains 51 children's play areas and an additional 14 MUGAs, totalling approximately 200,000 sqm, equating to 3.52 sqm per child. Through the Playbuilder Programme, over £1 million of investment is planned which will be focused on improving play opportunities for children aged 8-13 years old at a minimum of 22 play areas. The Draft Open Space Strategy (2009) identified many areas of deficiency in relation to access to child play space. URS has estimated that there will be a requirement, over the planning period for approximately 73,000 sqm and 270,000 sqm of child play space based on the lower and higher growth scenarios respectively, in line with the GLA's requirement for 10 sqm per child at new housing developments.

#### *Allotments*

Waltham Forest has 35 open spaces used as allotments, community gardens and city farms, totalling 49 hectares of land and 2,150 allotment plots. A benchmark of 0.2 hectares of allotment land per 1,000 population is stated in the UDP as being the guideline standard that should be maintained – the Southern WF areas not meeting this standard currently. URS has estimated that the minimum provision standard of 0.2 hectares of allotment space per 1,000 people will be compromised in the sub-areas of Southern WF, Central WF (and Blackhorse Lane) by population growth, resulting in a requirement for 3.4 and 8.4 hectares of allotment space for the lower and higher growth scenarios respectively over the period 2009 to 2026. Under the lower scenario, demand is greatest in the Central WF and Blackhorse Lane areas, and in Southern WF for the higher scenario.

#### *Employment Brokerage*

LB Waltham Forest operates a job brokerage initiative, which 6,000 residents are currently registered – Worknet – in addition to the mainstream services that are provided at the two Job Centre Plus outlets in the borough. Consultation with the Council revealed that there was a shortage of space available for employment brokerage services, particularly in the Northern WF area. URS have estimated that the addition of the new population will result in demand for 5.3 and 12.8 staff for the lower and higher growth scenarios respectively over the period 2009 – 2026, equivalent to 81 and 196 sqm of workspace respectively. As these requirements are relatively low, it will likely be cost efficiently to accommodate this additional space within existing facilities close to the areas of demand/ existing deficiency.

### *Cemeteries*

There are four cemeteries in Waltham Forest, two of which are Council managed and two of which are faith-specific i.e. St Patrick's Roman Catholic Cemetery and the Waltham Forest Muslim Burial Trust site. Existing burial capacity is expected to be used by 2021, meaning that the borough will require a new space then. URS have estimated spatial requirements for the remainder of the Core Strategy planning period using current death rates and rates of burial. It is calculated that there is a need to provide 144.3 and 160.4 burial plots, for the lower and higher growth scenarios respectively, to meet the needs of both the new and existing population over the period 2021-2026. This equates to 320 and 335 sqm of space for each scenario respectively, which will need to be provided either through an extension to an existing site or the development of open space.

In summary the principal constraint to growth under the lower growth scenario (and therefore need to be overcome before plans are made for a higher growth scenario) is found to be education. At primary school level the Council acknowledge a requirement for an additional 14 forms of entry at primary school level to 2014 but have only secured funding for nine. These projections are supported by independent URS analysis. It is likely that the additional five forms of entry will be housed in temporary classrooms.

At secondary school level, the current Building Schools for the Future programme plans to build an extra 14 forms of entry are likely to be insufficient to meet the lower level of population growth by 2019, with a shortfall of 1.6 forms of entry projected. The Council has a legislative duty to provide school places for all children resident in the borough and clearly there is additional pressure on these resources under a higher growth scenario if the requirements cannot be met under the lower growth scenario.

The Council has initiated discussions with partners to determine how to meet the requirements of the lower growth scenario.

### **Utilities and Physical Infrastructure**

For utilities, **Figure 4-3** (lower growth scenario) and **Figure 4-4** (higher growth scenario) illustrate the types of infrastructure required, albeit it has not been possible in all cases to identify quantum of infrastructure requirement. An estimate of the additional demand for servicing arising from the projected residential and commercial growth has been made. However, for a range of valid reasons, it has not been possible to translate the additional demand into specific requirements for physical infrastructure<sup>9</sup>.

In order to provide an indication of the scale of likely requirements URS have estimated the quantum of utilities infrastructure that **could** be required as a result of the scale of growth envisaged. It should be noted that the magnitude, limitations and the locations of these requirements are not identified at this stage. The estimated quantum of infrastructure required **could** thus be expected to include:

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<sup>9</sup> More details can be found in the *Utilities and Physical Infrastructure Needs Assessment* report that accompanies this *Executive Summary and Strategic Infrastructure Plan*.

- For water: additional water mains and pumping stations (or at least upgraded pumping stations). As Thames Water is already planning for an additional reservoir and de-salination plant, it can be expected that additional resources will be adequate to support the projected growth. The additional amount of clear water required would equate to a football pitch sized reservoir.
- For electricity: upto one additional primary substations, an upgrade to or establishment of one grid site (converting electricity typically from 132kV to 33kV), and up to 42 1MVA substations (i.e. secondary substation catering for local demand).
- For gas: the network is assumed to be functional and not to require uprating for the most part, with the exception of local reinforcement works that may be applicable. Assuming no capacity is available in the existing network the scale of projected demand would potentially translate into the need for one new pressure reducing stations (transforming the gas from medium pressure to low pressure).
- For sewerage: new and renovated sewers.

### Transport Infrastructure

For transport **Figure 4-5** illustrates the infrastructure schemes required over the coming planning period including those which TfL and other providers have already identified in their strategic investment plans, and additional requirements identified by this study.

It is evident from the evaluations completed that the projected growth strategies are likely to generate significant increases in people movement during peak travel periods, particularly in the south of the borough within the Central WF and Southern WF sub-areas. It is also evident that unless constrained, the car mode of travel will likely dominate given the relatively short trip lengths to the key Opportunity Areas of Stratford and the Lower Lea Valley to the further detriment of the existing surface transport network.

Furthermore, it is considered that the higher growth scenario within the Southern WF sub-area could be unsustainable without further investment due to the constrained transport network between the northern and southern halves of the sub-area separated by the A12 TLRN route.

Informed by current national and local policy commitments, emphasis on a sustainable transport strategy has been adopted within the mitigating measures proposed within each sub-area to meet the requirements of the projected growth strategies. We therefore consider it necessary to promote a step change philosophy in the attitude apparent within the borough by:

- Maximising the benefits gained from the planned investment in strategic public transport provision within and in the vicinity of the borough
- Enhancement and increase of public transport links along identified corridors serving the sub-areas to enable interchange with the strategic public transport network via a reliable and sustainable surface transport mode

In the main, the surface transport links identified relate to the existing bus corridors primarily along the north-south routes serving the sub-areas. Such routes are constrained by the segregation afforded to these routes by the North Circular Road and the A12 TLRN roads crossing the borough along an east-west orientation.

We recommend that bus priority measures along the key corridors identified should reflect the constraints afforded by the inadequate carriageway widths prevalent along these routes and precluding the provision of segregated bus lanes. GPS tracking technology has been suggested with SVD on approach to the many signalised junctions along the routes. We suggest that existing carriageway space should be given up to bus lanes on approach to key junctions where insufficient or unviable land take precludes the provision of additional bus lanes.

We also suggest that car borne trips along the corridors should be capped to restrain further growth and to prevent such capacity as may become available through enhanced public transport provisions, from being taken up by suppressed demand for car trips along the corridors. Such restraint could take the form of a reduction in lane capacity at pedestrian crossings incorporating build-outs, or the provision of lengths of segregated bus lane along stretches of the corridor where the carriageway can accommodate the overall width required.

In support of these public transport road links to provide reliable interchange with the strategic public transport investments, we recommend that the public realm and footway links should be enhanced to provide for the walk stage of the total trip, with Real Time Passenger Information provided along the routes at appropriate locations and key interchange sites, together with improved pedestrian road crossing provisions along the desire lines providing access between the homes and the bus stop sites.

The cycle network has also been identified for enhancement with additional facilities provided at destinations and interchange sites in sufficient quantity to provide for the increased demand necessary to effect a significant modal shift from car to cycle.

We also recommend that Waltham Forest continue to support the reinstatement of the Hall Farm Curve on the Chingford to Liverpool Street LOL to provide a direct rail route through the borough to the strategically important interchange hub at Stratford. This new link would serve the key Opportunity Areas of Stratford and the Lower Lea Valley to the south of the borough, and will also provide a reliable and sustainable link between the north and south of the borough with sufficient existing capacity to accommodate growth over the long term duration of this plan. We consider that the provision of this additional service route will provide the mechanism for significant mode transfer from car borne trips originating in the Northern WF sub-area at Chingford, upper Walthamstow and Walthamstow Central and provide the missing public transport provision within the south-eastern sector of the Southern WF sub-area at Lea Bridge.

### **Strategic Infrastructure Priorities**

Within **Appendix D, Tables D-1 to D-6** infrastructure items have been categorised in terms of a priority rating extending from 1 to 4:

- Priority level 1 – these are infrastructure items that enable basic functionality and cover utilities such as gas, electricity, sewerage and water
- Priority level 2 – these are infrastructure items that the Council has a current or upcoming legislative requirement to provide. This includes ensuring that all resident children have places at local schools; that waste is disposed of; that surface water run-off is reduced; and sustainable energy generation that will contribute to the achievement of zero carbon development (by 2016 for domestic and 2019 for non-domestic development)
- Priority level 3 – these items are considered critical to ensure that development is sustainable and include primary and secondary healthcare facilities, primary transport improvements necessary to overcome unacceptable levels of congestion, emergency services and telecommunications
- Priority level 4 – these items are considered very important for sustainable development and include burial space in the borough, community meeting spaces, places of worship, leisure facilities (child play space, open space, indoor leisure facilities, swimming pools, allotments, libraries), secondary transport improvements and employment brokerage space

The tables in **Appendix D**, drawing from the respective *Infrastructure Needs Assessment* reports, also set out where possible: when and where the infrastructure is required; who is responsible for delivery and funding; where the infrastructure is accounted for in the range of existing plans and investments strategies of the respective responsible agencies; and potential costs as identified by the provider and/or by URS. These dimensions of the analysis inform and add detail to the assessment of infrastructure priority.



Figure 4-1: Summary of Strategic Social Infrastructure Requirements – Lower Growth Scenario

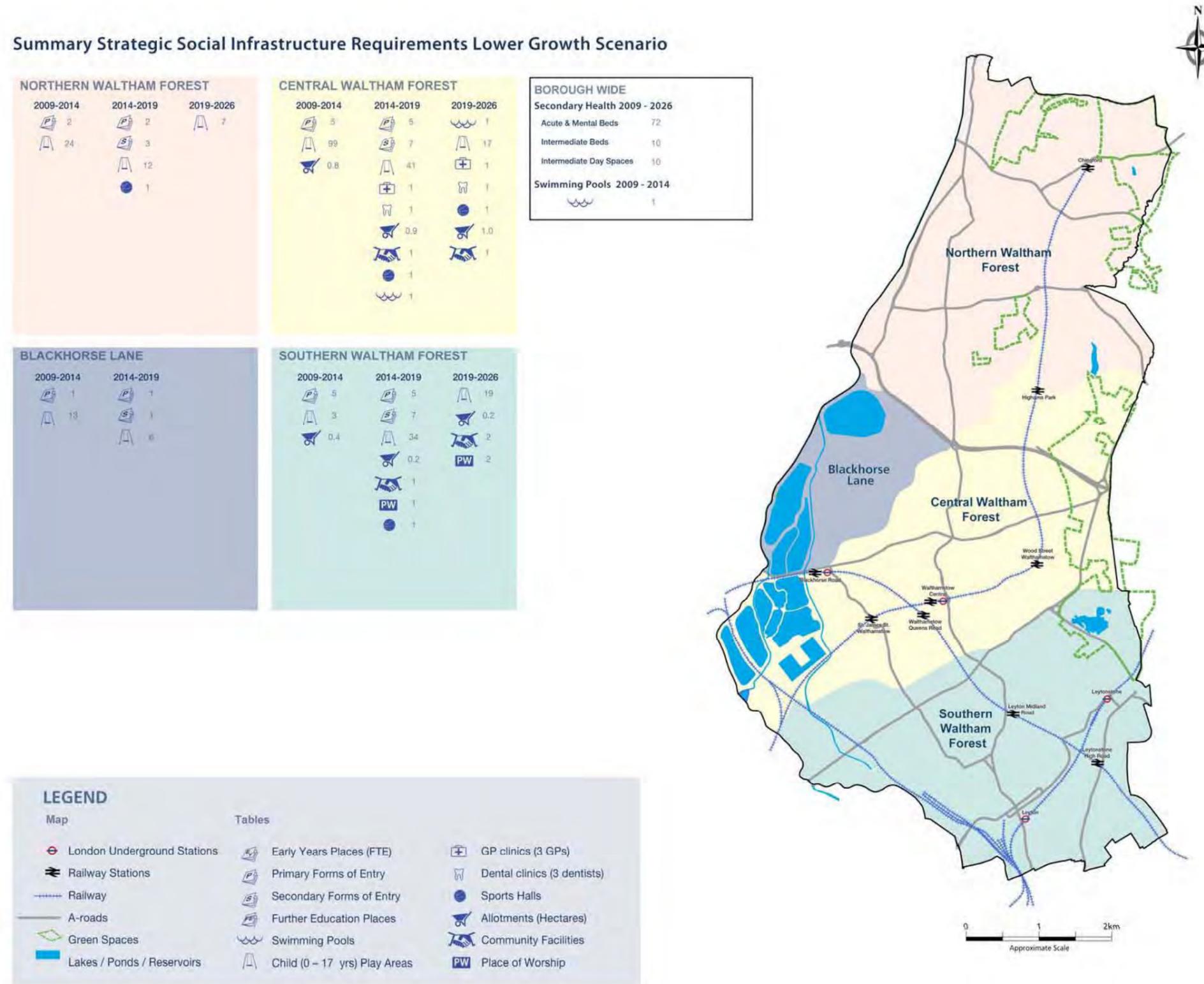


Figure 4-2: Summary of Strategic Social Infrastructure Requirements – Higher Growth Scenario

Summary Strategic Social Infrastructure Requirements Higher Growth Scenario

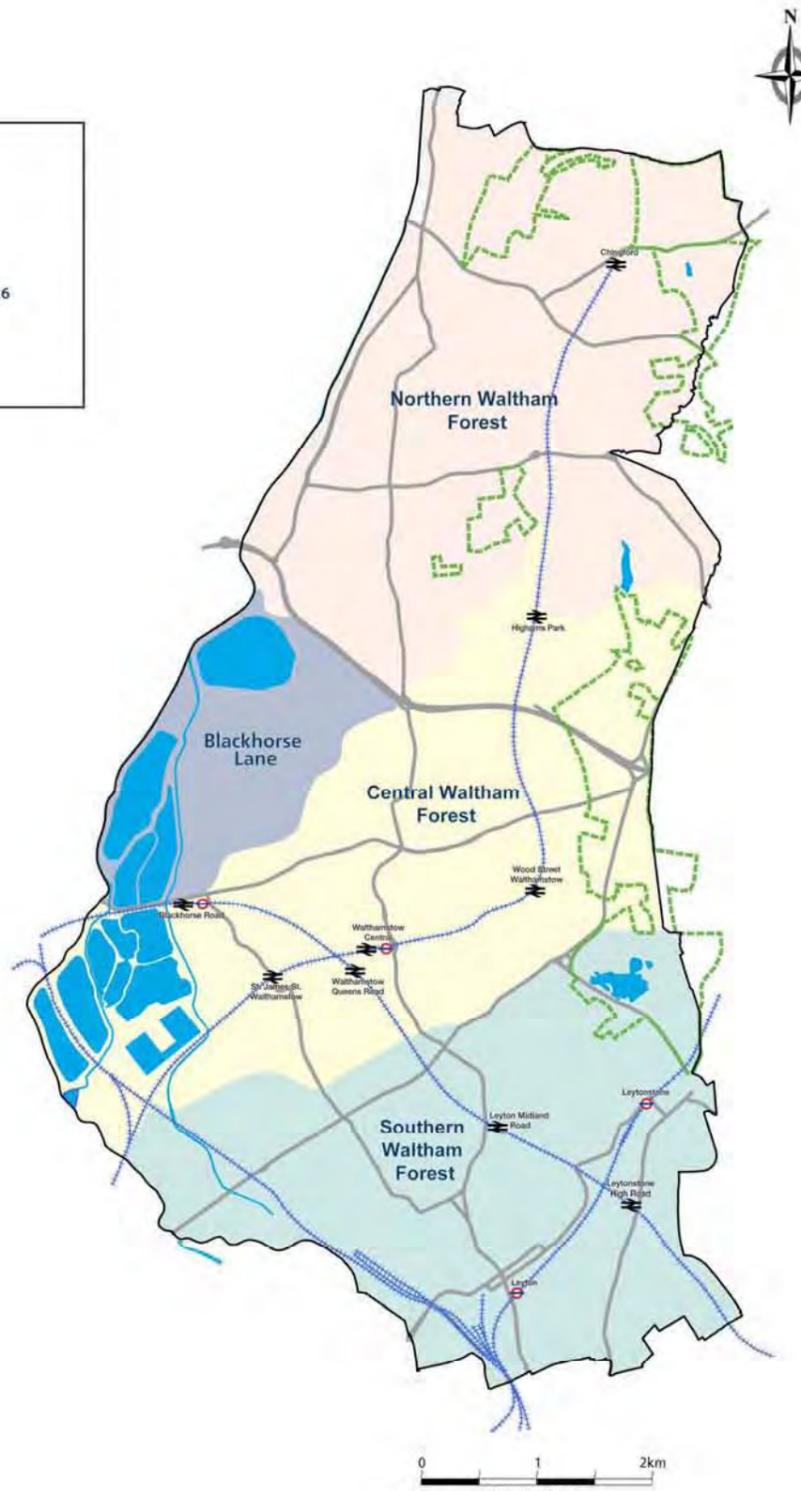
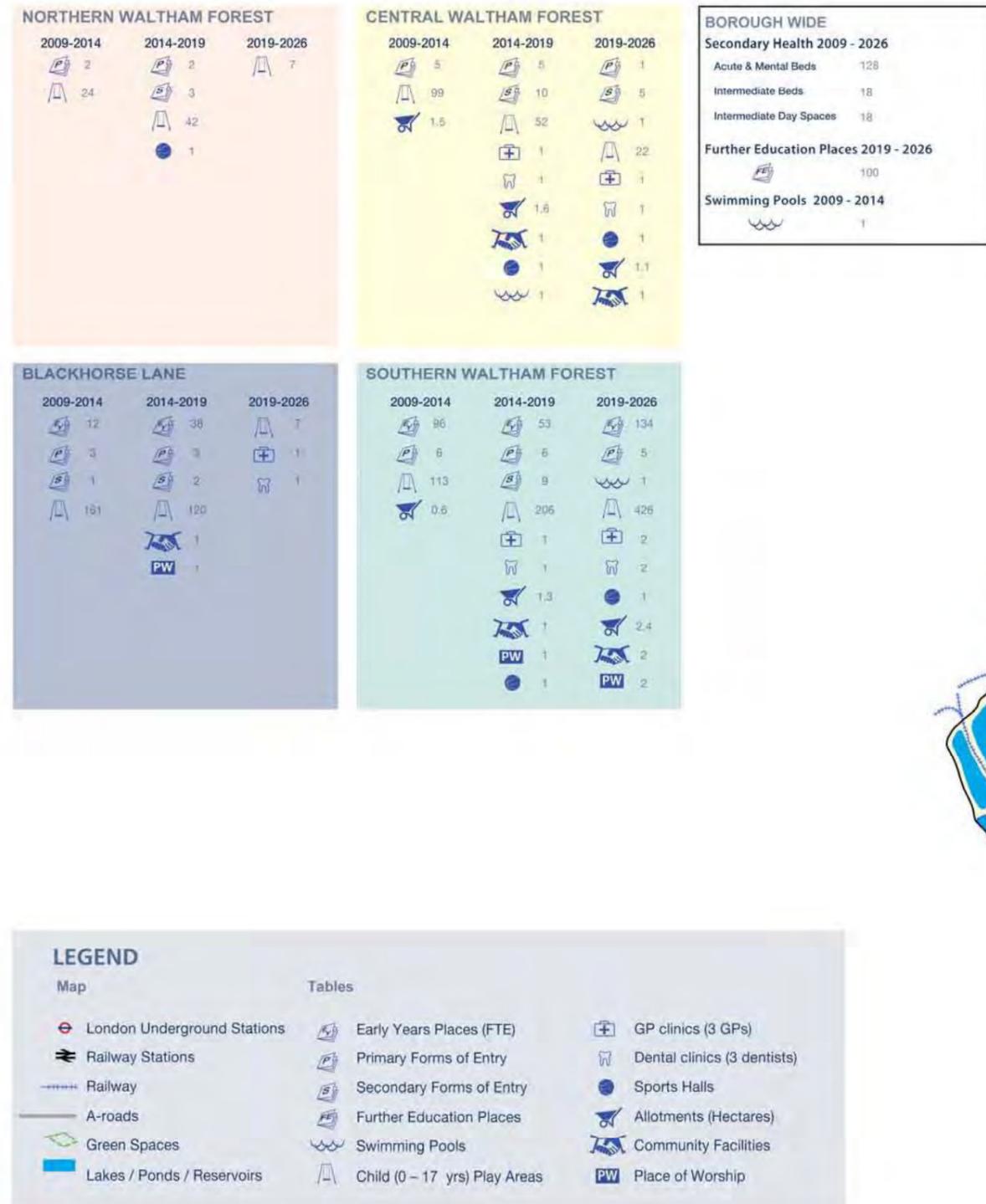


Figure 4-3: Summary Strategic Utilities and Physical Infrastructure Requirement – Lower Growth Scenario

Summary Utilities and Physical Infrastructure Requirements Lower Growth Scenarios

**NORTHERN WALTHAM FOREST**

Infrastructure	Demand	Action	Requirement
	0.3 M l/d		
	2,500 kVA 300 m3/s		
	0.4 M l/d		

**BLACKHORSE LANE**

Infrastructure	Demand	Action	Requirement
	0.2 M l/d		
	1,000 kVA -600 m3/s		
	0.4 M l/d		
			Inundation mapping and emergency plans in the Lower Lee Valley

**CENTRAL WALTHAM FOREST**

Infrastructure	Demand	Action	Requirement
	2.0 M l/d		
	15,300 kVA 5,700 m3/s		
	2.1 M l/d		
			New front counter at Walthamstow police station
			Inundation mapping and emergency plan in the Lower Lee Valley

**SOUTHERN WALTHAM FOREST**

Infrastructure	Demand	Action	Requirement
	0.8 M l/d		
	7,400 kVA 1,400 m3/s		
	1.0 M l/d		
			(Potential) New custody centre at Hainault Road

**BOROUGH WIDE**

Infrastructure	Action	Requirement
		Lobbying utility providers and regulatory bodies to devise strategic longer term planning approach to provision
		Sewer flooding investigation Preparation of a Surface Water Management Plan
		Maintenance of highway drainage, with replacement of impermeable surfaces with permeable systems.
		Implementation of SUDS and promotion of flood resistant architecture
		Use of additional waste management facilities and land integrated waste management facilities in new developments
		Delivery of new custody suite and police station front counters
		Modernisation and consolidation of estate

**LEGEND**

Map	Infrastructure type	Action	Requirement



Please note that unless otherwise stated the estimated need applies to both the lower and higher growth scenarios

Figure 4-4: Summary Strategic Utilities and Physical Infrastructure Requirement – Higher Growth Scenario

Summary Utilities and Physical Infrastructure Requirements Higher Growth Scenarios

NORTHERN WALTHAM FOREST			
Infrastructure	Demand	Action	Requirement
	0.5 M l/d		
	3,300 kVA 700 m <sup>3</sup> /s		
	0.7 M l/d		

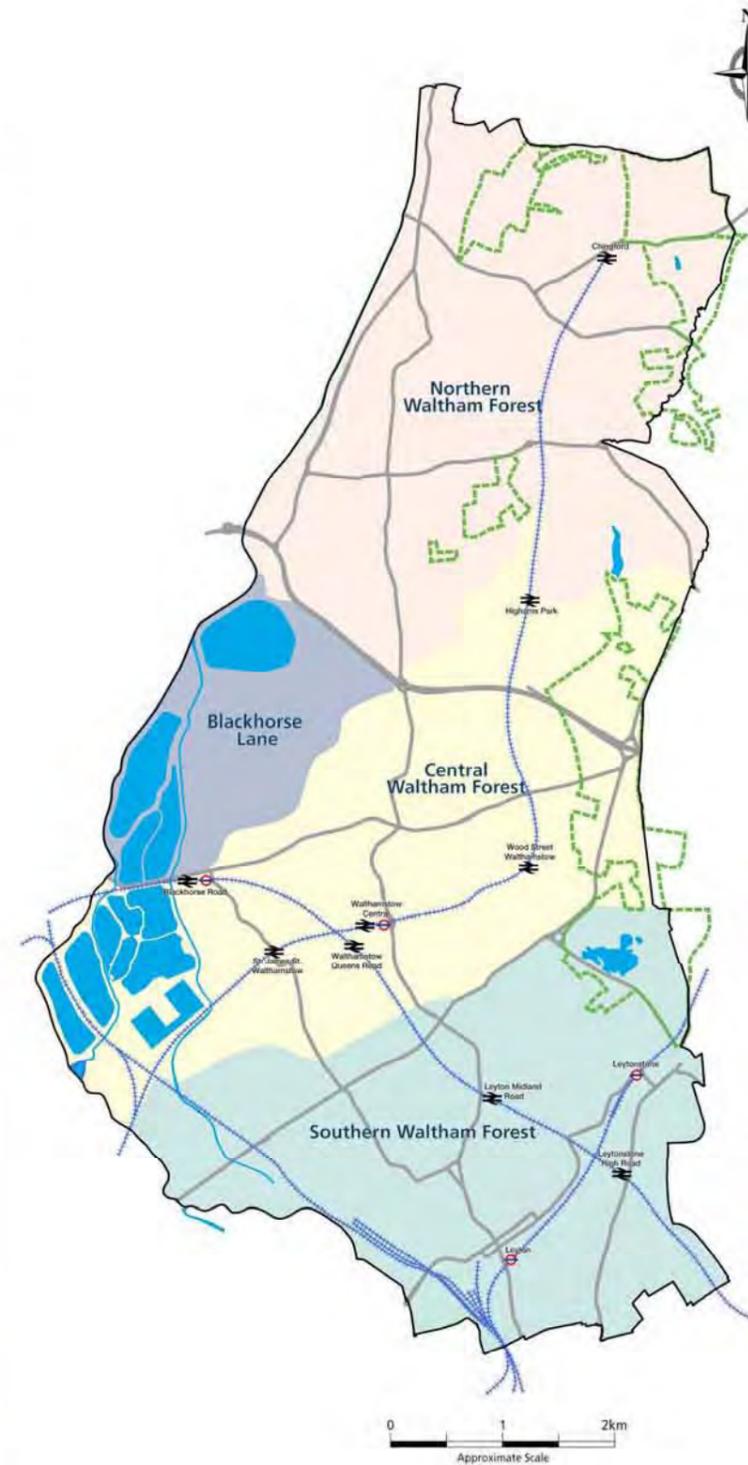
BLACKHORSE LANE			
Infrastructure	Demand	Action	Requirement
	1.3 M l/d		
	4,900 kVA 1,400 m <sup>3</sup> /s		
	1.7 M l/d		
			Inundation mapping and emergency plans in the Lower Lee Valley

CENTRAL WALTHAM FOREST			
Infrastructure	Demand	Action	Requirement
	2.2 M l/d		
	16,000 kVA 6,000 m <sup>3</sup> /s		
	2.3 M l/d		
			New front counter at Walthamstow police station
			Inundation mapping and emergency plan in the Lower Lee Valley

SOUTHERN WALTHAM FOREST			
Infrastructure	Demand	Action	Requirement
	3.6 M l/d		
	16,000 kVA 6,000 m <sup>3</sup> /s		
	4.6 M l/d		
			(Potential) New custody centre at Hainault Road

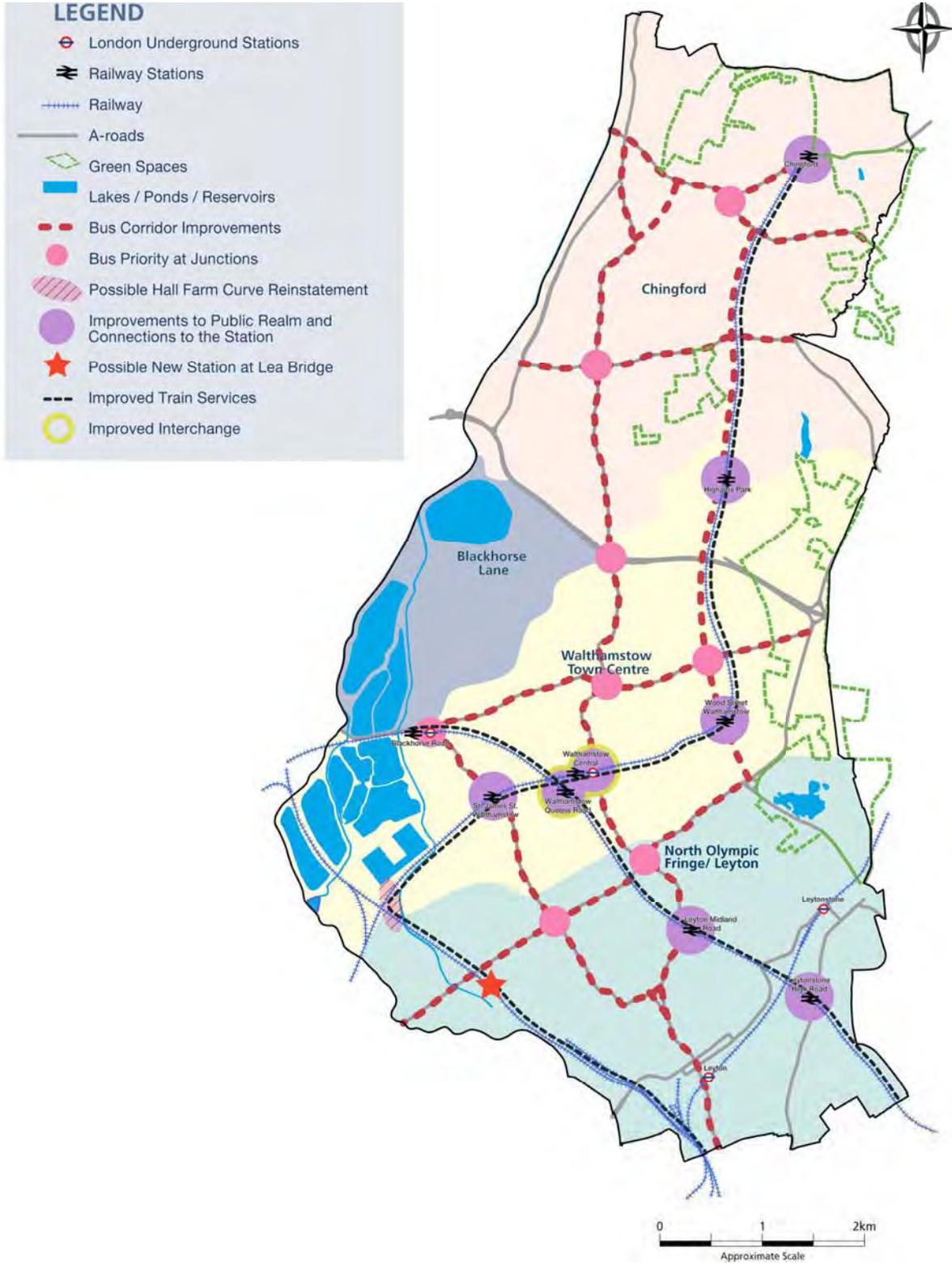
BOROUGH WIDE		
Infrastructure	Action	Requirement
		Lobbying utility providers and regulatory bodies to devise strategic longer term planning approach to provision
		Sewer flooding investigation Preparation of a Surface Water Management Plan
		Maintenance of highway drainage, with replacement of impermeable surfaces with permeable systems.
		Implementation of SUDS and promotion of flood resistant architecture
		Use of additional waste management facilities and land integrated waste management facilities in new developments
		Delivery of new custody suite and police station front counters
		Modernisation and consolidation of estate

LEGEND	
	London Underground Stations
	Railway Stations
	Railway
	A-roads
	Green Spaces
	Lakes / Ponds / Reservoirs
	Further engagement or partnership working requirement
	Further detailed analysis required
	Infrastructure scheme or works required
	Water
	Energy
	Sewage
	Flood risk
	Waste
	Police
	Combined Heat and Power
	Main / Pipe / Cable infrastructure network
	Primary substation
	Secondary substation
	Pumping station



Please note that unless otherwise stated the estimated need applies to both the lower and higher growth scenarios

**Figure 4-5: Summary of Strategic Transport Infrastructure Requirements – Lower and Higher Growth Scenarios**



## 5. NEXT STEPS

A key finding of this study has been that there is a lack of information and strategy formulation on the part of many infrastructure providers. This presents a serious risk to the delivery of sustainable growth and makes the formulation of a robust LDF which reflects future infrastructure requirements challenging. To tackle this problem we recommend presenting this report to GoL and CLG (and potentially other sponsor departments) and holding discussions with these organisations in order to raise awareness of, and seek solutions to, this issue.

### Utilities and Physical Infrastructure

- In light of the difficulties experienced consulting with the water, gas and electricity infrastructure providers we propose that the Council follow up on the channels of communication opened by the URS team and clarify future plans, timeframes, cost implications, delivery risks/opportunities with Thames Water, EDF and National Grid throughout the LDF process
- Waltham Forest should progress its agenda to meet future energy demand through low carbon energy generation, i.e. inter- and cross-borough decentralised energy infrastructure provision. This should be combined with an intent to move to zero carbon energy generation predominantly by the utilisation of Energy from Waste (EfW) opportunities. An examples of this is the option to secure a waste derived fuel supply lot (60,000 tonnes of EfW fuel pellets to be made available each year under three lots from 2014 onwards, i.e. 20,000 tonnes per lot) produced by the North London Waste Authority (NLWA) and their licensed operator.
- Large scale biomass CHP plant operation should be investigated as part of the Area Action Plans being developed by the borough, particularly in the Southern Waltham Forest sub-area where industrial land use is predicted to grow, e.g. the Argall Industrial Estate/Rigg Approach. This provides an opportunity to support the energy centre space requirements and infrastructure distribution, offers a viable customer base for connection, has sustainable transport routes from Edmonton (EfW route) and Epping Forest (biomass route) using the Lea River and existing rail routes respectively, and is a more robust approach to mitigating air quality issues (i.e. it is more economically feasible to implement air quality mitigation plant for large scale schemes).
- Realising the implementation of decentralised energy networks and low carbon fuel solutions will require the establishment of new partnership management arrangements between Waltham Forest, the NLWA and energy suppliers, i.e. determining the feasibility of ESCos and the development of sustainability policies which create an expectation for developers to utilise low carbon fuel sources and to connect to sustainable utilities, where available and feasible.
- In light of the problems over identifying conclusively the infrastructure requirements that are likely to be associated to increasing demand for

telecommunication services in Waltham Forest up to 2026, it is recommended that Waltham Forest Council maintains dialogue with telecommunication providers so as to co-ordinate the use of highway space and the ability to pre-install, if at all possible, duct runs that mitigate the need to re-excavate highway

- The Environment Agency will use its role as a statutory consultee within the planning process to encourage bank naturalisation and increased floodplain storage on the River Lee and its tributaries. The Council can support this process by implementing planning conditions to enforce such measures. This is particularly relevant to the River Ching where substantial development is likely to occur in the Highams Park area and close to the site of the old Walthamstow Dogs Stadium
- Presently the draft Flood and Water Management Bill is anticipated to be passed as law in 2010. The Bill will to enforce Sustainable Urban Drainage Systems (SUDS) by obliging developers to submit their intentions for managing runoff to a SUDS approval body before they can connect the final discharge to the sewerage undertaker. Under the proposed wording of the Bill the SUDS approval body would be the borough. Any developers not intending to implement SUDS on their sites would have to justify the reasoning behind such a decision. With the boroughs' new power to enforce the introduction of SUDS, it is anticipated that significant reductions could be made in the volume and rate of peak runoff from brownfield developments. The borough should prepare to exercise these powers so it is ready when the new legislation is in place.
- It is anticipated that Thames Water will need to make strategic upgrades to their sewerage network in order to accommodate an increased foul water baseflow corresponding to the growth projections for the borough to 2026. However Thames Water implements such upgrades reactively so it is difficult to foresee the scale of the improvements required. Under the Water Act 1991 Thames Water has the power to pass the cost of such improvements to the developers, either in their entirety and a proportion of the costs. The Council should consult with Thames Water regarding undertaking a study to establish the extent of the strategic improvements required within the borough.
- Thames Water are obliged to create Flood Inundation Maps relating to the Lee Valley reservoirs. Thames Water do not release information regarding flood zones from those reservoirs or strategic asset ownership for security reasons. However the borough should liaise with Thames Water to ensure that such maps have been created or are programmed under the remit of the Flood and Water Management Bill

### **Social Infrastructure**

- The URS assessment for additional education places has been largely consistent with the demand assessment in the Building Schools for the Future plans. However this only applies to the lower growth scenario, which is consistent with the GLA's expectations for growth in the borough. Under the lower growth

scenario the provision of new education spaces is the most significant constraint to growth in the borough. If Waltham Forest is to aspire to a higher rate of growth this must first be supported by BSF plans identifying additional capacity to accommodate the additional demand.

- The borough has an excellent asset in its provision and access to open space. However, the research here found that outdoor sports spaces were underutilised. Qualitative information from the Council indicates that this could be due to a lack of quality, in terms of the space itself and supporting facilities. The Council would benefit from updating their Playing Pitch Strategy (PMP) of 2004, to determine if this is the reason for poor take-up. The results this audit could also help the Council rationalise spaces, if an oversupply is identified, providing opportunities for new social infrastructure as identified in the Strategic Infrastructure Plan. The outdoor space could be used to help meet identified requirements for additional allotment space, cemetery space and children's play space amongst other possibilities.
- The Council would benefit from a comprehensive audit of community and faith facilities to reveal where the pressure is and whether this space is well located to serve demand from new housing development. Qualitative information from the Council indicates that 50% of community meeting spaces are underutilised. The 2009 Waltham Forest Employment Land Review (URS) also found a number of faith meeting spaces are in areas protected by the Council for employment use, suggesting a lack of availability of alternative sites.
- The Draft Open Space Strategy (2009) indicates areas of deficiency in the borough in terms of access to small, local parks. This strategy should propose solutions for these areas before it is finalised.
- Waltham Forest is improving its children's play spaces with a minimum of 22 sites identified for investment with the Playbuilder programme. Given the substantial spatial requirements for new child play space identified in this project to meet the demand from the resident's of new housing, consideration should be given to sites close to major new housing schemes.
- It has proved difficult to obtain all the information we would have liked from the PCT, for example, with little information available regarding the baseline conditions of dental services and secondary healthcare services in the borough. The Council should seek to strengthen working relationships with the PCT to ensure that the health needs of new residents are accounted for in the PCT's plans and strategies.
- At the time of writing the legacy proposals for the 2012 London Olympic and Paralympic Games have not been fully set out. Sports facilities at Eton Manor, the new swimming pools facilities at Stratford, a velodrome and open space at the Olympic Park and changes to the allotment sites will all affect the social infrastructure accessible to residents of Waltham Forest. The prevailing view is that the legacy facilities will be beneficial to neighbouring residents but the

addition of some 20,000 new homes to the Lower Lea Valley area could also place additional demands upon social infrastructure in surrounding areas, including Waltham Forest. The Council may need to review the Strategic Infrastructure Plan recommendations as the proposals for the legacy facilities become clearer.

- The capital costs for construction of the social infrastructure items have been estimated where possible in this report. These are estimates and do not include the price of land acquisition or revenue costs associated with running and maintaining the infrastructure. Business plan(s) will be required to project the whole lifecycle costs of infrastructure items to determine their financial viability before they are approved.
- Opportunities to maximise the benefits of new social infrastructure for existing residents should be explored by the Council by considering linkages to areas of relative deficiency.

### **Transport Infrastructure**

- To implement the measures promoted within this Transport INA to provide a sustainable borough wide transport strategy to support the growth strategies considered, the establishment of the available capacity and passenger demand of the bus services by route corridors should be established through trip length distributions along the transport corridors and the boarding to stages ratio, the establishment of the demand to capacity ratio throughout the trip length and the peak to base ratio of trips by period of day, from which the existing bus trip per head of population per sub-area per time band and user classification may be established.
- Further bus corridor and service route evaluations should be undertaken upon the Chingford Mount Bus Corridor, Markhouse Road Bus Corridor, and Lea Bridge Road Bus Corridor. These will identify measures required to reduce service headway times and increase service frequencies through minimising delays to bus services through traffic congestion and link/junction delays, and also to determine the passenger supply to demand levels along the routes evaluated.
- Waltham Forest continue to support the reinstatement of the Hall Farm Curve on the Chingford to Liverpool Street LOL to provide a direct rail route through the borough to the strategically important interchange hub at Stratford. This new link would serve the key Opportunity Areas of Stratford and the Lower Lea Valley to the south of the borough, and will also provide a reliable and sustainable link between the north and south of the borough with sufficient existing capacity to accommodate growth over the long term duration of this plan. We consider that the provision of this additional service route will provide the mechanism for significant mode transfer from car borne trips originating in the Northern WF sub-area at Chingford, upper Walthamstow and Walthamstow Central and provide the

missing public transport provision within the south-eastern sector of the Southern WF sub-area at Lea Bridge.

### Strategic Infrastructure Plan

The Local Development Framework is a long-term strategy subject to continuous updates as more information and research becomes available. The Social Infrastructure Model supporting the Social INA conclusions has been designed to be used by the Council following the completion of this commission. On an ongoing basis we recommend the following steps are taken to maintain and update the SIP:

- The housing trajectories in the Social Infrastructure Model need to be updated as more information becomes available of housing development rates in the Annual Monitoring Report. The current downturn in the housing market could affect the rate of development proposed in Phase 1, from 2009-2014, and therefore affect the quantum of strategic infrastructure requirements proposed here. A lag in development rates could have repercussions for the next phase, with the Council wishing to make up for underdevelopment in Phase 1. The model should be continuously updated as more information becomes available and can be used to project the impacts of different development scenarios
- The downturn in the housing market will not only affect development rates but will also affect development viabilities with decreasing land values, more expensive finance and lower demand amongst other factors. This is affecting the level of planning obligations that can be negotiated from developers to pay for associated infrastructure. The HCA 'Investment and Planning Obligations: Responding to the downturn' proposes a number of possible solutions, from deferring Section 106 contributions to later stages<sup>10</sup>, having a greater proportion of affordable housing phased in later phases, and securing funds from the HCA to ensure viability. We recommend that the Council ensure that at least those infrastructure items identified in the SIP as priority levels 1 and 2 are not put at risk by reduced levels of planning obligations. These items are either required by law or the new housing will not function without them.
- The assumptions used in the Social Infrastructure Model are based on local standards where possible – such as the minimum of 0.2 hectares of allotment space per 1,000 residents in all sub-areas of Waltham Forest – but uses national standards in the absence of these. Where local standards might become available, for example in the relationship between library floorspace and residents of the borough, these should be updated and used whenever possible
- To ensure a coordinated approach is adopted to take forward these recommendations we propose that a Local Strategic Partnership group is set up dedicated to the forward planning of infrastructure in Waltham Forest

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<sup>10</sup> As is happening at the time of writing at the Blackhorse Lane scheme.

## **Progressing Forward to CIL**

The next steps involve using the strategic infrastructure plan to inform the development of a Community Infrastructure Levy (CIL) for Waltham Forest if the Council chooses to do so. This report provides a sound basis for this task. However guidance is still emerging on CIL and so further consultation with CLG and GoL and consideration of the CIL methodology and associated investment plan is recommended as part of the process of developing a local CIL.

A fundamental element of this work will be establishing the future relationship between CIL and S106 in funding infrastructure. CLG's most recent discussion paper on the CIL (July 2009) states in paragraph 5.11 that; 'CIL is designed to permit more generalised infrastructure conclusions, whereas planning obligations are intended to mitigate the direct specific impacts of a proposed development'.

Key steps involved in establishing a CIL are likely to be:

- Establishing development viability. Possibly including variations in development viability across different market areas in Waltham Forest and across different land use classes
- Establishing the likely total amount of planning gain that can be achieved
- Establishing the non-CIL components of planning gain (eg GLA CIL elements, affordable housing, S106)
- Drawing up a Charging Schedule for Waltham Forest

The CIL guidance is currently in draft form. In consultation with CLG URS is developing its approach to the CIL on projects for Westminster and LB Camden at the time of writing and is ready to apply the knowledge we have developed to Waltham Forest if requested.



## Appendix A

# Assumptions and Caveats to setting the Growth Trajectory



## Developing the Growth Trajectory

Estimating future infrastructure needs depends critically on the establishment of a 'growth trajectory' that forecasts future residential and commercial growth. Accordingly, the first task in the development of the model was to identify the growth trajectory for residential and commercial development up to 2026 in line with London Plan and emerging LB Waltham Forest Local Development Framework. The key aim was to arrive at figures that would confirm the forecast for:

- Residential growth: dwellings and population figures
- Commercial growth: in retail, office and industrial space

In determining the most appropriate housing development trajectories for LB Waltham Forest URS were in constant dialogue with the Environment and Regeneration team at Waltham Forest Council during the early phases of the project. The higher growth scenario is based on emerging Council intelligence but has yet to be tested for viability.

The methods of projecting the likely population growth resulting from the two housing trajectories were again developed in consultation with the Council team, but in this case were proposed by URS based on knowledge of the most reliable methods and information available.

The projections of commercial growth draw upon studies commissioned by Waltham Forest Council that are running concurrently with this study. At the time of writing the research programmes were sufficiently advanced to inform the results of this study. These were the *Waltham Forest Employment Land Review 2009* (URS) and the *Waltham Forest Retail and Leisure Study 2009* (Nathan Litchfield and Partners).

Further explanation of how the residential growth trajectories were derived is explained below. For further information on the commercial growth trajectories see the relevant reports that informed this study.

### **Residential Housing Growth**

The lower growth scenario for LB Waltham Forest is derived from the housing trajectory used by the GLA in their *2008 Round Demographic Projections* of March 2009. This housing trajectory is used for a number of important advantages that it offers:

- It is based on the most up-to-date information published by the GLA which was developed in consultation with Waltham Forest Council. In turn Waltham Forest Council drew upon the housing capacity information from the 2008 Housing Availability Assessment in the borough
- It is consistent with the London Plan timeframe to 2026
- It is close to the current London Plan target of 665 new homes per annum

- It is used to produce a set of ward-level population projections that can inform the assessment of infrastructure requirements in this study

The higher growth scenario was proposed by Council Officers in the Environment and Regeneration Dept working closely with the major development sites in LB Waltham Forest – Blackhorse Lane, the North Olympic Fringe and Walthamstow Town Centre. The higher growth housing trajectory is based upon the current stage of planning the masterplans and area action plans for those areas.

### **Residential Population Growth**

Projecting population growth is essential to this analysis, as it is the major determinant of the likely future demand for different types of infrastructure. URS' approach to estimating residential population growth follows a number of stages:

- Analysis of the population projections by ward in LB Waltham Forest as provided by the Greater London Authority
- Adapting these population projections by removing the growth derived from new housing. The results in a projection of population and demographic change based on the current housing stock only
- Adding in the different housing growth trajectories to derive a new population forecast. The housing trajectories are disaggregated to sub-area level.
- To determine the population from new housing the following steps/datasets are used:
  - The *Wandsworth New Housing Surveys* of 2004 and 2008 are used to determine the likely housing occupancy rates<sup>11</sup> of new development
  - The tenure mix (the proportion of new housing for sale on the one market, social rent or shared ownership) as determined by Council policy - The Waltham Forest Housing Strategy of 2009 suggests a 50:50 split of new development between open market and affordable housing . Within affordable housing the strategy suggests a 60:40 split between social and shared ownership housing
  - The size mix of the new housing. The Waltham Forest Housing Strategy of 2009 suggests 10% of new open market and shared ownership development to be of 1 bed units, 40% 2 bed, 40% 3 bed and 10% 4+

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<sup>11</sup> This was used in the absence of more local housing survey data, which could become available for use in the Model in the future. The issue of new housing becoming occupied by households currently resident in Waltham Forest – sometimes referred to as 'hidden households' – was raised by the Council. A factor could be introduced to discount the new population gain to account for the movement of 'hidden households' from within the borough but on reflection the lack of information available on this phenomenon rendered its consideration impractical.

bed. The rates change slightly for social rented accommodation to 10% 1 bed, 30% 2 bed, 50% 3 bed and 10% 4+ bed

- The new population is assigned to sub-area in proportion to the quantum of new housing projected for that area
- These factors drive the population projections of the model. The model has been designed so that the factors can be amended at any stage.

The lower scenario of growth uses the same housing development trajectory as the GLA used to inform the *2008 Round Demographic Projections* of March 2009. However the GLA do not provide the full workings of how they derive population from this new housing trajectory. An important step in the process of developing the model is to check the results of our population projections using the assumptions above with the GLA's results. For LB Waltham Forest, 2009-2026, the two approaches result in:

- GLA model +26,359 people
- URS model +32,233 people (or +22.3%)

However, it should be noted that a number of the assumptions made in deriving the population in the URS model are aspirational. Historically the size mix of new housing development is for lower unit sizes than the Council would like to see built in the LDF planning period. If we take the average size of new housing development actually built in the London<sup>12</sup> in 2006/07 – data likely to be closer to that used by the GLA in their modelling than the aspirational target set by Waltham Forest Council – then the results are much closer:

- GLA model +26,359 people
- URS model +27,355 people (or +3.8%)

This shows that using the housing occupancy rates of the *Wandsworth New Housing Surveys* of 2004 and 2008 in the URS model gives very similar results to those obtained by the GLA in their demographic projections for the borough. This provides a degree of confidence in the URS modelling results. It also reveals some points of interest for the Council:

The aspirational size mix of new housing development in the borough will have to be quite different from that typically seen in London in recent years. **Table A-1** shows the difference between LB Waltham Forest's target as determined in the 2009 Housing Strategy and that monitored by the London Plan for London in 2006/07.

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<sup>12</sup> From the London Plan Annual Monitoring Report 4 (2008)

**Table A-1 Size Mixes of New Housing Development in London Historically and the Target for LB Waltham Forest**

	Open Market Housing				Social Rented Housing				Shared Ownership Housing			
	1	2	3	4+	1	2	3	4+	1	2	3	4+
WF Council Housing Strategy	10%	40%	40%	10%	10%	30%	50%	10%	10%	40%	40%	10%
London 2006/07	36%	51%	9%	4%	30%	46%	17%	8%	46%	46%	7%	1%

*Source: Waltham Forest 2009 Housing Strategy, London Plan Annual Monitoring Report 4 (2008)*

If historic housing development in LB Waltham Forest is similar to that for London in general, **Table A-1** shows that the Council's planning team will need to encourage change with a much greater emphasis on the construction of larger units. The *London Plan Annual Monitoring Report 4 (2008)* also shows that in 2006/07 73% of new housing development was for sale on the open market in LB Waltham Forest. This compares to the target of 50% for new development from 2009 to 2026. Change is likely to be achieved by publishing these targets in the adopted Core Strategy and the subsequent enforcement of this policy.

## Appendix B

# Approach to the The Waltham Forest Strategic Infrastructure Model



### Waltham Forest Infrastructure Model - Overview

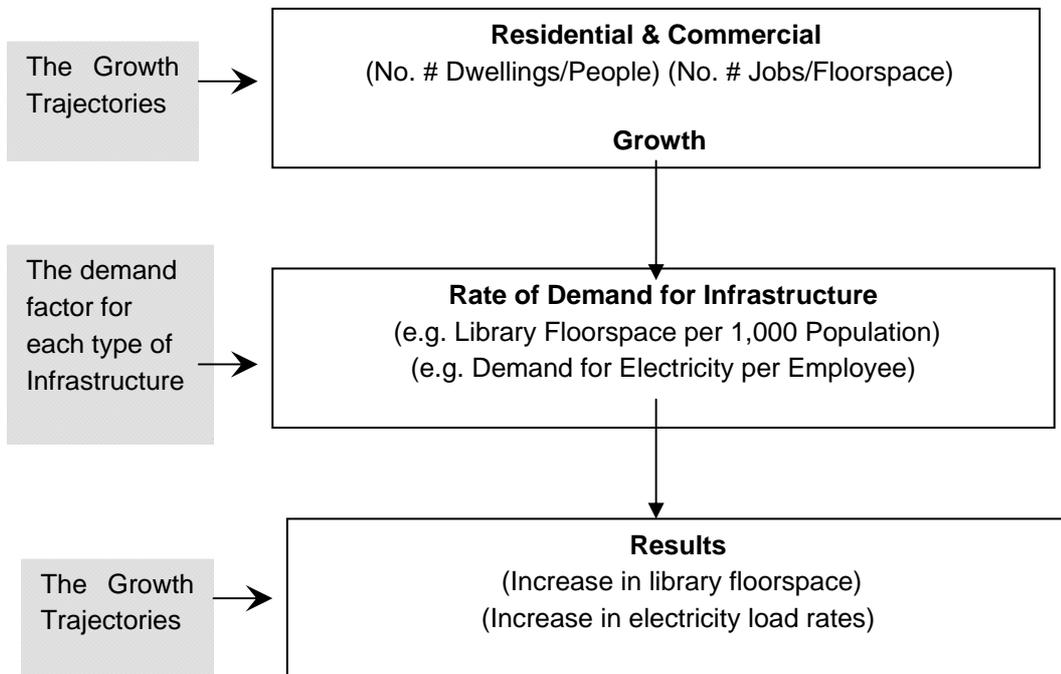
URS have produced a bespoke Waltham Forest Infrastructure Model that is central to the approach taken to assess the infrastructure requirements arising from development. In the simplest terms, the model takes population and jobs growth forecasts, and uses these in combination with various demand factors, to arrive at a set of forecasts of new demand for services, and in some cases infrastructure, that will arise from that growth.

It is possible to explain this using a very simple example:

- If there was a situation where residential growth meant that there was to be 1,000 new dwellings and
- It is known (or assumed) that for every new dwelling there are on average 1.5 people in the household and
- It is known (or assumed) that for every 1,000 people there is a need for 28 sqm of a sports hall
- Then this would mean that we can multiply the growth in population (1,500 new people) by the requirement for a new sports hall to arrive at an estimate of total demand for new sports hall floorspace
- Which would be 42 sqm.

The above example is a very simplified example, but it demonstrates the core of the approach that is adopted within the model. A defining characteristic of the approach that we have developed is that it is designed to adapt, in as simplest way as is possible for a given type of infrastructure, to the different methods of analysis that are appropriate for the range types of infrastructure that the study is examining. This common approach is set out in **Figure B-1**.

**Figure B-1: Standard Approach to Demand and Infrastructure Forecasting used in the Waltham Forest Infrastructure Model**



**Applying the Model to Different Types of Infrastructure**

As alluded to above, the Waltham Forest Infrastructure Model attempts to use a common approach, as illustrated in **Figure B-1**, and to apply that approach to each type of infrastructure. There are however some differences in the way the approach can be applied and the results which it can yield because of the diverse nature of the different types of infrastructure which this study has considered.

With respect to the types of social infrastructure considered in this report, the model sets out the demand arising from growth for various services (e.g. for education, for medical care, etc) over the period from 2009 to 2026. The model subsequently, wherever possible, then translates this demand for a service or amenity into a requirement for infrastructure (e.g. forms of entry or medical centres) and provides an assessment of a likely commensurate cost. The model is therefore crucial in facilitating an assessment of the infrastructure provision required for growth, while this report explains the findings and the results<sup>13</sup>.

With respect to utilities and physical infrastructure the model is limited to estimating the additional demand for utilities (specifically water, sewage, gas and electricity) generated

<sup>13</sup> See the *Social Infrastructure Needs Assessment Report* for further detail.

by the projected residential and commercial development. However, utilities networks are quite often very complex systems, and it is not possible to simply translate forecast increases in demand for electricity, gas or water into a straightforward recommendation on a resulting infrastructure requirement. This is especially so at the strategic level where the cumulative impact of development across a much wider area than just LB Waltham Forest may play a key role in determining the investment in infrastructure that is needed locally to cope with growth. As such, the information generated by the model for utilities is used to help provide a context for an the utilities infrastructure needs assessment and the discussions that have been held with various utilities network providers on the likely or potential requirement for new or upgraded infrastructure<sup>14</sup>.

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<sup>14</sup> See the *Utilities and Physical Infrastructure Needs Assessment* for further detail.



## **Appendix C**

# **Strategic Planning for Infrastructure by Responsible Agencies and Authorities**



**Table C-1: Strategic Planning for Infrastructure**

Infra-structure Item	Infrastructure Provider/ Responsible Agency	Relevant Strategic Planning Process/Documents		Consistency of Strategic Planning Process /Document to PPS12 Guidance
		Timeframe	Geographical Coverage	
Early Years Primary Education	LBWF	Primary Capital Programme -Primary Strategy for Change (2009) Extends to 2013/14 Covers the Waltham Forest area.		Sets out the current and future needs for early years and primary education in Waltham Forest.  Identifies future needs up to 2013/14.  As the document identifies future needs arising from projected growth up to 2013/14 only, it is useful for projections in the short-term, and for the lower growth scenario only, but not for the long-term as per the requirements of PPS12.
Secondary Education and Further Education	LBWF	Building Schools for the Future – Strategy for Change (2008) Extends to 2018/19 Covers the Waltham Forest area.		Contains information on the current and future needs for secondary and full-time further education in Waltham Forest.  Identifies future needs up to 2018/19  As the document identifies future needs arising from projected growth up to 2018/19 only, it is useful for projections in the medium-term, and for the lower growth scenario only, but not for the long-term as per the requirements of PPS12.
Adult Learning	Learning and Skills Council	LSC London Strategic Analysis (2007) Extends over one year Covers the Greater London area.  The London LSC Building Colleges for the Future has not been made available for review Extends over one year Covers the Greater London area.		No detailed information is available at the Waltham Forest level on current or planned demand and supply for AL facilities.  Consistent with the lower growth scenario only  Therefore the available information is not in a format that readily lends itself to translation into this study and the requirements of PPS12.

Infra-structure Item	Infrastructure Provider/ Responsible Agency	Relevant Strategic Planning Process/Documents	
		Timeframe	Geographical Coverage
			Consistency of Strategic Planning Process /Document to PPS12 Guidance
Primary Healthcare	Waltham Forest PCT	<p>Waltham Forest PCT's Commissioning Strategy Plan 2007-2012</p> <p>Waltham Forest PCT Estates Primary Estates Strategy (2009)</p> <p>Extends over five years</p> <p>Covers the Waltham Forest area.</p>	<p>Plans extend up to 2014.</p> <p>Consistent with the lower growth scenario only</p> <p>Therefore the strategies are not in a format that readily lend themselves to translation into this study and the requirements of PPS12.</p>
Secondary Healthcare	<p>London Strategic Health Authority</p> <p>(Waltham Forest PCT)</p>	<p>NHS London Strategic Plan (2008)</p> <p>Extends over five years</p> <p>Covers the Greater London area.</p> <p>Waltham Forest PCT's Commissioning Strategy Plan 2007-2012</p> <p>Extends over five years</p> <p>Covers the Waltham Forest area.</p>	<p>Neither plan goes beyond 2013.</p> <p>The Waltham Forest PCT Commissioning Strategy 2007-2012 considers the implications of growth for secondary healthcare up to 2012, but does not translate it into physical infrastructure requirements.</p> <p>Consistent with the lower growth scenario only</p> <p>Therefore the documents are not in formats that readily lend themselves to translation into this study and the requirements of PPS12.</p>
Indoor and Outdoor Sports Facilities	LBWF (City of London also controls some	<p>Waltham Forest Sports and Leisure Report: Assessment of Need and Options Appraisal (Second Interim Draft, 2009)</p>	<p>Demand projections in the Sports and Leisure Report go to 2016.</p> <p>Consistent with the lower growth scenario only</p>
Parks and Open Space	leisure and open space facilities in Waltham Forest)	<p>Draft Waltham Forest Open Space Strategy (2008)</p> <p>Covers the Waltham Forest area</p>	<p>Therefore the documents are not in formats that readily lend themselves to translation into this study and the requirements of PPS12.</p>
Libraries	LBWF	No strategic plan for libraries currently exists.	Not applicable.
Job Brokerage	LBWF DWP	No strategic plan for job brokerage currently exists.	Not applicable.

Infra-structure Item	Infrastructure Provider/ Responsible Agency	Relevant Strategic Planning Process/Documents		
		Timeframe	Geographical Coverage	
			Consistency of Strategic Planning Process /Document to PPS12 Guidance	
Community and Faith Facilities	LBWF Variety of voluntary and community sector providers	No strategic plan for community or faith facilities currently exists.		Not applicable.
Burials	LBWF	No strategic plan for burials exists.		Not applicable.
Transport	Transport for London Network Rail LBWF	Network Rail Strategic Business Plan (2007) TfL Business Plan 2009/10 – 2017/18 The Mayor's Transport Strategy (amended in 2004) Way to Go! (Mayor's Transport Vision, 2008) The Mayor's Transport Strategy Statement of Intent (May, 2009) Waltham Forest Local Implementation Plan (2008) East London Green Grid (2008) Lea Valley Regional Park Plan (2000)	The suite of strategic documents prepared at the national, Greater London and Waltham Forest level is generally adequate to assess the implication of additional demand for transport infrastructure arising from projected growth up to 2026.  However, there is a multiplicity of timescales and forward planning timeframes in all of the plans and strategies.  Therefore the documents are not entirely in a format that readily lends itself to translation into this study and the requirements of PPS12.	
Electricity	EDF	No strategic plan for electricity infrastructure is publicly available.  No Waltham Forest specific plan exists or is publicly available.		Not available and not complementary to PPS12 guidance.
Gas	National Grid	No strategic plan for gas infrastructure is publicly available.  No Waltham Forest specific plan exists or is publicly available.		Not available and not complementary to PPS12 guidance.

Infra-structure Item	Infrastructure Provider/ Responsible Agency	Relevant Strategic Planning Process/Documents	
		Timeframe	Geographical Coverage
Consistency of Strategic Planning Process /Document to PPS12 Guidance			
Sustainable Energy	ESCo (PFI or PPP) LDA LBWF	<p>Planning Policy Statement: Planning and Climate Change, Supplement to Planning Policy 1 (2007)</p> <p>Does not have a delimited timeframe Is nation-wide</p> <p>The Mayor's Climate Change Action Plan (2007)</p> <p>Extends up to 2050 but impacts on the LBWF 'Core Strategy' up to 2026.</p> <p>Covers the Greater London and Waltham Forest areas.</p>	<p>The documents cited are policy documents rather than strategies or plans.</p> <p>National strategic planning process has been adequate in driving the development of LDF's to take account for adapting to, and mitigating for climate change.</p> <p>Regional strategic planning process is adequate in driving uptake of sustainable energy infrastructure by creating expectations on developers and LPAs to meet a vision for London. LDF lifetime is suitable (up to 2026) as this ties in with regional strategic matters, i.e. 25% of energy to be supplied from decentralised energy systems by 2025.</p> <p>Therefore the documents are not in formats that readily lend themselves to translation into this study and the requirements of PPS12.</p>
Water	Thames Water	<p>Draft Water Resources Management Plan, 2010-2035 (2008)</p> <p>Extends over 25 years</p> <p>Covers the entire Thames Water region area.</p> <p>No Waltham Forest specific plan exists or is publicly available.</p>	<p>The plan extends over 25 years, beyond the LDF planning period.</p> <p>However the plan does not provide detailed information on baseline or future demand or supply at the Waltham Forest level.</p> <p>Therefore the document is not in a format that readily lends itself to translation into this study and the requirements of PPS12.</p>

Infra-structure Item	Infrastructure Provider/ Responsible Agency	Relevant Strategic Planning Process/Documents		
		Timeframe	Geographical Coverage	
				Consistency of Strategic Planning Process /Document to PPS12 Guidance
Sewerage	Thames Water	Five Year Plan from 2010 to 2015 (2008)		The plans extend over five and 25 years respectively.  However, neither plan provides detailed baseline or future demand or supply at the Waltham Forest level.  Therefore the documents are not in a format that readily lends itself to translation into this study and the requirements of PPS12.
		Extends over 5 years  Covers the entire Thames Water region area.  Taking Care of Water: The next 25 Years, 2010/2035 (2008)  Extends over 25 years  Covers the entire Thames Water region area.  No Waltham Forest specific plan exists or is publicly available.		
Flood Risk	Environment Agency	North London Strategic Flood Risk Assessment (2008)		Main flood risk to Waltham Forest is from sewer flooding.  SFRA was written without knowledge of specific flooding locations within the borough. This information is recorded on Thames Waters Sewer Flooding History Database.  Therefore the North London SFRA is not detailed enough (with respect to Thames Water assets within the borough) to assess sewer network improvements required to address flood risk arising from projected growth up to 2026.
	LBWF  Thames Water	Extends beyond 2026  Covers the entire North London sub-region area.		

Infra-structure Item	Infrastructure Provider/ Responsible Agency	Relevant Strategic Planning Process/Documents		Consistency of Strategic Planning Process /Document to PPS12 Guidance
		Timeframe	Geographical Coverage	
Waste	LBWF (waste collection)	North London Waste Plan, Issues and Options Report (2008)		<p>Explores the options and strategy to manage municipal solid waste across the north London sub-region up to 2020.</p> <p>The North London Waste Plan (NLWP) will provide a planning framework to identify sites suitable for waste facilities and will aim to ensure that the benefits are maximised and the negative aspects minimised. The Plan will be part of each borough's Local Development Framework and drawn up in conformity with national planning policy and the Mayor of London's planning strategy.</p> <p>As the NLWP has not been finalised, and it extends up to 2020 rather than 2026, it is not fully adequate to plan for demand arising from projected growth up to 2026.</p>
	NLWA (waste disposal)	<p>Extends up to 2020</p> <p>Covers the entire NLWA area</p> <p>North London Joint Waste Strategy (2008)</p> <p>Extends over 5 years</p> <p>Covers the entire NLWA area</p>		
Police	Metropolitan Police	Asset Management Plan Waltham Forest (2007)		<p>The plans extend over five years.</p> <p>The Asset Management Plan does specify individual projects/programmes for improvement.</p> <p>Neither document explicitly considers the projected level of commercial and residential growth in Waltham Forest.</p> <p>Therefore the documents are not entirely in formats that readily lend themselves to translation into this study and the requirements of PPS12 – although it should be noted that infrastructure needs are not clearly related to development growth.</p>
	Metropolitan Police Authority	<p>Extends over 5 years</p> <p>Covers the Waltham Forest area</p> <p>Property for Policing (2007)</p> <p>Extends over 5 years</p> <p>Covers the Greater London area</p>		

Infra-structure Item	Infrastructure Provider/ Responsible Agency	Relevant Strategic Planning Process/Documents		Consistency of Strategic Planning Process /Document to PPS12 Guidance
		Timeframe	Geographical Coverage	
Fire	London Fire Brigade  London Fire and Emergency Planning Authority	Draft Asset Management Plan (Property) (2008)  Extends over 5 years  Covers the Greater London area		<p>The plan extends over five years.</p> <p>Whilst covering the entire Greater London area, it provides detailed information on the individual facilities within each of the London boroughs.</p> <p>It does not explicitly consider the projected level of commercial and residential growth in Waltham Forest.</p> <p>The short time horizon considered by the plan means that the document is not fully adequate to assess the implication of additional demand for fire infrastructure arising from projected growth up to 2026 – although it should be noted that infrastructure needs are not clearly related to development growth.</p>
Ambulance	London Ambulance Services NHS Trust	Strategic Plan 2006/07-2012/13 (2007)  Extends over 5 years  Covers the Greater London area		<p>The plan extends over five years.</p> <p>The document is strategic in nature and does not set out specific facility requirements for ambulance services in Camden.</p> <p>It does not explicitly consider the projected level of commercial and residential growth in Waltham Forest.</p> <p>Therefore the document is not fully adequate to assess the implication of additional demand for ambulance infrastructure arising from projected growth up to 2026 – although it should be noted that infrastructure needs are not clearly related to development growth.</p>



## Appendix D

# Waltham Forest Strategic Infrastructure Plan – Infrastructure Requirement Tables



## Strategic Infrastructure Plan – Infrastructure Requirement Tables

### Introduction

The section pulls together the outcomes of the infrastructure assessment into a strategic infrastructure plan. Findings are presented through a matrix with accompanying text, and recommendations are laid out for Waltham Forest Council in moving forward as it takes the strategic infrastructure plan forward within its LDF process and to potentially to develop the CIL.

### Development of the Strategy Infrastructure Plan

This Strategic Infrastructure Plan (SIP) and associated recommendations should sit alongside other research papers that constitute the evidence base in support of Waltham Forest Council's LDF and more specifically it's Core Strategy Development Plan Document (DPD). The SIP is structured around 'what', 'when', 'where', 'how', and 'how much' required infrastructure is needed to support the level of anticipated housing, employment and development growth forecasted in LB Waltham Forest. These LDF requirements are set out in Planning Policy Statement (PPS) 12 - Local Spatial Planning (2008). The requirement for sound infrastructure planning as part of the formation and review of LDFs is further explored and discussed as part of the CLG's fifth thematic study prepared for their Spatial Plans in Practice series<sup>15</sup>. Both sets of guidance notes have informed the basis of the SIP.

PPS12 also states that adequate and timely infrastructure provision is fundamental to the creation of sustainable communities. In recent years this principle has become central in all policy arenas and it now shapes strategy at all spatial levels. PPS12 places the need for infrastructure planning at the heart of the planning process. It states that the Core Strategy DPD should be supported by evidence of physical and social infrastructure requirements including the type, distribution, timing and responsibilities for delivery of this infrastructure. It sets out the key components of good infrastructure planning, and advocates discussions with key local partners to establish priorities.

### Strategic Infrastructure Plan Explanatory Text

Recommended infrastructure schemes, actions and priorities are summarised in tables **D-1**, **D-2** and **D-3** in **Appendix D**. The list below explains the headings set out in the table.

- **Infrastructure areas** are grouped by infrastructure type as set out in the study: social, transport and utilities and physical infrastructure.
- **Infrastructure schemes and actions** include the current, forthcoming or recommended infrastructure or actions required in LB Waltham Forest or by the Council over the plan period. These include both schemes and actions aiming to support forecast development growth as well as that needed to alleviate existing shortfalls or gaps. Schemes include those already proposed by third parties, schemes that are underway as well as those new ones that are recommended by the consultants.

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<sup>15</sup> CLG, *Infrastructure Delivery. Spatial Plans in Practice: Supporting the reform of local planning*, (2008)

- **Recommended level of priority (1-4)** specifies to the Council how critical the consultants consider the infrastructure item is to ensuring delivery of development in the borough including that which rectifies current infrastructure deficiencies. Items labelled as '1' are required for basic functionality of new development. Development is unable to physically happen without these items. Items labelled '2' are those that Council has, or is likely to have, a legislative duty to provide for. Items labelled as '3' are critical for sustainable development and items labelled '4' are very important for sustainable development.
- **Rationale for inclusion/risk if not included** clearly states the key reason the infrastructure item is included in the plan highlighting where necessary the risk if it is not delivered over the plan period.
- **Drivers** reflect the key rationale for the required infrastructure items including:
  - Identifies where the infrastructure item will respond to policy requirements – this is particularly relevant to are primarily related to infrastructure items such as sustainable energy infrastructure initiatives that are not necessarily 'demanded' as such, rather they stem from EU and UK Government directives
  - Identifies where the infrastructure requirement will alleviate existing gaps or provide for the replacement of existing infrastructure
  - Identifies where the infrastructure requirement responds to greater demand placed upon the infrastructure derived from forecast growth.
- **Phasing** sets out the recommended timeframe for the delivery of the recommended scheme or action. Our timeframes cover the short (2009-2014) medium (2014-2019) and long term (2019-2026) periods. Where the information is available on committed schemes, exact delivery dates have been specified.
- **Location** presents information on where should the infrastructure item be delivered. Where infrastructure requirements are location specific they have been identified. In many cases infrastructure recommendations and actions are borough wide, e.g. the implementation of Sustainable Urban Drainage Systems (SUDS) and promotion of flood resistant architecture.
- **Responsibility and funding** identifies:
  - The **responsible delivery agency, Governmental department or organisation** responsible for delivery of the infrastructure item. In some cases, for example for the delivery of utilities schemes, the regulator will also have a key role to play as both an authority and supervisor
  - The **responsible funding agency** - This lists the likely public sector department or agency tasked with funding the infrastructure item. In some cases the item will be delivered through a range of funding sources including private developers in the form of planning gain contributions.
  - **The role of LBWF as the LPA** setting out the role that Waltham Forest Council is likely to play, which for example could entail adopting enabling planning policies, lobbying, facilitating the process or granting planning permission.
- **Costs** illustrate:
  - **Costs identified by the provider** where the infrastructure has been costed in the providers' plans, as ascertained through this study
  - **Costs identified by URS/HUDU model** for infrastructure items that could be meaningfully quantified, such as social infrastructure items, to which URS has applied indicative costings.

- **Current delivery arrangements** states clearly whether the infrastructure requirement identified by the consultants' team:
  - **Has been noted by the provider** (even at a strategic level)
  - **Has been specifically planned for** in the provider's documents
  - **Has funding is in place** for its delivery.



STRATEGIC INFRASTRUCTURE REQUIREMENT TABLES

Table D-1: Summary List of Social Infrastructure Requirements to 2026 – Lower Growth Scenario

Shaded cells indicates Council commitment

Infrastructure Area	Infrastructure schemes and actions	Priority (1-4)	Rationale for inclusion	Drivers			Phasing	Location	Responsibility and Funding			Indicative Costs	Notes
				Policy	Existing gap/ replacement/ upgrade	Forecast demand for development			When should the infrastructure items be delivered by?	Where should the infrastructure item be delivered?	Responsible Delivery Agency		
Early Years	Creation of 4 additional children's centres	2	To cater for existing and new demand up to 2010+	✓	✓	✓	By 2010 (completed)	Remaining wards without a children's centre	Waltham Forest Council	Sure Start	Planning and coordination.	-	Provision is already being made as part of the pre-existing plans - Primary Strategy for Change
Primary Schools	Expansion of provision (9 FoE)	2	To cater for existing and new demand to 2012	✓	✓	✓	Delivery by 2010-2012	2 FoE at Edinburgh primary school, 1 FoE each at Willow Brook, Cann Hall, and Beaumont and Saint Saviour's primary schools. 3 FoE not yet identified	Waltham Forest Council, private sector/voluntary/charitable providers	Funded through Primary Capital Programme, voluntary-aided sector, housing developer contributions	Planning and coordination in securing funds. Monitoring rate of new housing development to determine scale of infrastructure requirements.	-	See Primary Strategy for Change for further information
Primary Schools	Additional 4.9 FoE	2	To serve additional demand from new population			✓	2009-2014 Where new housing is planned - particularly Southern WF and Central WF sub areas	Waltham Forest Council	Waltham Forest Council, private sector/voluntary/charitable providers	Funded through Primary Capital Programme, voluntary-aided sector, Growth Area funding, housing developer contributions	Planning and coordination in securing funds. Monitoring rate of new housing development to determine scale of infrastructure requirements.	£14.4M	This is in addition to the total of 9 FoEs planned by the Council by 2012. The deficiency in current plans is acknowledged by the Council (at least in respect of the lower growth scenario)
Primary Schools	Additional 13.5 FoE		To serve additional demand from new population			✓	2014-2019 Where new housing is planned - particularly Southern WF and Central WF sub areas	Waltham Forest Council	Waltham Forest Council, private sector/voluntary/charitable providers	Funded through Primary Capital Programme, voluntary-aided sector, Growth Area funding, housing developer contributions	Planning and coordination in securing funds. Monitoring rate of new housing development to determine scale of infrastructure requirements.	£39.8M	

Shaded cells indicates Council commitment

Infrastructure Area	Infrastructure schemes and actions	Priority (1-4)	Rationale for inclusion	Drivers			Phasing  When should the infrastructure items be delivered by?	Location  Where should the infrastructure item be delivered?	Responsibility and Funding			Indicative Costs  Identified by URS / HUDU model	Notes
				Policy	Existing gap/ replacement/ upgrade	Forecast demand for development			Responsible Delivery Agency	Funding Arrangements	Role and responsibility of LBWF as the LPA		
Primary Schools	Additional 0.4 FoE	2	To serve additional demand from new population			✓	2019-2026 Where new housing is planned - particularly Southern WF and Central WF sub areas	Waltham Forest Council	Waltham Forest Council, private sector/voluntary/charitable providers	Funded through Primary Capital Programme, voluntary-aided sector, Growth Area funding, housing developer contributions	Planning and coordination in securing funds. Monitoring rate of new housing development to determine scale of infrastructure requirements.	£1.2M	
Secondary Schools	Expansion of provision in existing schools (6 FoE)	2	Proposed in BSF Business Plan – to cater for existing and future need to 2018	✓	✓	✓	By 2014	1 FoE each at Higham's Park and Leytonstone and 2 FoE each at Willowfield and Kelmscott secondary Schools	Waltham Forest Council, private sector/voluntary/charitable providers		Coordinate and plan provision via BSF programme		All BSF funded investments have been proposed and agreed in the BSF Outline Business Case.
Secondary Schools	New school (8 FoE)	2	Proposed in BSF Business Plan – to cater for existing and future need to 2018	✓	✓	✓	By 2018	TBC	Waltham Forest Council, private sector/voluntary/charitable providers		Coordinate and plan provision via BSF programme		All BSF funded investments have been proposed and agreed in the BSF Outline Business Case.
Secondary Schools	Additional 1.6 FoE	2	To serve additional demand from new population			✓	2014-2019	Location can be more strategic and not necessarily close to the new housing that is driving demand. Interesting to note that the majority of demand is from the Southern WF and Central WF sub areas	Waltham Forest Council, private sector/voluntary/charitable providers	Funded through BSF programme, voluntary-aided sector, Growth Area funding, housing developer contributions	Coordinate and plan provision via BSF programme	£11.0M	This is in addition to the total of 14 FoEs planned by the Council by 2018. The deficiency in current plans is acknowledged by the Council (at least in respect of the lower growth scenario)
Further Education	Extended capacity by 830 places at secondary schools for FE	2	To serve additional demand from existing and new population	✓		✓	2009-2019	At secondary schools across the borough	Transferring to LB Waltham Forest on 1 <sup>st</sup> April 2010 (in liaison with neighbouring LAs)	Funded through BSF programme, voluntary-aided sector, Growth Area funding, housing developer contributions	Liaise with neighbouring boroughs; Monitoring rate of new housing development to determine scale of infrastructure requirements.		

Shaded cells indicates Council commitment

Infrastructure Area	Infrastructure schemes and actions	Priority (1-4)	Rationale for inclusion	Drivers			Phasing When should the infrastructure items be delivered by?	Location Where should the infrastructure item be delivered?	Responsibility and Funding			Indicative Costs Identified by URS / HUDU model	Notes
				Policy	Existing gap/ replacement/ upgrade	Forecast demand for development			Responsible Delivery Agency	Funding Arrangements	Role and responsibility of LBWF as the LPA		
Further Education	Estimated provision requirement to meet demand for 0-100 additional places (provision not necessarily required in Waltham Forest)	2	To serve additional demand from new population	✓	✓	✓	2016 – 2026	At secondary schools across the borough	Transferring to LB Waltham Forest on 1 <sup>st</sup> April 2010 (in liaison with neighbouring LAs)	Funded through BSF programme, voluntary-aided sector, Growth Area funding, housing developer contributions	Liaise with neighbouring boroughs; Monitoring rate of new housing development to determine scale of infrastructure requirements.	£0 - £250K	
Primary Health Care	Development of consolidated surgeries	3	Being undertaken as part of ongoing PCT strategy to enhance provision and improve efficiency including the introduction of a polyclinic system	✓	✓			Consolidated surgeries being planned for at St. James Street, Tallack Road, Higham Hill, and Handsworth Avenue	Waltham Forest PCT	Central Government			
Primary Health Care	Creation of new polyclinics	3	Being undertaken as part of ongoing PCT strategy to enhance service provision and accessibility	✓	✓	✓	TBC (Oliver Road - polyclinic already completed)	6 broad locations identified – 2 in Chingford, 1 in Central WF: 3 in Southern WF	Waltham Forest PCT	Central Government		NA	
Primary Health Care	Additional 1 GP practices	3	To serve additional demand from new population			✓	2014-19	1 practice in Central WF	Waltham Forest PCT	Central Government, Growth Area funding, housing developer contributions	Planning and coordination in securing funds. Monitoring rate of new housing development to determine scale of infrastructure requirements	£1.9M	NHS Waltham Forest's Polyclinic programme will meet / provide for existing demand, and this may provide for some newly arising demand.  This could therefore possibly ease pressure on existing GPs and reduce the requirements noted for new GP practices to cater for additional demand

Shaded cells indicates Council commitment

Infrastructure Area	Infrastructure schemes and actions	Priority (1-4)	Rationale for inclusion	Drivers			Phasing When should the infrastructure items be delivered by?	Location Where should the infrastructure item be delivered?	Responsibility and Funding			Indicative Costs Identified by URS / HUDU model	Notes
				Policy	Existing gap/ replacement/ upgrade	Forecast demand for development			Responsible Delivery Agency	Funding Arrangements	Role and responsibility of LBWF as the LPA		
Primary Health Care	Additional 3 GP practices	3	To serve additional demand from new population		✓		2019-2026	1 practice in Central WF, 2 in the Southern WF sub-area	Waltham Forest PCT	Central Government, Growth Area funding, housing developer contributions	Planning and coordination in securing funds. Monitoring rate of new housing development to determine scale of infrastructure requirements	£1.9M	NHS Waltham Forest's Polyclinic programme will meet / provide for existing demand, and this may provide for some newly arising demand.  This could therefore possibly ease pressure on existing GPs and reduce the requirements noted for new GP practices to cater for additional demand
Primary Health Care	Additional 1 dental practices	3	To serve additional demand from new population		✓		2014-2019	1 practice in Central WF	Waltham Forest PCT, private sector	Growth Area funding, potentially housing developer contributions	Planning and coordination in securing funds. Monitoring rate of new housing development to determine scale of infrastructure requirements	£1.5M	Exact requirements are difficult to establish and will depend on mix of private and public provision of dental services
Primary Health Care – Dentists	Additional 3 dental practices	3	To serve additional demand from new population		✓		2019-2026	1 practice in Central WF, 2 in the Southern WF sub-area	Waltham Forest PCT, private sector	Growth Area funding, potentially housing developer contributions	Planning and coordination in securing funds. Monitoring rate of new housing development to determine scale of infrastructure requirements	£1.5M	Exact requirements are difficult to establish and will depend on mix of private and public provision of dental services

Shaded cells indicates Council commitment

Infrastructure Area	Infrastructure schemes and actions	Priority (1-4)	Rationale for inclusion	Drivers			Phasing	Location	Responsibility and Funding			Indicative Costs	Notes
				Policy	Existing gap/ replacement/ upgrade	Forecast demand for development			When should the infrastructure items be delivered by?	Where should the infrastructure item be delivered?	Responsible Delivery Agency		
Secondary Health Care	<p>Demand led potential requirement for:</p> <ul style="list-style-type: none"> <li>(i) 72 acute beds</li> <li>(ii) 10 intermediate beds</li> <li>(iii) 10 intermediate day spaces</li> </ul> <p>NB. Estimate is demand-led only. The need, in respect of existing provision, has not been confirmed by either the PCT or NHS</p>	3	Is modelled based solely on projected additional demand arising from new population growth (without regard to the ability of existing provision to help meet demands arising from new growth)	✓			<p>NB. It is not confirmed that the infrastructure is required.</p> <p>Demand was modelled for growth arising in period 2009-2026</p>	<p>NB. It is not confirmed that the infrastructure is required.</p> <p>borough wide or potentially within adjacent LAs.</p>	<p>NB. It is not confirmed that the infrastructure is required.</p> <p>London Strategic Health Authority (SHA)</p>	<p>NB. It is not confirmed that the infrastructure is required.</p> <p>London SHA / Waltham Forest PCT / Growth Area funding / housing developer contributions)</p>	<p>NB. It is not confirmed that the infrastructure is required.</p> <p>Planning and coordination in securing funds. Monitoring rate of new housing development to determine scale of infrastructure requirements</p>	<p>NB. It is not confirmed that the infrastructure is required.</p> <p>(i) £15.4M (ii) &amp; (iii) 5.1M</p>	<p>It is important to note that there are reasonable grounds to assume that the existing provision of secondary health care infrastructure will be able to meet at least some, if not a large proportion, or the new demand that is expected to arise.</p> <p>Accordingly, the potential requirement noted is subject to confirmation and it is advised that it should not be taken as given that it will be required.</p>
Sports & Leisure (Swimming Pools)	1 Swimming Pool	4	Existing deficiency of 2 swimming pools identified in Sports and Leisure Report (although only 1 new pool proposed in recommendation)	✓	✓	2009-2016	The Sports and Leisure Report's Assessment of Need and Options Appraisal recommends, in its Optimum Option that Kelmscott Leisure Centre be refurbished and include a swimming pool.	Waltham Forest Council	BSF Programme	<p>Planning and coordination in securing funds. Monitoring rate of new housing development to determine scale of infrastructure requirements</p>	Not known		
Sports & Leisure (Swimming Pools)	Additional 1 new six-lane swimming pool	4	Existing deficiency	✓	✓	2009-2014		Waltham Forest Council	Growth Area Funding, BSF Programme, Sports England, Big Lottery Fund	<p>Planning and coordination in securing funds. Monitoring rate of new housing development to determine scale of infrastructure requirements</p>	£2.9M	As identified in Assessment of Need and Options Appraisal of Sports and Leisure Facilities (2007)	
Sports & Leisure (Swimming Pools)	Additional 1 new six-lane swimming pool	4	To serve additional demand from new population growth.		✓	2019-2026	Central WF	Waltham Forest Council	Growth Area Funding, BSF Programme, Sports England, Big Lottery Fund	<p>Planning and coordination in securing funds. Monitoring rate of new housing development to determine scale of infrastructure requirements</p>	£1.5M		

Shaded cells indicates Council commitment

Infrastructure Area	Infrastructure schemes and actions	Priority (1-4)	Rationale for inclusion	Drivers			Phasing When should the infrastructure items be delivered by?	Location Where should the infrastructure item be delivered?	Responsibility and Funding			Indicative Costs Identified by URS / HUDU model	Notes
				Policy	Existing gap/ replacement/ upgrade	Forecast demand for development			Responsible Delivery Agency	Funding Arrangements	Role and responsibility of LBWF as the LPA		
Sports & Leisure (Sports Halls)	4.2 Sports Halls (4 badminton courts per sports hall + some additional facilities)	4	To serve additional demand from new population and need to accommodate existing deficiency identified in Sports and Leisure Report and URS analysis	✓	✓	✓	2009-2016	The Sports and Leisure Report's Assessment of Need and Options Appraisal recommends, in its Optimum Option that; Larkswood Leisure Centre be refurbished and provide one hall; Waltham Forest Pool and Track be replaced and 1.5 halls provided, and; Cathall Leisure centre be refurbished with one hall provided. Additional requirement assessed by URS (+0.7 sports halls) has not been identified	Waltham Forest Council	BSF Programme, Growth Area funding, BIG Lottery Fund, housing developer contributions	Planning and coordination in securing funds. Monitoring rate of new housing development to determine scale of infrastructure requirements	£3.7M	It is likely that sports hall infrastructure requirement will be met through developer contributions and potentially the BSF programme. If provided this would fully satisfy requirements.
Parks and Open Space	Improvements to access to local parks and open spaces.	4	Existing areas of deficiency	✓	✓	✓	2009-2026	To be provided borough-wide (as a guide provision will mostly be as part of new housing developments on schemes over 10 dwellings)	Developers (as required by the planning decision making process)	To be provided in-kind by developers on their development sites and potentially off-site contributions at other locations in the borough	Maximising the potential contribution of new housing development to create new small open spaces in areas of deficiency		To be provided on sites over 10 dwellings, in accordance with Waltham Forest's Planning Obligations SPD.
Child Play Spaces and MUGAs	22-25 play spaces / MUGAs	4	To improve play opportunities for children, particularly those aged 8-13 years old.	✓	✓	✓	By 2011	Various locations	Waltham Forest Council	LB Waltham Forest (via the Play Capital Investment Programme)	Plan for improvements/provision	NA	Of the 25 play areas, 22 are planned for and funded.
Child Play Spaces and MUGAs	208 new play spaces	4	To serve additional demand from new population	✓	✓	✓	2009 – 2014	In accordance with the GLA 'Providing for Children and Young People's Play and Recreation' SPG play space for 0-4 year olds <100m of new housing development, play space for 5-11 year olds <400m and 12-17 year olds <800m	Housing developers	Housing developer contributions	Waltham Forest Council as enforcement agency of the planning conditions	£11.0M	As per the policy guidance in the GLA 'Providing for Children and Young People's Play and Recreation' SPG

Shaded cells indicates Council commitment

Infrastructure Area	Infrastructure schemes and actions	Priority (1-4)	Rationale for inclusion	Drivers			Phasing When should the infrastructure items be delivered by?	Location Where should the infrastructure item be delivered?	Responsibility and Funding			Indicative Costs Identified by URS / HUDU model	Notes
				Policy	Existing gap/ replacement/ upgrade	Forecast demand for development			Responsible Delivery Agency	Funding Arrangements	Role and responsibility of LBWF as the LPA		
Child Play Spaces and MUGAs	93 new play spaces	4	To serve additional demand from new population	✓	✓	2014-2019	In accordance with the GLA 'Providing for Children and Young People's Play and Recreation' SPG play space for 0-4 year olds <100m of new housing development, play space for 5-11 year olds <400m and 12-17 year olds <800m	Housing developers	Housing developer contributions	Waltham Forest Council as enforcement agency of the planning conditions	£5.6M	As per the policy guidance in the GLA 'Providing for Children and Young People's Play and Recreation' SPG	
Child Play Spaces and MUGAs	51 new play spaces	4	To serve additional demand from new population	✓	✓	2019-2026	In accordance with the GLA 'Providing for Children and Young People's Play and Recreation' SPG play space for 0-4 year olds <100m of new housing development, play space for 5-11 year olds <400m and 12-17 year olds <800m	Housing developers	Housing developer contributions	Waltham Forest Council as enforcement agency of the planning conditions	£2.9M	As per the policy guidance in the GLA 'Providing for Children and Young People's Play and Recreation' SPG	
Allotments	3.4 ha of allotment space required to maintain target provision standard	4	To serve additional demand from new population while maintaining minimum standard of 0.2 ha per 1,000 population	✓	✓	2009 – 2026	Southern WF: 0.8 ha, Central WF (with Blackhorse Lane); 2.6 ha	Waltham Forest Council	Growth Area funding. Mainstream Council funds Potentially housing developer contributions	Planning and coordination in securing funds. Monitoring rate of new housing development to determine scale of infrastructure requirements		As per the policy guidance in the 2006 Waltham Forest UDP	
Libraries	Improvement of all existing libraries	4	Need to improve to technological capabilities and increase accessibility	✓	✓	-	Various Locations	Waltham Forest Council		Plan for improvement	NA	Six libraries have been refurbished/ are being refurbished, four remaining libraries will also be improved	
Libraries	Additional 102 sqm of library floorspace required	4	To serve additional demand from new population growth.	✓	✓	2009-2026	Blackhorse Lane	Waltham Forest Council	Growth Area funding. Potentially housing developer contributions			In areas deficient in terms of the 30sqm per 1,000 people standard, developer contributions of £104 per person will be sought to improve provision (Planning Obligations SPD)	

Shaded cells indicates Council commitment

Infrastructure Area	Infrastructure schemes and actions	Priority (1-4)	Rationale for inclusion	Drivers			Phasing When should the infrastructure items be delivered by?	Location Where should the infrastructure item be delivered?	Responsibility and Funding			Indicative Costs Identified by URS / HUDU model	Notes
				Policy	Existing gap/ replacement/ upgrade	Forecast demand for development			Responsible Delivery Agency	Funding Arrangements	Role and responsibility of LBWF as the LPA		
Employment Brokerage	Additional 81sqm of floorspace required	4	To serve additional demand from new population growth			✓	2009-2026	Central WF	Waltham Forest Council	Central Government, Growth Area funding. Potentially housing developer contributions	Planning and coordination in securing funds. Monitoring rate of new housing development to determine scale of infrastructure requirements	£134k	
Cemeteries	320sqm of additional burial space required	4	To serve additional demand from existing population and new population growth.	✓	✓	✓	2021-2026	Yet to be determined	Waltham Forest Council	Growth Area funding. Mainstream Council funds. Potentially housing developer contributions	Planning and coordination in securing funds. Monitoring rate of new housing development to determine scale of infrastructure requirements	£12K	LB Waltham Forest has confirmed that they have adequate provision to 2021, with a new cemetery required beyond that.
Community Meeting Space	Additional 2 community meeting halls required	4	To serve additional demand from new population			✓	2009-2026	Central WF	Waltham Forest Council	Growth Area funding. Potentially housing developer contributions. Big Lottery	Planning and coordination in securing funds. Monitoring rate of new housing development to determine scale of infrastructure requirements	£2.0M	No assessment of need arising from the existing population and as such these requirements are based purely on demand arising from new population growth, and take no account of existing provision.
Places of worship	Additional 2 places of worship halls required	4	To serve additional demand from new population			✓	2009-2026	Central WF	Waltham Forest Council	Growth Area funding. Potentially housing developer contributions. Private/voluntary sector funding	Planning and coordination in securing funds. Monitoring rate of new housing development to determine scale of infrastructure requirements	£2.0M	No assessment of need arising from the existing population and as such these requirements are based purely on demand arising from new population growth, and take no account of existing provision.

Table D-2: Summary List of Transport Infrastructure Requirements to 2026

*Shaded cells indicate the investment is currently programmed*

Infrastructure Area	Infrastructure schemes and actions	Recommended level of priority (1-4)	Rationale for inclusion/risk if not included	Drivers			Phasing	Location	Responsibility and Funding			Costs	Notes
				Policy	Existing gap/ replacement/ upgrade	Forecast demand for development			When should the infrastructure items be delivered by?	Where should the infrastructure item be delivered?	Responsible Delivery Agency		
Rail	Crossrail	3	To alleviate pressure on the LU system and provide a faster east to west rail link connecting Heathrow in the west with the Thames Gateway in the east	✓	✓	✓	Delivery by 2017 (M)	Stratford (close to the Southern WF sub area)	TfL/Network Rail	TfL/Network Rail/Businesses/ Developers	Facilitator	£17b	Committed Scheme Crossrail Levy
	Crossrail 2	3	To provide additional capacity		✓	✓	Delivery 2021-2026 (M-L)	Stratford (close to the Southern WF sub area)	Network Rail/TfL	Network Rail/TfL/Businesses/Developer contributions	Facilitator	Undetermined	Line safeguarded/subject to powers and funding.
	North London Line	3	Freight Gauge capacity enhancement on Barking to Gospel Oak Line allowing 'high cube' container trains to operate, doubling number of paths allowing TfL to operate 4 overground trains per hour on the Barking to Gospel Oak line.	✓	✓		Delivery by 2010	Barking to Gospel Oak line	Network rail	DfT	Facilitator	£18.5M	Due for completion Dec. 2009
	North London Line	3	New 2 car service per train, 4 trains per hour to provide additional capacity and connectivity along North London orbital route	✓	✓	✓	Delivery by 2011	Barking to Gospel Oak line (passing through Walthamstow Central and Blackhorse Road station)	TfL	TfL	Facilitator	£75m	
	North London Line	4	Increase service from 2 to 3 car service per train to provide additional capacity		✓	✓	Delivery by 2014-2019	Barking to Gospel Oak line (passing through Walthamstow Central and Blackhorse Road station)	TfL	TfL	Facilitator	Undetermined	Uncommitted proposal if demand justified and funding available
	Possible reinstatement of Hall Farm Curve on Chingford to Liverpool Street Line	3	To provide new service route infrastructure for direct service between Chingford and Stratford			✓	Delivery by 2014-2019	Southern WF sub area	Network rail	Network rail	Facilitator	Not Identified	Planned improvement to be detailed for submission under Network rails CP5 programme of works. Subject to more detailed business plan for more evidence base
	Possible reinstatement of Lea Bridge railway station on Lea Valley Line	3	To provide new access to new service route provided between Chingford and Stratford			✓	Delivery by 2014-2019	Southern WF sub area	Network rail	Network rail	facilitator	Not Identified	Station provision to be provided to serve south-west sector within Southern WF sub-area. Subject to more detailed business plan for more evidence base

Shaded cells indicate the investment is currently programmed

Infrastructure Area	Infrastructure schemes and actions	Recommended level of priority (1-4)	Rationale for inclusion/risk if not included	Drivers			Phasing When should the infrastructure items be delivered by?	Location Where should the infrastructure item be delivered?	Responsibility and Funding			Costs Identified by providers incl. Status	Notes
				Policy	Existing gap/ replacement/ upgrade	Forecast demand for development			Responsible Delivery Agency	Responsible Funding Agency	Role and responsibility of LBWF as the LPA		
London Underground	Victoria line	3	To provide additional capacity. Services are currently operating at, close or above full capacity particularly during peak hours.		✓	✓	Delivery by 2012	Blackhorse Lane and Central WF sub areas	TfL	TfL	Facilitator	Costs of specific line upgrades yet to be determined but overall programme is currently estimated to be £30b	Higher frequency and larger trains (19% increase in capacity)
Rail and Underground stations	Step free access at LU stations	4	To improve accessibility	✓	✓	✓	2015-2026 (M-L)	borough wide	TfL	TfL	Facilitator	Not identified	
	Step free access at rail stations	4	To improve accessibility		✓	✓	2015-2026 (M-L)	borough wide	TfL/NR	TfL/NR	Facilitator	Not identified	
Bus	Chingford to Leyton 3 <sup>rd</sup> Generation Bus Priority	3	To improve and maintain reliability		✓	✓	Delivery by 2009-2014	Chingford to Leyton	TfL	LBWF/TfL	Planning authority/facilitator	£12m	Funding regime revised, now removed from TfL business plan, now funded through LBWF LIP allocation
	Blackhorse to Stratford Olympic legacy Route	3	Improvements and increase in service frequency			✓	Delivery by 2009-2014	Blackhorse Lane to Stratford	TfL	ODP	facilitator	TBD	
	Corridor Bus Priority	3	To improve capacity, accessibility and connectivity		✓	✓	Delivery 2014-2019	See Figure 5-1 for proposed corridors	TfL	TfL	facilitator	TBD	
	Junction Bus priority	3	To reduce delay and improve reliability		✓	✓	Delivery 2014-2019	See Figure 5-1 for proposed locations	TfL	TfL	facilitator	TBD	
	Improvements to Bus Stops – public realm, safe design, GPS tracking	4	To improve utilisation rates		✓	✓	2009-2026 (S-L)	borough wide	TfL	TfL	facilitator	TBD	
	Bus service enhancement	3	Upto one additional bus to maintain current service levels		✓	✓	2009 – 2014 (Short term)	Chingford Mount bus corridor	TfL	LBWF/TfL	Facilitator	TBD	
	Bus service enhancement	3	Upto 2 additional buses to maintain current service levels, (3 in total)		✓	✓	2014 – 2026 (Medium to Long term)	Chingford Mount bus corridor	TfL	LBWF/TfL	Facilitator	TBD	Planned improvement to be detailed for submission under TfL allocations. Subject to more detailed assessment & business plan for more evidence.

Shaded cells indicate the investment is currently programmed

Infrastructure Area	Infrastructure schemes and actions	Recommended level of priority (1-4)	Rationale for inclusion/risk if not included	Drivers			Phasing	Location	Responsibility and Funding			Costs	Notes
				Policy	Existing gap/ replacement/ upgrade	Forecast demand for development			When should the infrastructure items be delivered by?	Where should the infrastructure item be delivered?	Responsible Delivery Agency		
	Bus service enhancement	3	Upto 4 additional buses to maintain current service levels	✓	✓	✓	2009 – 2014 (Short term)	Markhouse Road bus corridor	TfL	LBWF/TfL	Facilitator	TBD	
	Bus service enhancement	3	Upto 2 additional buses to maintain current service levels, (6 in total)	✓	✓	✓	2014 – 2026 (Medium to Long term)	Markhouse Road bus corridor	TfL	LBWF/TfL	Facilitator	TBD	Planned improvement to be detailed for submission under TfL allocations. Subject to more detailed assessment & business plan for more evidence.
	Bus service enhancement	3	Upto 7 additional buses to maintain current service levels	✓	✓	✓	2009 – 2014 (Short term)	Lea Bridge Road bus corridor	TfL	LBWF/TfL	Facilitator	TBD	
	Bus service enhancement	3	Upto 22 additional buses to maintain current service levels, (29 in total)	✓	✓	✓	2014 – 2026 (Medium to Long term)	Lea Bridge Road bus corridor	TfL	LBWF/TfL	Facilitator	TBD	Planned improvement to be detailed for submission under TfL allocations. Subject to more detailed assessment & business plan for more evidence.
Public Realm	Improvement to public realm at public transport interchanges	3	To improve accessibility and connectivity	✓	✓	✓	borough wide – 2009 – 2026 (S-L)	See Figure 5-1 for proposed locations	TfL/Network rail/LBWF/Development Contributions	TfL/Network rail/LBWF/Development Contributions	Facilitator	TBD	
Walking	Pedestrian environment improvements	4	To improve accessibility, connectivity, capacity and safety	✓	✓	✓	2014-2026 (M-L)	borough Wide	LBWF	LB WF/Developer contributions	Planning Authority/facilitator	TBD	
Cycling	Cycle pathways	4	To improve cycle links to public transport interchanges	✓	✓	✓	2009-2026 (S-L)	See Figure 5-1 for proposed locations	TfL/LB WF	TfL/LB WF/developer contributions	Planning Authority/facilitator	TBD	
	Cycle Parking	3	To increase provision of cycle parking at public transport interchange and town centres	✓	✓	✓	2009-2026 (S-L)	See Figure 5-1 for proposed locations	LB WF	LB WF/developer contributions	Planning authority/facilitator	TBD	
Road Junction Improvements	To support bus priority corridor measures	3	To improve reliability, reduce delays, constrain traffic growth			✓	2014 - 2026	borough Wide	TfL/LBWF/Developer contributions	TfL/LBWF/Developer contributions	Planning authority/facilitator	TBD	
	Blackhorse Road Junction Improvement	3	To accommodate development, improve pedestrian facilities and bus reliability	✓	✓	✓	2014	Royal Standard Junction, Blackhorse Road	Developer contributions	Developer contributions	Planning authority/facilitator	TBD	
Road Link Improvements	To support bus priority corridor measures	3	To relieve vehicular pressure on the Royal Standard Junction, Blackhorse Road	✓	✓	✓	2014 - 2019	Forest Road at Royal Standard Junction	Developer contributions	Developer contributions	Planning authority/facilitator	TBD	

Table D-3: Summary List of Utilities and Physical Infrastructure Requirements to 2026 – Lower Growth Scenario

Shaded cells indicates providers' commitment

Infrastructure Area	Infrastructure schemes and actions	Priority (1-4)	Rationale for inclusion / risk if not included	Drivers			Phasing	Location	Responsibility and Funding			Costs	Notes
				Policy	Existing gap/ replacement/ upgrade	Forecast demand for development			When should the infrastructure items be delivered by?	Where should the infrastructure item be delivered?	Responsible Delivery Agency		
Water	Provision of 3.3 additional million l/day and related local and strategic infrastructure	1	Thames Water have identified a likely future deficit in supply of water in the London water resource zone to 2034, and strategic plans to address this are being formulated. However no clear, immediate plan for the Waltham Forest area is evident.		✓	✓	M – L	borough wide	Regulator / Utility provider	Utility provider	Lobbying, / stakeholder consultation / assist with planning	Not available	TW already planned for a new desalination plant at Becton and new reservoir in Oxfordshire.  Based on the limited information available, additional required infrastructure is expected to include upgraded or renovated pumping stations and mains.
Electricity, Gas, Telecoms	LB Waltham Forest to lobby utility providers and regulatory bodies to devise a strategic longer term planning approach to provision of required utilities, with a focus on Waltham Forest as an independent borough and as part of the wider London Resource Zone	1	Existing strategies of utilities companies are for short-term reactive works only. These works will not ensure the new demand for utilities stemming from additional growth is met.			✓		borough wide	Regulator / Utility provider	Utility provider	Lobbying, / stakeholder consultation / assist with planning	Not available	
Electricity	Provision of 26.3 MVA to 2026 and related local and strategic infrastructure	1	Fundamental to the delivery of commercial and residential growth.			✓		borough wide	Regulator / Utility provider	Utility provider	Lobbying, / stakeholder consultation / assist with planning	Not available	Based on the limited information available, additional required infrastructure is expected to include new primary and secondary substations.
Gas	Provision of 6.7 thousand m3/hr and related local infrastructure	1	Fundamental to the delivery of commercial and residential growth.			✓		borough wide	Regulator / Utility provider	Utility provider	Lobbying, / stakeholder consultation / assist with planning	Not available	Based on the limited information available, additional required infrastructure is expected to be limited to extension in mains to the development and potential on-site works.

Shaded cells indicates providers' commitment

Infrastructure Area	Infrastructure schemes and actions	Priority (1-4)	Rationale for inclusion / risk if not included	Drivers			Phasing	Location	Responsibility and Funding			Costs	Notes
				Policy	Existing gap/ replacement/ upgrade	Forecast demand for development			When should the infrastructure items be delivered by?	Where should the infrastructure item be delivered?	Responsible Delivery Agency		
Decentralised Energy Systems	<p>Provision of CHP plant systems to meet a proportion of the estimated total gas and electricity consumption (existing plus forecasted) up to 2026</p> <p>The optimum CHP engine capacity proposed for the Blackhorse Lane sub-area is 5.1MWe</p>	2	<p>Opportunity to implement decentralised energy infrastructure due to baseline and projected energy demand profile.</p> <p>Opportunity for cross-border systems with Tottenham Hale</p> <p>If not included the risk is of a loss of opportunity to meet baseline and projected energy demand.</p>	✓	✓	✓	To be coordinated with Tottenham Hale	Blackhorse Lane - where new development is most likely to occur	LPA / LDA / PPP / PFI	LDA / ESCo (PFI or PPP)	Land provision from currently owned stock / Expectation on developers to connect	Not available	
Decentralised Energy Systems	<p>Provision of CHP plant systems to meet a proportion of the estimated total gas and electricity consumption (existing plus forecasted) up to 2026</p> <p>The optimum CHP engine capacity proposed for the Southern WF sub-area is 25.5MWe</p>	2	<p>Opportunity to implement decentralised energy infrastructure due to baseline and projected energy demand profile.</p> <p>Opportunity for cross-border systems with the Olympic Park</p> <p>If not included the risk is of a loss of opportunity to meet baseline and projected energy demand.</p>	✓	✓	✓		Southern WF - Argyle Estate and other locations	LPA / LDA / PPP / PFI	LDA / ESCo (PFI or PPP)	Land provision from currently owned stock / Expectation on developers to connect	Not available	The system(s) should be delivered By 2012, to be coordinated with the Olympic Park and emerging AAPs

Shaded cells indicates providers' commitment

Infrastructure Area	Infrastructure schemes and actions	Priority (1-4)	Rationale for inclusion / risk if not included	Drivers			Phasing	Location	Responsibility and Funding			Costs	Notes
				Policy	Existing gap/ replacement/ upgrade	Forecast demand for development			When should the infrastructure items be delivered by?	Where should the infrastructure item be delivered?	Responsible Delivery Agency		
Decentralised Energy Systems	Provision of CHP plant systems to meet a proportion of the estimated total gas and electricity consumption (existing plus forecasted) up to 2026  The optimum CHP engine capacity proposed for the Central WF sub-area is 25.5MWe	2	Opportunity to implement decentralised energy infrastructure due to baseline and projected energy demand profile.  If not included the risk is of a loss of opportunity to meet baseline and projected energy demand.	✓	✓	✓	S	Central WF - Possibly in Walthamstow town centre	LPA / LDA / PPP / PFI	LDA / ESCo (PFI or PPP)	Land provision from currently owned stock / Expectation on developers to connect	Not available	
Sewerage - Sewers	Provision for 3.9 million litres per day of sewer flows, and associated new and renovated sewers	1	The sewerage system is currently operating at full capacity. The system will not be able to cope with additional forecast development. Investment is also required to reduce sewer flooding.	✓	✓		S - M - L	Improvements should be borough wide. Problem hotspots the centre and south east of the borough	Thames Water (in association with the Regulator)	Thames Water	Lobbying, assist with planning, in-kind resources where possible, technical expertise. Collect planning gain contributions to fund improvements.	(To 2020) £74m	Whilst Thames Water's five and 25 years plans show that a capital investment plan is in place to address the renovation or expansion of the sewers system in the whole of the Thames Water region, the extent to which specific plans related to Waltham Forest have been finalised and funding committed is not clear. This applies to both pumping stations and sewer mains.
Sewerage – Pumping Stations	New and refurbished pumping stations required	1	The sewerage system if currently operating at full capacity. The system will not be able to cope with additional forecast development.	✓	✓		S- M	Improvements should be borough wide.	Thames Water (in association with the Regulator)	Thames Water	Lobbying, assist with planning, in-kind resources where possible, technical expertise. Collect planning gain contributions to fund improvements.	(To 2020) £4m	Costs identified are across the Thames Water Region at £243m

Shaded cells indicates providers' commitment

Infrastructure Area	Infrastructure schemes and actions	Priority (1-4)	Rationale for inclusion / risk if not included	Drivers			Phasing	Location	Responsibility and Funding			Costs	Notes
				Policy	Existing gap/ replacement/ upgrade	Forecast demand for development			When should the infrastructure items be delivered by?	Where should the infrastructure item be delivered?	Responsible Delivery Agency		
Surface and Foul Water Drainage (Drainage maintenance and surface renewal / upgrades)	Maintenance of highway drainage, particularly repair of damaged gullies. Replace impermeable surfaces with permeable systems to reduce the quantity of surface water runoff and hence mitigate flooding	1	Help reduce the risk of surface water flooding	✓	✓		S – M - L	Throughout the borough	LPA	LPA	Funding and commissioning the work	£0.64m (indicative only)	Cost is estimated on the basis that the current budget of £25,000 per annum allows for adequate repair of the non-running gullies. Retrofitting permeable pavements when development at council land occurs estimated at additional 50% per annum.
Flood Risk	Sewer flooding investigation	1	To ensure full understanding of the strategic impact of new development on the sewer system and therefore on the risk of sewer flooding	✓	✓		S-M-L	Throughout the borough, particularly in the east and south.	LPA in association with Thames Water (and potentially the adjoining boroughs)		Commissioning the study to Thames Water	£50,000 (indicative only)	
Flood Risk	Preparation of a Surface Water Management plan	1	Help the Council consider all potential sources of flood risk and identify remedial measures	✓	✓		S – M - L	Throughout the borough	LPA	LPA	Preparation and funding	Not available	This Plan may be undertaken as part of the Drain London forum, a partnership with 32 London boroughs. The total budget is estimated at £3.2m under a DEFRA grant.
Flood Risk	Preparation of inundation mapping for the reservoirs in the River Lee Valley	1	Help understand the flood risk deriving from the reservoirs and identify mitigation/remedial measures	✓	✓	✓	S – M - L	Eastern of the borough	Environment Agency in liaison with Thames Water	Environment Agency/ Thames Water	Fully liaising with EA/TW throughout the process of creating these plans.	Not available	The emerging Flood and Water Management Bill, once published, will provide details on whose responsibility it will be to prepare inundation maps for large and small reservoirs. It is envisaged that the reservoir manager will have to provide the inundation maps to the EA when applying to register the reservoir under the new legislation.
Flood Risk	Preparation of emergency management plans for the reservoirs in the River Lee	1	Manage the risk associated with a bank failure at the reservoirs	✓	✓	✓	S – M - L	Eastern of the borough	Environment Agency in liaison with Emergency Services	Environment Agency/ Emergency Services	Fully liaising with EA/Emergency Services throughout the process of creating these plans.	Not available	The emerging <i>Flood and Water Management Bill</i> , once published, will provide details on whose responsibility it will be to prepare emergency management plans for high and low risk reservoirs. It is envisaged that the reservoir manager will fund the plans.

Shaded cells indicates providers' commitment

Infrastructure Area	Infrastructure schemes and actions	Priority (1-4)	Rationale for inclusion / risk if not included	Drivers			Phasing	Location	Responsibility and Funding			Costs	Notes
				Policy	Existing gap/ replacement/ upgrade	Forecast demand for development			When should the infrastructure items be delivered by?	Where should the infrastructure item be delivered?	Responsible Delivery Agency		
Foul and Surface Water Drainage (Flood risk related SUDS measures)	Implementation of Sustainable Urban Drainage Systems (SUDS) and promotion of flood resistant architecture	1	Help alleviate sewer flowing	✓	✓	✓	S – M - L	Improvements should be borough wide.	LPA	LPA (if it is the landowner) / Developer applicant	Implement through Development Control policies / Funding if it is the landowner	Not available	
Waste	Use of additional waste management facilities and land	1	Need to accommodate future waste needs	✓	✓	✓	M-L	Ideally within Waltham Forest, but due to spatial constraints - outside the borough, either in north London or outside London	NLWA	Waltham Forest Council, via NLWA apportionment together with other north London boroughs & funding request for PFI credits together with other funding options to be explored by the Council	Supply of relevant technical information to NLWA	Not available	
Waste	Inclusion of integrated waste management facilities within new developments	1	Need to accommodate future waste needs	✓	✓	✓	M-L	Within the LB Waltham Forest	Private companies e.g. developer of a housing estate	Private company e.g. developer of a housing estate	Waltham Forest Council may require the inclusion of waste management facilities as part of planning conditions	Not available	The provider would be a private company e.g. a developer

Shaded cells indicates providers' commitment

Infrastructure Area	Infrastructure schemes and actions	Priority (1-4)	Rationale for inclusion / risk if not included	Drivers			Phasing	Location	Responsibility and Funding			Costs	Notes
				Policy	Existing gap/ replacement/ upgrade	Forecast demand for development			When should the infrastructure items be delivered by?	Where should the infrastructure item be delivered?	Responsible Delivery Agency		
	Delivery of new custody suite	3	Development of specialised custody facilities in one location along with ancillary facilities such as interview rooms, consultation rooms and a search suite	✓	✓	S-M	Hainault Road	Metropolitan Police	Developer	Securing S106 funding	Not available	The location is unconfirmed	
Police	Delivery of new police station front counters	3	Deliver a better environment for the public- the provision of a front counter to allow a joined-up approach to improve customer services	✓	✓	S-M-L	borough wide	Metropolitan Police	Metropolitan Police / Developer	Develop enabling land use planning policy	Not known		
	Delivery of new police station front counters	3	Deliver a better environment for the public- the provision of a front counter to allow a joined-up approach to improve customer services	✓	✓	S	Walthamstow Police Station	Metropolitan Police	Metropolitan Police / Developer	Develop enabling land use planning policy	Not known		
	Modernisation and consolidation of estate providing better office accommodation	3	Deliver the reorganisation and improvement of back-office facilities to ensure a more efficient manner of working, organisation, and support for frontline officers.	✓		M-L	borough wide	Metropolitan Police	Metropolitan Police (capital receipts)	Assist the Metropolitan Police in implementing estate strategy	Not available	Whilst the current economic climate may be an impediment to redevelopment in the short term, the strategy would still be pursued in the medium to long term. The modernisation and consolidation of the estate would include the delivery of new Safer Neighbourhood Bases	
Fire	Redevelopment of Leytonstone Fire Station on existing site	3	Redeveloped to ensure that the station is able to provide an adequate service and improve the existing facilities for the local community in the future	✓		S-M	Leytonstone Fire Station	London Fire Brigade (LFB)	Private Finance Initiative	Assist the LFB in locating a site for a temporary station for use by the LFB during the station redevelopment	Not available		

Table D-4: Summary List of Social Infrastructure Requirements to 2026 – Higher Growth Scenario

Shaded cells indicates Council commitment

Infrastructure Area	Infrastructure schemes and actions	Priority (1-4)	Rationale for inclusion	Drivers			Phasing When should the infrastructure items be delivered by?	Location Where should the infrastructure item be delivered?	Responsibility and Funding			Indicative Costs Identified by URS / HUDU model	Notes
				Policy	Existing gap/ replacement/ upgrade	Forecast demand for development			Responsible Delivery Agency	Funding Arrangements	Role and responsibility of LBWF as the LPA		
Early Years	Creation of 4 additional children's centres	2	To cater for existing and new demand up to 2010+	✓	✓	✓	By 2010 (completed)	Remaining wards without a children's centre	Waltham Forest Council	Sure Start	Planning and coordination.	-	Provision is already being made as part of the pre-existing plans - Primary Strategy for Change
Early Years	Up to 297 early years places required	2	To serve additional demand from new population	✓	✓	✓	2009-2026	In proximity to new housing in the Southern WF and Blackhorse Lane sub-areas. Most likely at existing/new primary schools	Waltham Forest Council, private sector/voluntary/charitable providers	Sure Start, grant applications, voluntary-aided sector, Growth Area funding, housing developer contributions	Planning and coordination in securing funds. Monitoring rate of new housing development to determine scale of infrastructure requirements.	Upto £2.9M	
Primary Schools	Expansion of provision (9 FoE)	2	To cater for existing and new demand to 2012	✓	✓	✓	Delivery by 2010-2012	2 FoE at Edinburgh primary school, 1 FoE each at Willow Brook, Cann Hall, and Beaumont and Saint Saviour's primary schools. 3 FoE not yet identified	Waltham Forest Council, private sector/voluntary/charitable providers	Funded through Primary Capital Programme, voluntary-aided sector, housing developer contributions	Planning and coordination in securing funds. Monitoring rate of new housing development to determine scale of infrastructure requirements.	.	See Primary Strategy for Change for further information
Primary Schools	Additional 7.3 FoE	2	To serve additional demand from new population			✓	2009-2014 Where new housing is planned - particularly Southern WF and Central WF sub areas	Waltham Forest Council	Waltham Forest Council, private sector/voluntary/charitable providers	Funded through Primary Capital Programme, voluntary-aided sector, Growth Area funding, housing developer contributions	Planning and coordination in securing funds. Monitoring rate of new housing development to determine scale of infrastructure requirements.	£21.2M	This is in addition to the total of 9 FoEs planned by the Council by 2012. The deficiency in current plans is acknowledged by the Council (at least in respect of the lower growth scenario)

Shaded cells indicates Council commitment

Infrastructure Area	Infrastructure schemes and actions	Priority (1-4)	Rationale for inclusion	Drivers			Phasing	Location	Responsibility and Funding			Indicative Costs	Notes
				Policy	Existing gap/ replacement/ upgrade	Forecast demand for development			When should the infrastructure items be delivered by?	Where should the infrastructure item be delivered?	Responsible Delivery Agency		
Primary Schools	Additional 15.9 FoE	2	To serve additional demand from new population		✓		2014-2019 Where new housing is planned - particularly Southern WF and Central WF sub areas	Waltham Forest Council	Waltham Forest Council, private sector/voluntary/charitable providers	Funded through Primary Capital Programme, voluntary-aided sector, Growth Area funding, housing developer contributions	Planning and coordination in securing funds. Monitoring rate of new housing development to determine scale of infrastructure requirements.	£46.7M	
Primary Schools	Additional 5.3 FoE	2	To serve additional demand from new population		✓		2019-2026 Where new housing is planned - particularly Southern WF and Central WF sub areas	Waltham Forest Council	Waltham Forest Council, private sector/voluntary/charitable providers	Funded through Primary Capital Programme, voluntary-aided sector, Growth Area funding, housing developer contributions	Planning and coordination in securing funds. Monitoring rate of new housing development to determine scale of infrastructure requirements.	£16.3M	
Secondary Schools	Expansion of provision in existing schools (6 FoE)	2	Proposed in BSF Business Plan – to cater for existing and future need to 2018	✓	✓	✓	By 2014	1 FoE each at Higham's Park and Leytonstone and 2 FoE each at Willowfield and Kelmscott secondary Schools	Waltham Forest Council, private sector/voluntary/charitable providers		Coordinate and plan provision via BSF programme		All BSF funded investments have been proposed and agreed in the BSF Outline Business Case.
Secondary Schools	New school (8 FoE)	2	Proposed in BSF Business Plan – to cater for existing and future need to 2018	✓	✓	✓	By 2018	TBC	Waltham Forest Council, private sector/voluntary/charitable providers		Coordinate and plan provision via BSF programme		All BSF funded investments have been proposed and agreed in the BSF Outline Business Case.
Secondary Schools	Additional 8.5 FoE	2	To serve additional demand from new population		✓		2014-2019	Location can be more strategic and not necessarily close to the new housing that is driving demand. Interesting to note that the majority of demand is from the Southern WF and Central WF sub areas	Waltham Forest Council, private sector/voluntary/charitable providers	Funded through BSF programme, voluntary-aided sector, Growth Area funding, housing developer contributions	Coordinate and plan provision via BSF programme	£11.0M	This is in addition to the total of 14 FoEs planned by the Council by 2018. The deficiency in current plans is acknowledged by the Council (at least in respect of the lower growth scenario)
Secondary Schools	Additional 5.0 FoE	2	To serve additional demand from new population		✓		2019 - 2026	Location can be more strategic and not necessarily close to the new housing that is driving demand. Interesting to note that the majority of demand is from the Southern WF sub area	Waltham Forest Council, private sector/voluntary/charitable providers	Funded through BSF programme, voluntary-aided sector, Growth Area funding, housing developer contributions	Coordinate and plan provision via BSF programme	£1.8M	

Shaded cells indicates Council commitment

Infrastructure Area	Infrastructure schemes and actions	Priority (1-4)	Rationale for inclusion	Drivers			Phasing When should the infrastructure items be delivered by?	Location Where should the infrastructure item be delivered?	Responsibility and Funding			Indicative Costs Identified by URS / HUDU model	Notes
				Policy	Existing gap/ replacement/ upgrade	Forecast demand for development			Responsible Delivery Agency	Funding Arrangements	Role and responsibility of LBWF as the LPA		
Further Education	Extended capacity by 830 places at secondary schools for FE	2	To serve additional demand from existing and new population	✓	✓	✓	2009-2019	At secondary schools across the borough	Transferring to LB Waltham Forest on 1 <sup>st</sup> April 2010 (in liaison with neighbouring LAs)	Funded through BSF programme, voluntary-aided sector, Growth Area funding, housing developer contributions	Liaise with neighbouring boroughs; Monitoring rate of new housing development to determine scale of infrastructure requirements.		
Further Education	Estimated provision requirement to meet demand for 0-100 additional places (provision not necessarily required in Waltham Forest)	2	To serve additional demand from new population	✓	✓	✓	2016 – 2026	At secondary schools across the borough	Transferring to LB Waltham Forest on 1 <sup>st</sup> April 2010 (in liaison with neighbouring LAs)	Funded through BSF programme, voluntary-aided sector, Growth Area funding, housing developer contributions	Liaise with neighbouring boroughs; Monitoring rate of new housing development to determine scale of infrastructure requirements.	£0 to £250K	
Primary Health Care	Development of consolidated surgeries	3	Being undertaken as part of ongoing PCT strategy to enhance provision and improve efficiency including the introduction of a polyclinic system	✓	✓			Consolidated surgeries being planned for at St. James Street, Tallack Road, Higham Hill, and Handsworth Avenue	Waltham Forest PCT	Central Government			
Primary Health Care	Creation of new polyclinics	3	Being undertaken as part of ongoing PCT strategy to enhance service provision and accessibility	✓	✓	✓	TBC (Oliver Road - polyclinic already completed)	6 broad locations identified – 2 in Chingford, 1 in Central WF: 3 in Southern WF	Waltham Forest PCT	Central Government		NA	
Primary Health Care	Additional 3 GP practices	3	To serve additional demand from new population			✓	2014-19	1 practice in Central WF, Blackhorse Lane and Southern WF	Waltham Forest PCT	Central Government, Growth Area funding, housing developer contributions	Planning and coordination in securing funds. Monitoring rate of new housing development to determine scale of infrastructure requirements	£5.6M	NHS Waltham Forest's Polyclinic programme will meet / provide for existing demand, and this may provide for some newly arising demand. This could therefore possibly ease pressure on existing GPs and reduce the requirements noted for new GP practices to cater for additional demand

Shaded cells indicates Council commitment

Infrastructure Area	Infrastructure schemes and actions	Priority (1-4)	Rationale for inclusion	Drivers			Phasing When should the infrastructure items be delivered by?	Location Where should the infrastructure item be delivered?	Responsibility and Funding			Indicative Costs Identified by URS / HUDU model	Notes
				Policy	Existing gap/ replacement/ upgrade	Forecast demand for development			Responsible Delivery Agency	Funding Arrangements	Role and responsibility of LBWF as the LPA		
Primary Health Care	Additional 3 GP practices	3	To serve additional demand from new population		✓		2019-2026	1 practice in Central WF, 2 in the Southern WF sub-area	Waltham Forest PCT	Central Government, Growth Area funding, housing developer contributions	Planning and coordination in securing funds. Monitoring rate of new housing development to determine scale of infrastructure requirements	£5.6M	NHS Waltham Forest's Polyclinic programme will meet / provide for existing demand, and this may provide for some newly arising demand.  This could therefore possibly ease pressure on existing GPs and reduce the requirements noted for new GP practices to cater for additional demand
Primary Health Care	Additional 3 dental practices	3	To serve additional demand from new population		✓		2014-2019	1 practice in Central WF, 2 in the Southern WF sub-area	Waltham Forest PCT, private sector	Growth Area funding, potentially housing developer contributions	Planning and coordination in securing funds. Monitoring rate of new housing development to determine scale of infrastructure requirements	£4.5M	Exact requirements are difficult to establish and will depend on mix of private and public provision of dental services
Primary Health Care – Dentists	Additional 3 dental practices	3	To serve additional demand from new population		✓		2019-2026	1 practice in Central WF, 2 in the Southern WF sub-area	Waltham Forest PCT, private sector	Growth Area funding, potentially housing developer contributions	Planning and coordination in securing funds. Monitoring rate of new housing development to determine scale of infrastructure requirements	£4.5M	Exact requirements are difficult to establish and will depend on mix of private and public provision of dental services

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Infrastructure Area	Infrastructure schemes and actions	Priority (1-4)	Rationale for inclusion	Drivers			Phasing	Location	Responsibility and Funding			Indicative Costs	Notes
				Policy	Existing gap/ replacement/ upgrade	Forecast demand for development			When should the infrastructure items be delivered by?	Where should the infrastructure item be delivered?	Responsible Delivery Agency		
Secondary Health Care	Demand led potential requirement for: (i) 128 acute beds (ii) 18 intermediate beds (iii) 18 intermediate day spaces NB. Estimate is demand-led only. The need, in respect of existing provision, has not been confirmed by either the PCT or NHS	3	Is modelled based solely on projected additional demand arising from new population growth (without regard to the ability of existing provision to help meet demands arising from new growth)		✓		NB. It is not confirmed that the infrastructure is required. Demand was modelled for growth arising in period 2009-2026	NB. It is not confirmed that the infrastructure is required. borough wide or potentially within adjacent LAs.	NB. It is not confirmed that the infrastructure is required. London Strategic Health Authority (SHA)	NB. It is not confirmed that the infrastructure is required. London SHA / Waltham Forest PCT / Growth Area funding / housing developer contributions)	NB. It is not confirmed that the infrastructure is required. Planning and coordination in securing funds. Monitoring rate of new housing development to determine scale of infrastructure requirements	NB. It is not confirmed that the infrastructure is required. (i) £27.4M (ii) & (iii) £9.0M	It is important to note that there are reasonable grounds to assume that the existing provision of secondary health care infrastructure will be able to meet at least some, if not a large proportion, or the new demand that is expected to arise. Accordingly, the potential requirement noted is subject to confirmation and it is advised that it should not be taken as given that it will be required.
Sports & Leisure (Swimming Pools)	1 Swimming Pool	4	Existing deficiency of 2 swimming pools identified in Sports and Leisure Report (although only 1 new pool proposed in recommendation)	✓	✓	2009-2016	The Sports and Leisure Report's Assessment of Need and Options Appraisal recommends, in its Optimum Option that Kelmscott Leisure Centre be refurbished and include a swimming pool.	Waltham Forest Council	BSF Programme	Planning and coordination in securing funds. Monitoring rate of new housing development to determine scale of infrastructure requirements	Not known		
Sports & Leisure (Swimming Pools)	1 additional new six-lane swimming pool	4	Existing deficiency	✓	✓	2009-2014		Waltham Forest Council	Growth Area Funding, BSF Programme, Sports England, Big Lottery Fund	Planning and coordination in securing funds. Monitoring rate of new housing development to determine scale of infrastructure requirements	£2.9M	As identified in Assessment of Need and Options Appraisal of Sports and Leisure Facilities (2007)	
Sports & Leisure (Swimming Pools)	Additional 2 new six-lane swimming pools	4	To serve additional demand from new population growth.		✓	2019-2026	Southern WF	Waltham Forest Council	Growth Area Funding, BSF Programme, Sports England, Big Lottery Fund	Planning and coordination in securing funds. Monitoring rate of new housing development to determine scale of infrastructure requirements	£2.9M		

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Infrastructure Area	Infrastructure schemes and actions	Priority (1-4)	Rationale for inclusion	Drivers			Phasing	Location	Responsibility and Funding			Indicative Costs	Notes
				Policy	Existing gap/ replacement/ upgrade	Forecast demand for development			When should the infrastructure items be delivered by?	Where should the infrastructure item be delivered?	Responsible Delivery Agency		
Sports & Leisure (Sports Halls)	5.7 Sports Halls (4 badminton courts per sports hall + some additional facilities)	4	To serve additional demand from new population and need to accommodate existing deficiency identified in Sports and Leisure Report and URS analysis	✓	✓	✓	2009-2016	The Sports and Leisure Report's Assessment of Need and Options Appraisal recommends, in its Optimum Option that; Larkswood Leisure Centre be refurbished and provide one hall; Waltham Forest Pool and Track be replaced and 1.5 halls provided, and; Cathall Leisure centre be refurbished with one hall provided. Additional requirement assessed by URS (+2.2 sports halls) has not been identified	Waltham Forest Council	BSF Programme, Growth Area funding, BIG Lottery Fund, housing developer contributions	Planning and coordination in securing funds. Monitoring rate of new housing development to determine scale of infrastructure requirements	£5.0M	It is likely that sports hall infrastructure requirement will be met through developer contributions and potentially the BSF programme. If provided this would fully satisfy requirements.
Sports & Leisure (Sports Halls)	Additional 2 sports halls	4	To serve additional demand from new population			✓	2009-2026	The majority of demand is from the Southern WF and Central WF sub areas	Waltham Forest Council	BSF Programme, Growth Area funding, BIG Lottery Fund, housing developer contributions	Planning and coordination in securing funds. Monitoring rate of new housing development to determine scale of infrastructure requirements	£4.6M	
Parks and Open Space	Improvements to access to local parks and open spaces.	4	Existing areas of deficiency	✓	✓	✓	2009-2026	To be provided borough-wide (as a guide provision will mostly be as part of new housing developments on schemes over 10 dwellings)	Developers (as required by the planning decision making process)	To be provided in-kind by developers on their development sites and potentially off-site contributions at other locations in the borough	Maximising the potential contribution of new housing development to create new small open spaces in areas of deficiency		To be provided on sites over 10 dwellings, in accordance with Waltham Forest's Planning Obligations SPD.
Child Play Spaces and MUGAs	22-25 play spaces / MUGAs	4	To improve play opportunities for children, particularly those aged 8-13 years old.	✓	✓	✓	By 2011	Various locations	Waltham Forest Council	LB Waltham Forest (via the Play Capital Investment Programme)	Plan for improvements/ provision	NA	Of the 25 play areas, 22 are planned for and funded.

Shaded cells indicates Council commitment

Infrastructure Area	Infrastructure schemes and actions	Priority (1-4)	Rationale for inclusion	Drivers			Phasing When should the infrastructure items be delivered by?	Location Where should the infrastructure item be delivered?	Responsibility and Funding			Indicative Costs Identified by URS / HUDU model	Notes
				Policy	Existing gap/ replacement/ upgrade	Forecast demand for development			Responsible Delivery Agency	Funding Arrangements	Role and responsibility of LBWF as the LPA		
Child Play Spaces and MUGAs	397 new play spaces	4	To serve additional demand from new population	✓	✓	2009 – 2014	In accordance with the GLA 'Providing for Children and Young People's Play and Recreation' SPG play space for 0-4 year olds <100m of new housing development, play space for 5-11 year olds <400m and 12-17 year olds <800m	Housing developers	Housing developer contributions	Waltham Forest Council as enforcement agency of the planning conditions	£18.0M	As per the policy guidance in the GLA 'Providing for Children and Young People's Play and Recreation' SPG	
Child Play Spaces and MUGAs	419 new play spaces	4	To serve additional demand from new population	✓	✓	2014-2019	In accordance with the GLA 'Providing for Children and Young People's Play and Recreation' SPG play space for 0-4 year olds <100m of new housing development, play space for 5-11 year olds <400m and 12-17 year olds <800m	Housing developers	Housing developer contributions	Waltham Forest Council as enforcement agency of the planning conditions	£19.3M	As per the policy guidance in the GLA 'Providing for Children and Young People's Play and Recreation' SPG	
Child Play Spaces and MUGAs	462 new play spaces	4	To serve additional demand from new population	✓	✓	2019-2026	In accordance with the GLA 'Providing for Children and Young People's Play and Recreation' SPG play space for 0-4 year olds <100m of new housing development, play space for 5-11 year olds <400m and 12-17 year olds <800m	Housing developers	Housing developer contributions	Waltham Forest Council as enforcement agency of the planning conditions	£18.1M	As per the policy guidance in the GLA 'Providing for Children and Young People's Play and Recreation' SPG	
Allotments	8.5 ha of allotment space required to maintain target provision standard	4	To serve additional demand from new population while maintaining minimum standard of 0.2 ha per 1,000 population	✓	✓	2009 – 2026	Southern WF: 4.3 ha, Central WF (with Blackhorse Lane); 4.2 ha	Waltham Forest Council	Growth Area funding. Mainstream Council funds Potentially housing developer contributions	Planning and coordination in securing funds. Monitoring rate of new housing development to determine scale of infrastructure requirements		As per the policy guidance in the 2006 Waltham Forest UDP	
Libraries	Improvement of all existing libraries	4	Need to improve to technological capabilities and increase accessibility	✓	✓	-	Various Locations	Waltham Forest Council	Not known	Plan for improvement	NA	Six libraries have been refurbished/ are being refurbished, four remaining libraries will also be improved	

Shaded cells indicates Council commitment

Infrastructure Area	Infrastructure schemes and actions	Priority (1-4)	Rationale for inclusion	Drivers			Phasing	Location	Responsibility and Funding			Indicative Costs	Notes
				Policy	Existing gap/ replacement/ upgrade	Forecast demand for development			When should the infrastructure items be delivered by?	Where should the infrastructure item be delivered?	Responsible Delivery Agency		
Libraries	Additional 342 sqm of library floorspace required	4	To serve additional demand from new population growth.	✓	✓	✓	2009-2026	Blackhorse Lane	Waltham Forest Council	Growth Area funding. Potentially housing developer contributions		In areas deficient in terms of the 30sqm per 1,000 people standard, developer contributions of £104 per person will be sought to improve provision (Planning Obligations SPD)	
Employment Brokerage	Additional 196 sqm of floorspace required	4	To serve additional demand from new population growth			✓	2009-2026	Southern WF	Waltham Forest Council	Central Government, Growth Area funding. Potentially housing developer contributions	£324k	Planning and coordination in securing funds. Monitoring rate of new housing development to determine scale of infrastructure requirements	
Cemeteries	335 sqm of additional burial space required	4	To serve additional demand from existing population and new population growth.	✓	✓	✓	2021-2026	Yet to be determined	Waltham Forest Council	Growth Area funding. Mainstream Council funds. Potentially housing developer contributions	£14K	LB Waltham Forest has confirmed that they have adequate provision to 2021, with a new cemetery required beyond that.	
Community Meeting Space	Additional 6 community meeting halls required	4	To serve additional demand from new population			✓	2009-2026	Central WF and up to 3 spaces in Southern WF	Waltham Forest Council	Growth Area funding. Potentially housing developer contributions. Big Lottery	£4.9M	No assessment of need arising from the existing population and as such these requirements are based purely on demand arising from new population growth, and take no account of existing provision.	
Places of worship	Additional 6 places of worship halls required	4	To serve additional demand from new population			✓	2009-2026	Central WF and up to 3 spaces in the Southern WF sub-area	Waltham Forest Council	Growth Area funding. Potentially housing developer contributions. Private/voluntary sector funding	£4.9M	No assessment of need arising from the existing population and as such these requirements are based purely on demand arising from new population growth, and take no account of existing provision.	

Table D-5: Summary List of Utilities and Physical Infrastructure Requirements to 2026 – Higher Growth Scenario

Shaded cells indicates providers' commitment

Infrastructure Area	Infrastructure schemes and actions	Priority (1-4)	Rationale for inclusion / risk if not included	Drivers			Phasing	Location	Responsibility and Funding			Costs	Notes
				Policy	Existing gap/ replacement/ upgrade	Forecast demand for development			When should the infrastructure items be delivered by?	Where should the infrastructure item be delivered?	Responsible Delivery Agency		
Water	Provision of 3.3 additional million l/day and related local and strategic infrastructure	1	Thames Water have identified a likely future deficit in supply of water in the London water resource zone to 2034, and strategic plans to address this are being formulated. However no clear, immediate plan for the Waltham Forest area is evident.		✓	✓	M – L	borough wide	Regulator / Utility provider	Utility provider	Lobbying, / stakeholder consultation / assist with planning	Not available	TW already planned for a new desalination plant at Beckton and new reservoir in Oxfordshire.  Based on the limited information available, additional required infrastructure is expected to include upgraded or renovated pumping stations and mains.
Electricity, Gas, Telecoms	LB Waltham Forest to lobby utility providers and regulatory bodies to devise a strategic longer term planning approach to provision of required utilities, with a focus on Waltham Forest as an independent borough and as part of the wider London Resource Zone	1	Existing strategies of utilities companies are for short-term reactive works only. These works will not ensure the new demand for utilities stemming from additional growth is met.			✓		borough wide	Regulator / Utility provider	Utility provider	Lobbying, / stakeholder consultation / assist with planning	Not available	
Electricity	Provision of 26.3 MVA to 2026 and related local and strategic infrastructure	1	Fundamental to the delivery of commercial and residential growth.			✓		borough wide	Regulator / Utility provider	Utility provider	Lobbying, / stakeholder consultation / assist with planning	Not available	Based on the limited information available, additional required infrastructure is expected to include new primary and secondary substations.
Gas	Provision of 6.7 thousand m3/hr and related local infrastructure	1	Fundamental to the delivery of commercial and residential growth.			✓		borough wide	Regulator / Utility provider	Utility provider	Lobbying, / stakeholder consultation / assist with planning	Not available	Based on the limited information available, additional required infrastructure is expected to be limited to extension in mains to the development and potential on-site works.

Shaded cells indicates providers' commitment

Infrastructure Area	Infrastructure schemes and actions	Priority (1-4)	Rationale for inclusion / risk if not included	Drivers			Phasing	Location	Responsibility and Funding			Costs	Notes
				Policy	Existing gap/ replacement/ upgrade	Forecast demand for development			When should the infrastructure items be delivered by?	Where should the infrastructure item be delivered?	Responsible Delivery Agency		
Decentralised Energy Systems	<p>Provision of CHP plant systems to meet a proportion of the estimated total gas and electricity consumption (existing plus forecasted) up to 2026</p> <p>The optimum CHP engine capacity proposed for the Blackhorse Lane sub-area is 5.1MWe</p>	2	<p>Opportunity to implement decentralised energy infrastructure due to baseline and projected energy demand profile.</p> <p>Opportunity for cross-border systems with Tottenham Hale</p> <p>If not included the risk is of a loss of opportunity to meet baseline and projected energy demand.</p>	✓	✓	✓	To be coordinated with Tottenham Hale	Blackhorse Lane - where new development is most likely to occur	LPA / LDA / PPP / PFI	LDA / ESCo (PFI or PPP)	Land provision from currently owned stock / Expectation on developers to connect	Not available	
Decentralised Energy Systems	<p>Provision of CHP plant systems to meet a proportion of the estimated total gas and electricity consumption (existing plus forecasted) up to 2026</p> <p>The optimum CHP engine capacity proposed for the Southern WF sub-area is 25.5MWe</p>	2	<p>Opportunity to implement decentralised energy infrastructure due to baseline and projected energy demand profile.</p> <p>Opportunity for cross-border systems with the Olympic Park</p> <p>If not included the risk is of a loss of opportunity to meet baseline and projected energy demand.</p>	✓	✓	✓		Southern WF - Argyle Estate and other locations	LPA / LDA / PPP / PFI	LDA / ESCo (PFI or PPP)	Land provision from currently owned stock / Expectation on developers to connect	Not available	The system(s) should be delivered By 2012, to be coordinated with the Olympic Park and emerging AAPs

Shaded cells indicates providers' commitment

Infrastructure Area	Infrastructure schemes and actions	Priority (1-4)	Rationale for inclusion / risk if not included	Drivers			Phasing	Location	Responsibility and Funding			Costs	Notes
				Policy	Existing gap/ replacement/ upgrade	Forecast demand for development			When should the infrastructure items be delivered by?	Where should the infrastructure item be delivered?	Responsible Delivery Agency		
Decentralised Energy Systems	Provision of CHP plant systems to meet a proportion of the estimated total gas and electricity consumption (existing plus forecasted) up to 2026  The optimum CHP engine capacity proposed for the Central WF sub-area is 25.5MWe	2	Opportunity to implement decentralised energy infrastructure due to baseline and projected energy demand profile.  If not included the risk is of a loss of opportunity to meet baseline and projected energy demand.	✓	✓	✓	S	Central WF - Possibly in Walthamstow town centre	LPA / LDA / PPP / PFI	LDA / ESCo (PFI or PPP)	Land provision from currently owned stock / Expectation on developers to connect	Not available	
Sewerage - Sewers	Provision for 3.9 million litres per day of sewer flows, and associated new and renovated sewers	1	The sewerage system is currently operating at full capacity. The system will not be able to cope with additional forecast development. Investment is also required to reduce sewer flooding.	✓	✓		S - M - L	Improvements should be borough wide. Problem hotspots the centre and south east of the borough	Thames Water (in association with the Regulator)	Thames Water	Lobbying, assist with planning, in-kind resources where possible, technical expertise. Collect planning gain contributions to fund improvements.	(To 2020) £74m	Whilst Thames Water's five and 25 years plans show that a capital investment plan is in place to address the renovation or expansion of the sewers system in the whole of the Thames Water region, the extent to which specific plans related to Waltham Forest have been finalised and funding committed is not clear. This applies to both pumping stations and sewer mains.
Sewerage – Pumping Stations	New and refurbished pumping stations required	1	The sewerage system if currently operating at full capacity. The system will not be able to cope with additional forecast development.	✓	✓		S- M	Improvements should be borough wide.	Thames Water (in association with the Regulator)	Thames Water	Lobbying, assist with planning, in-kind resources where possible, technical expertise. Collect planning gain contributions to fund improvements.	(To 2020) £4m	Costs identified are across the Thames Water Region at £243m

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Infrastructure Area	Infrastructure schemes and actions	Priority (1-4)	Rationale for inclusion / risk if not included	Drivers			Phasing	Location	Responsibility and Funding			Costs	Notes
				Policy	Existing gap/ replacement/ upgrade	Forecast demand for development			When should the infrastructure items be delivered by?	Where should the infrastructure item be delivered?	Responsible Delivery Agency		
Surface and Foul Water Drainage (Drainage maintenance and surface renewal / upgrades)	Maintenance of highway drainage, particularly repair of damaged gullies. Replace impermeable surfaces with permeable systems to reduce the quantity of surface water runoff and hence mitigate flooding	1	Help reduce the risk of surface water flooding	✓	✓		S – M - L	Throughout the borough	LPA	LPA	Funding and commissioning the work	£0.64m (indicative only)	Cost is estimated on the basis that the current budget of £25,000 per annum allows for adequate repair of the non-running gullies. Retrofitting permeable pavements when development at council land occurs estimated at additional 50% per annum.
Flood Risk	Sewer flooding investigation	1	To ensure full understanding of the strategic impact of new development on the sewer system and therefore on the risk of sewer flooding	✓	✓		S-M-L	Throughout the borough, particularly in the east and south.	LPA in association with Thames Water (and potentially the adjoining boroughs)		Commissioning the study to Thames Water	£50,000 (indicative only)	
Flood Risk	Preparation of a Surface Water Management plan	1	Help the Council consider all potential sources of flood risk and identify remedial measures	✓	✓		S – M - L	Throughout the borough	LPA	LPA	Preparation and funding	Not available	This Plan may be undertaken as part of the Drain London forum, a partnership with 32 London boroughs. The total budget is estimated at £3.2m under a DEFRA grant.
Flood Risk	Preparation of inundation mapping for the reservoirs in the River Lee Valley	1	Help understand the flood risk deriving from the reservoirs and identify mitigation/remedial measures	✓	✓	✓	S – M - L	Eastern of the borough	Environment Agency in liaison with Thames Water	Environment Agency/ Thames Water	Fully liaising with EA/TW throughout the process of creating these plans.	Not available	The emerging Flood and Water Management Bill, once published, will provide details on whose responsibility it will be to prepare inundation maps for large and small reservoirs. It is envisaged that the reservoir manager will have to provide the inundation maps to the EA when applying to register the reservoir under the new legislation.
Flood Risk	Preparation of emergency management plans for the reservoirs in the River Lee	1	Manage the risk associated with a bank failure at the reservoirs	✓	✓	✓	S – M - L	Eastern of the borough	Environment Agency in liaison with Emergency Services	Environment Agency/ Emergency Services	Fully liaising with EA/Emergency Services throughout the process of creating these plans.	Not available	The emerging <i>Flood and Water Management Bill</i> , once published, will provide details on whose responsibility it will be to prepare emergency management plans for high and low risk reservoirs. It is envisaged that the reservoir manager will fund the plans.

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Infrastructure Area	Infrastructure schemes and actions	Priority (1-4)	Rationale for inclusion / risk if not included	Drivers			Phasing	Location	Responsibility and Funding			Costs	Notes
				Policy	Existing gap/ replacement/ upgrade	Forecast demand for development			When should the infrastructure items be delivered by?	Where should the infrastructure item be delivered?	Responsible Delivery Agency		
Foul and Surface Water Drainage (Flood risk related SUDS measures)	Implementation of Sustainable Urban Drainage Systems (SUDS) and promotion of flood resistant architecture	1	Help alleviate sewer flowing	✓	✓	✓	S – M - L	Improvements should be borough wide.	LPA	LPA (if it is the landowner) / Developer applicant	Implement through Development Control policies / Funding if it is the landowner	Not available	
Waste	Use of additional waste management facilities and land	1	Need to accommodate future waste needs	✓	✓	✓	M-L	Ideally within Waltham Forest, but due to spatial constraints - outside the borough, either in north London or outside London	NLWA	Waltham Forest Council, via NLWA apportionment together with other north London boroughs & funding request for PFI credits together with other funding options to be explored by the Council	Supply of relevant technical information to NLWA	Not available	
Waste	Inclusion of integrated waste management facilities within new developments	1	Need to accommodate future waste needs	✓	✓	✓	M-L	Within the LB Waltham Forest	Private companies e.g. developer of a housing estate	Private company e.g. developer of a housing estate	Waltham Forest Council may require the inclusion of waste management facilities as part of planning conditions	Not available	The provider would be a private company e.g. a developer

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Infrastructure Area	Infrastructure schemes and actions	Priority (1-4)	Rationale for inclusion / risk if not included	Drivers			Phasing	Location	Responsibility and Funding			Costs	Notes
				Policy	Existing gap/ replacement/ upgrade	Forecast demand for development			When should the infrastructure items be delivered by?	Where should the infrastructure item be delivered?	Responsible Delivery Agency		
	Delivery of new custody suite	3	Development of specialised custody facilities in one location along with ancillary facilities such as interview rooms, consultation rooms and a search suite	✓	✓		S-M	Hainault Road	Metropolitan Police	Developer	Securing S106 funding	Not available	The location is unconfirmed
Police	Delivery of new police station front counters	3	Deliver a better environment for the public- the provision of a front counter to allow a joined-up approach to improve customer services	✓	✓		S-M-L	borough wide	Metropolitan Police	Metropolitan Police / Developer	Develop enabling land use planning policy	Not known	
	Delivery of new police station front counters	3	Deliver a better environment for the public- the provision of a front counter to allow a joined-up approach to improve customer services	✓	✓		S	Walthamstow Police Station	Metropolitan Police	Metropolitan Police / Developer	Develop enabling land use planning policy	Not known	
	Modernisation and consolidation of estate providing better office accommodation	3	Deliver the reorganisation and improvement of back-office facilities to ensure a more efficient manner of working, organisation, and support for frontline officers.	✓			M-L	borough wide	Metropolitan Police	Metropolitan Police (capital receipts)	Assist the Metropolitan Police in implementing estate strategy	Not available	Whilst the current economic climate may be an impediment to redevelopment in the short term, the strategy would still be pursued in the medium to long term. The modernisation and consolidation of the estate would include the delivery of new Safer Neighbourhood Bases
Fire	Redevelopment of Leytonstone Fire Station on existing site	3	Redeveloped to ensure that the station is able to provide an adequate service and improve the existing facilities for the local community in the future	✓			S-M	Leytonstone Fire Station	London Fire Brigade (LFB)	Private Finance Initiative	Assist the LFB in locating a site for a temporary station for use by the LFB during the station redevelopment	Not available	