

## A1 Bibliography

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## TA1 Industrial uses

| Locations | Growth areas | SIL |
| :---: | :---: | :---: |
| 1. Freezywater | Other | 11.1 ha |
| 2. Innova Park | Other | 26.0 ha |
| 3. Brimsdown | Other | 116.0 ha |
| 4. Redburn Trading Estate | Ponders End | 4.0 ha |
| 5. Meridian Business Park | Ponders End | 14.0 ha |
| 6. Aztec 406 | Central Leeside | 18.0 ha |
| 7. Montagu Industrial Area | Central Leeside | 10.0 ha |
| 8. Edmonton Eco Park | Central Leeside | 16.0 ha |
| 9. Eley Estate | Central Leeside | 26.0 ha |
| 10. Central Leeside Business Area | Central Leeside | 3.7 ha |
| 11. Lee Valley Trading Estate (Harbet Road) | Central Leeside | 18.0 ha |
| 12. Brantwood Road | Central Leeside | 17.0 ha |
| 13. North East Tottenham | Central Leeside | 15.5 ha |
| 14. Marsh Lane | Central Leeside | 2.1 ha |
| 15. Millmead | Tottenham Hale | 8.0 ha |
| 16. Blackhorse Lane | Blackhorse Lane | 16.5 ha |
| 17. Lee Bridge Gateway | Other | 37.7 ha |


| Growth areas |  |  | SIL |
| ---: | ---: | :---: | :---: |
| Tottenham Hale | $\mathbf{8 . 0} \mathbf{~ h a}$ |  |  |
| Blackhorse Lane | $\mathbf{1 6 . 5} \mathbf{~ h a}$ |  |  |
| Central Leeside | $\mathbf{1 2 6 . 3} \mathbf{~ h a}$ |  |  |
| Ponders End | $\mathbf{1 8 . 0} \mathbf{~ h a}$ |  |  |
| Other | 190.8 ha |  |  |
| Total SIL in the Opportunity Area | $359.6 \mathbf{h a}$ |  |  |

Table TA1. 1 Strategic Industrial Locations in the Opportunity Area


Fig. TA1.1 Strategic Industrial Locations

| Locations | Growth areas | LSIS |
| :--- | :--- | ---: |
| 1. Alma Industrial Estate | Ponders End | 4.5 ha |
| 2. Queensway | Ponders End | 3.5 ha |
| 3. Claverings Industrial <br> Estate | Central Leeside | 2.5 ha |
| 4. Montagu Industrial <br> Area | Central Leeside | 6.0 ha |
| 5. Langhedge Lane <br> Industrial Estate | Central Leeside | 0.7 ha |
| 6. High Road West <br> (Brook House potential <br> 1.8 ha to be released) | Central Leeside | 6.2 ha |
| 7. Lindens/Roseberry |  |  |
| Works | Tottenham Hale | 1.3 ha |
| 8. South Tottenham | Tottenham Hale | 9.1 ha |
| 9. Sutherland Road | Blackhorse Lane | 5.7 |


| Growth areas |  |  | LSIS |
| ---: | ---: | :---: | :---: |
| Tottenham Hale | $\mathbf{1 0 . 4} \mathbf{~ h a}$ |  |  |
| Blackhorse Lane | $\mathbf{5 . 7} \mathbf{~ h a}$ |  |  |
| Central Leeside | $\mathbf{1 5 . 4} \mathbf{~ h a}$ |  |  |
| Ponders End | $\mathbf{8 . 0} \mathbf{~ h a}$ |  |  |
| Other | 0.0 ha |  |  |
| Total LSIS in the Opportunity Area | 39.5 ha |  |  |

Table TA1.2 Locally Significant Industrial Sites


Table TA1.3 Total industrial land in the Opportunity Area

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Fig. TA1.2 Locally Significant Industrial Sites

## TA2 New jobs and homes

The growth figures outlined in this Framework have been determined using the London Plan and the boroughs' Local Plans.

The original estimates for the Opportunity Area in the London Plan were derived from information available at the time. Since then, work carried out in the production of this Framework and by other consultants has shown that the homes capacity of the area $(20,100)$ exceeds original estimates $(9,000)$.

A breakdown of the new homes and jobs figures is shown in the tables below.

|  |  |  |
| :--- | :--- | :--- |
| Location | Area | Reference |
| Tottenham Hale | 39 ha | GIS calculation |
| Blackhorse Lane | 39 ha | GIS calculation |
| Central Leeside | 48 ha | GIS calculation |
| Ponders End | 46 ha | GIS calculation |
| A1010 Corridor |  |  |
|  |  |  |
| Total growth areas | 172 ha |  |
| Opportunity area | 3884 ha | London Plan (July 2011) |

Table TA2.1 Size of growth areas and Opportunity Area

| Location | New <br> jobs |  | Year |
| :--- | ---: | :--- | :--- | Reference

Table TA2.2 New jobs in growth areas and Opportunity Area

| Location | New <br> homes |  | Year |
| :--- | :--- | :--- | :--- |
| Reference |  |  |  |
| Tottenham Hale | 5000 | 2031 | - Assessments carried out by ARUP identified in <br> Tottenham Physical Framework |
| Blackhorse Lane | 2500 | 2026 | . Waltham Forest Core Strategy |
| Meridian Water | 5000 | 2026 | . Meridian Water Masterplan |
| Ponders End | 1100 | 2026 | . Enfield Core Strategy |
| A1010 Corridor | 6500 | 2031 | - A10/A1010 Corridor Study (2010) <br> - Assessments carried out by ARUP identified in <br> Tottenham Physical Framework |
| Total growth areas | 20100 |  |  |
| Opportunity area | 9000 |  | London Plan (July 2011) |

Table TA2.3 New homes in growth areas and Opportunity Area

## TA3 Summary of the Transport Study results

Considering the need for changes to the transport network to stimulate and accommodate growth in the Opportunity Area, the Transport Study tested a series of possible interventions over and above those already committed. These were compared to 2021 and 2031 scenarios with the committed transport network to present an indication of the implications of future growth on the transport system and refine priorities.

Each of the interventions has been assessed against the Mayor's Transport Strategy objectives and those expressed by the boroughs. The priority interventions identified are:

- 4 trains per hour service on the West Anglia Main Line at regular time intervals calling at all stations between Brimsdown and Stratford,
- A package of bus interventions, including a combination of frequency enhancements or extensions to existing routes, and/or new services; further frequency increases by 2031,
- Further schemes to tackle peak time crowding on the Victoria line, such as further frequency improvements (e.g. towards 36 trains per hour, compared to the 33 trains per hour achieved through the recent upgrade) or a new line such as Crossrail 2,
- Measures to achieve a mode share for walking/cycling of at least $33 \%$ by 2021 and $36 \%$ by 2031.


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Fig. TA3.1 Percentage change in total trips (highway and public transport) 2007-2031 AM Peak


## Growth up to 2021 with a package of interventions

Transport outcomes with the identified package of interventions in place are improved in comparison with the 'do-nothing' scenario, reflected especially in increased patronage on local stopping services on the West Anglia Main Line. The outcome, however, is primarily improved connectivity to Stratford and the Isle of Dogs rather than reduced crowding on the busiest parts of the network, e.g. Victoria line. There is limited change to road congestion as a result of these interventions, with primarily local impacts in and around development sites.

Overall, the Study demonstrates that interventions delivered up to 2021 including the existing commitments on the rail, Underground and road networks will deliver improvements, meaning that growth can be delivered without worsening the existing transport situation.

## Growth up to 2031 with a package of interventions

By 2031, improved services on the Main Line will have tackled crowding issues that would otherwise have arisen, in addition to improving connections to Stratford, the Isle of Dogs and surrounding growth areas.

On the road network the picture is more varied. Whilst there will be a slight reduction in traffic and an increase in average speed, congestion remains at a number of junctions and further work will be required to identify ways to reduce this (Fig.3.8). The Victoria line towards the West End is severely overcrowded, an issue that could be tackled over the longer term through a new rail line, such as Crossrail 2.

The Study demonstrates that improved local services on the West Anglia Main Line will deliver substantial benefits to crowding and connectivity on the National Rail network. The more persistent issues of road congestion and Victoria line crowding are unlikely to be resolved through the identified priority interventions.

Figures TA3.1 and TA3.2 show the forecast scale of change in trips across the Upper Lee Valley (origin and destination). This does not account for the targeted increase in walking and cycling trips.

More than 3500
3000 to 3500
2500 to 3000
2000 to 2500
1500 to 2000
1000 to 1500
500 to 1000
100 to 500
Less than 100
Growth areas


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Fig. TA3.2 Absolute change in total trips (highway and public transport) 2007-2031 AM Peak

## Public Transport Accessibility Levels - mapping potential benefits

Public Transport Accessibility Level (PTAL) is measured on a 9 point scale ( $0,1 \mathrm{a}, 1 \mathrm{~b}, 2,3,4,5,6 \mathrm{a}$ and 6 b ) where 0 is poor and 6 b is excellent.

PTAL analysis shows that the southern portion of the study area, where population density is generally greater, benefits from a higher PTAL because of the Underground service and higher density of bus services.

Considering the possible package of interventions, Figure TA3.3 shows how PTAL might improve, particularly around the four growth areas.

Increase in accessibility
Growth areas


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Fig. TA3.3 Areas with change in public transport accessibility levels


PTAL 1a - Very poor accessibility
PTAL 1b - Very poor accessibility
PTAL 2 - Poor accessibility
PTAL 3 - Moderate accessibility
PTAL 4 - Good accessibility
PTAL 5 - Very good accessibility
PTAL 6a - Excellent accessibility
PTAL 6b - Excellent accessibility
Growth areas

© Crown Copyright and database right 2013. Ordnance Survey 100032216 Source: Transport for London Fig. TA3.4 Public transport accessibility levels 2012

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Fig. TA3.5 PTAL with committed investment and suggested further improvements 2031

## TA4 Strategic landscape projects

The strategic landscape projects identified by Witherford Watson Mann Architects in "From Edge to Common Ground - Upper Lee Valley Landscape Strategy are summarised below.

## 1. Lammas Land to Back Water

Improve existing paths across Marsh Lane playing fields, railway and across golf course. New direct path from golf course to Back River.

## 2. Hackney Marshes

New path across Hackney Marshes from Olympic Park to entrance of Middlesex filter beds. River edge to be naturalised along Back River with drainage cuts and river tree planting.

## 3. Aqueduct path - Hackney Marshes

New bridge across Back River with direct connection to Hackney Marshes. Additional entrance to Waterworks Centre, clear entrance to Middlesex Filter Beds and reconfigure pathways to Hackney Marshes. New public open space.

## 4. Thames Water site

Improve sight lines from Lea Valley Road to Back River with wide landscape strip, new foot and cycle path. Create view corridor through south-east section of site to the marshes with public open space.

## 5. Lea Bridge Road

Foot and cycle paths to be set away from road, with improved connections to Sandy Lane and the Paddocks. New secondary bridges across River Lea, Aqueduct path and flood relief channel.

## 6. Black path

Improve legibility of path through landscape and public realm design, signage, ramps, bridge and viewpoint on existing railway bridge.


## 17. West Warwick Reservoir

New path along bank of reservoir and a viewing platform on southern bund towards City and Canary Wharf. Extend water edge and habitat with floating reedbeds. New boardwalk and planted pontoons leading to gated footbridge onto Markfield Recreation Ground.

## 18. Alternative N1 foot and cycle path

New cycle path with bridge between reservoir bank and railway line.

## 19. Coppermill entrance to reservoirs

New visitor entrance via two footbridges and a new path to East Warwick Reservoir. Possible access to Coppermill Tower for views over reservoirs.

## 20. Markfield Recreation Ground

De-culvert and naturalise Stonebridge Brook. Possible public access to West Warwick Reservoir with new bridges and frontage onto River Lea.

## 21. Douglas Eyre Playing Fields

In addition to Project 12, open additional access from Hawarden Road to connect onto flood relief channel path.

## 22. Ferry Lane - Forest Road

New foot and cycle path with bridges over waterbodies. Enhance entrance to park with generous landscaped space. Possible location for water bus stop and viewing terrace off Ferry Lane to islands.

## 23. The Paddock

River edge naturalisation and create areas of wet woodland. New enclosure to Victoria line ventilation tower with external stairs and viewing platforms to overlook the Paddock and the reservoirs.

## 24. Walthamstow Reservoirs

Increase public access in existing path network, including new entrance off Ferry Lane and visitor centre possibly in existing Pump House.

## 25. Backriver path

New path along river channel and new bridge. Boardwalk through new wetland in the Paddock (project 23) to water edge and platforms.
26. Chesnut Road to the Paddock

Green east-west link from Tottenham High Road through Hale Village, including bridges across waterspaces to Paddock and Back River path.

## 27. Blackhorse Lane Waterfront Park

Waterfront park beside Dagenham Brook/flood relief channel with open space connection to Blackhorse Lane.
28. Moselle Brook to Clendish Marsh

De-culvert Moselle Brook between back of houses and plant trees to naturalise banks. Create wetland/river edge area at edge of Scotland Green. New bridge over railway and Meridian Way with viewing platforms over the marshes. Increase height of existing underpass by excavating further 0.5 m .

## 29. Marsh Lane to Stonebridge Lock

New bridge at Stonebridge Lock and create public open space with seatings, new lido, new paddling pool and playground.
30. Park Lane - Marigold Road to Wild Marsh East

Full restoration of western bank of Lee Navigation between Stonebridge Lock and Chalk Bridge. New small public areas, small scale community gardens and greenhouses (with possible waste heating) in existing open spaces surrounding housing estates.

## 31. Flood relief channel path 2

Open existing paths to public towards Lea Valley Road. New path along flood relief channel to Central Leeside, from playing fields onto existing path from Eatons Mead.
32. Banbury Reservoir

Review access, parking, possible use of former pumping station. Landscape enhancements.

## 33. Folly Lane

Reinforce with tree planting and widen path. Possible BMX/ scrambler track on playing fields. Reactivate neighbouring playing fields.

## 34. River Ching walk

Naturalise river bank and create clear link along river with tree planting and daylighting. New footpath through greyhound stadium, and edge of sport centre to connect to Wickham Road.

## 35. Central Leeside open space

Possible new open space on confluence of Salmons and Pymmes Brook.
36. Central Leeside waterspace

Possible canal basin/marina and quayside landscape to the Lee Navigation. New path from Chalk Bridge to Lee Parkway.

## 37. Kimberley Road to River Ching

Potential new open space and pathways through former gasworks site. New paths to Angel Road, rivers and playing fields with bridges over rivers, roads and railway.
38. Central Leeside flood relief channel

Tree planting on river edge landscape area and open footpath.
39. North Circular landscape enhancements

Roadside white poplars planting and ambient lighting to viaduct undercroft. Traffic island as possible location for public art to mark crossing of the valley for North Circular users.

## 40. Old railway line to Chingford Mill

Extend old railway line path with potential open space adjacent. Straightening of Lee Valley Parkway cycle path and replace shrubs with white poplars. New foot and cycle bridges across railway, Meridian Way to Nobel Road, and over Pymmes Brook towards Lee Parkway cycle path.

## 41. Salmons Brook

Planting willows to existing 10 m wide strip on east side of brook through industrial estate.
42. Infrastructure site Central Leeside

New open space along Salmons Brook for flood storage and wetland habitat, and productive landscape/orchard besides existing path. Landscape link to Lee Park Way and possible location for community glasshouse. New bridge to William Girling Reservoir and remove palisade fencing along path.

## 43. Salmons Brook path

New community gardens on Montague Recreation Ground with new east-west path and new ramped bridge across railway/A1055. New paths along golf course and brook. Enhance connection to surrounding areas, including signalled surfaces over roads.
44. Picketts Lock

Enhance leisure cluster with new facilities and better synergies between uses with improved links to Ponders End and Columbia Wharf.

## 45. Boundary ditch - Picketts Lock

Public realm improvements to increase visibility and ease of access. Close secondary road in front of local centre to increase pedestrian space and street furniture. New bridge over railway.

## 46. Lea Valley Road

Create threshold to Lea Valley Road by planting trees on Meridian Way roundabout and on southern side of road. Relocate Thames Water perimeter fence to create combined foot and cycle path between trees. New foot and cycle bridge over flood relief channel.

## 47. Ponders End and Wharf Road

Upgrade existing foot and cycle path, approach to South Street station and new ramped bridge over station. Additional links, landscape works and facilities on Ponders End Recreation Ground.

## 48. South Marsh

New marina and building to service existing moorings. Intensify usage of open space with community allotment gardens and other uses. View point at cafe near King George $V$ sailing club. New access road from Lea Valley Road, new paths and bridges to connect to new amenities.
49. Columbia Wharf

New/improve existing foot and cycle paths and bridges, including planting trees and new boardwalks. Possible creation of wetland on water meadow with bird hides and habitat intensification.
50. Yardley Hill and Pole Hill

Improve and clarify access to reservoir, Yardley Hill with clearly visible panel marker to interpret great views to the city. Clarify pathway hierarchy to and through forest.

## 51. Flood relief channel path 3

New path from Eaton's Mead leading to new signalled crossing at Lea Valley Road. New path along flood relief channel, with new public open space at Sewardstone Paddock with children's activity and wildlife area. New path to Gunpowder Park and resurface Mill Lane dirt track for pedestrians and cyclists.

## 52. King George V Reservoir

Improve access to reservoir and flood relief channel with ramps, new footpaths and bridges. Create habitats for birds and fish with floating reedbeds on sides of path.

## 53. Durants Park - Lee Navigation

East-west connection at Durants Park with new and opening existing paths to and through allotment gardens. New pedestrian crossing over Mollison Avenue, and negotiate access to Lea Navigation.

## 54. Mossops Creek

Planting along Stockingwater Lane towards Brimsdown station.
55. Swan and pike pool - Enfield Lock

New moorings at Swan and Pike Pool with new public sitting and picnic facilities. New public spaces at Enfield Lock. New viewing tower at pasture towards productive cluster.

## 56. Swan and pike productive cluster

A number of community gardens, allotments, glasshouses, and beekeeping with timber rafts to carry beehives. Also includes small clubhouse and weekend produce market.

## 57. Turkey Brook - Sewardstone

Naturalise riverbanks in Albany Park with possibility of extensive wetlands. Reinforce visibility and improve channel habitat. New path north of Turkey Brook, new bridges at Albany Park and railway. Widen and resurface footpath along Turkey Street to incorporate Turkey brook. Soft landscaping at Turkey station.
58. Island Village

Small scale allotment and community herb gardens on raised beds.
59. Gunpowder Park

Open access road for public. Reinforce tree planting on higher ground.
60. Rammey Lock

Enhance habitat to create public wetland and existing cruising club as canoe hire and cafe. Additional moorings and possibility of a boardwalk. New paths and bridges to connect to Gunpowder Park and nearby rivers.

## 61. Rammey Marsh

Turn former landfill into productive landscapes with glasshouses. Small Lea habitat improvement. New entrance and path to Innova Park.

## 62. Small Lea footpath

Improve existing path between Long Croft Drive and New Ford Road for pedestrians. New paths to Turkey Brook, Mollison Avenue and Innova Park. New signalled crossings at Ordnance Road and Station Road.

## 63. Links to north

Open path along Horsemill to public. New gateway and crossing to Lee River Country Park, new paths along Cornmill Stream and Town Mead.

## TA5 Flood risk management

Tottenham Hale and Blackhorse Lane

The Tottenham Hale growth area is adjacent to the River Lee and its flood channels and the Walthamstow Wetlands. The topography of the area is low lying and relatively flat. The Moselle Brook joins the Pymmes Brook, which in turn flows into the River Lee Navigation immediately south of Ferry Lane. Tottenham Hale is predominantly within Flood Zone 2 with smaller areas within Flood Zone 3a and 3b where the River Lee and the River Lee flood relief channel run. Only a very small part of the growth area to the west is within Flood Zone 1.

Further information on flooding can be found in the joint Strategic Flood Risk Assessment carried out for the North London Waste Plan (www.nlwp.net) and the Haringey Core Strategy Sequential Test 2011: Haringey Core Strategy Sequential Testing - Core Strategy Identified Areas of Development (2011).

The Blackhorse Lane growth area is adjacent to the River Lee flood relief channel and the Dagenham Brook channel which run adjacent to one another. The functional floodplain (1 in 20 year) extent is mainly constrained to the river channel areas, and some southern parts of the area (in the vicinity of Wickford Way) are located within the 1 in 100 year extent.

The northern part of the area, broadly from Hooker's Road to Uplands Business Park lies within the 1 in 1000 year flood extent with some parts shown to be within the 1 in 100 year with climate change outline. The ground levels rise towards the east of the area, with Blackhorse Lane itself lying out of the 1 in 1000 year floodplain; i.e. within Flood Zone 1.

Further information on flooding can be found in Waltham Forest Council's Level 2 Strategic Flood Risk Assessment.



Fig. TA5.1 Flood risk: Tottenham Hale and Blackhorse Lane

## Central Leeside

The Meridian Water site is crossed by several significant watercourses including the Lee Navigation and the River Lee flood relief channel, Pymmes Brook and Salmons Brook. All the rainfall runoff generated in Enfield drains through this site. It is a relatively flat site varying in height from eight metres above sea level to 12 metres at the highest. Significant alterations were made twenty years ago to the highway and drainage infrastructure as part of upgrade works to the North Circular. The entire Meridian Water site is located with Flood Risk Zones 2 and 3 and five sites have been identified as at risk of flooding.

The draft findings of the detailed flood risk assessment of the masterplan area outline the flood mitigation measures required to enable development of Meridian Water and recommends actions that move the areas of flood risk and create alternative floodable areas to enable land currently at risk of flooding to be developed on. Lower Hall Lane and Tottenham Marshes are considered suitable candidates for flood compensation storage. The initial findings conclude that the best case scenario would be to use the entire Lower Hall Lane for flood storage. However, if this were not possible, the fall back option would be to use part of the Lower Hall Lane site and with the shortfall absorbed by the Tottenham Marshes and other sites to come available during the lifespan of the proposal. The provision of additional flood capacity upstream of the growth areas identified in this document would also help mitigate the impact of developing in these areas.

Thames Water retains significant landholdings within the Central Leeside area including the Lower Hall Lane site. The potential for some of this land to provide additional flood mitigation measures and a unique biodiversity habitat should be explored. Given the aspirations for Thames Water to develop the existing Deephams Sewage Treatment Works (Fig. 5.2) there is an opportunity to provide a joined up approach to water management within the growth area. This will resolve issues around flooding and sewage treatment and aid the Lee Valley Regional Park with proposals to open up new areas of the park to the public.

Further information on flooding can be found in Enfield Council's Level 2 Strategic Flood Risk Assessment.

Flood risk zone 2
Flood risk zone 3
Areas would benefit from flood defences
$\qquad$ Flood defences
$\square$ Growth areas

North



Fig. TA5.2 Flood risk and potential compensation areas: Central Leeside

## Ponders End

Three main rivers cross the Ponders End growth area; the River Lee, the Lee Navigation and Brimsdown Ditch. The growth area is located on the west bank of the Lee Navigation at one of only two locations in London where an original loop of the River Lee still exists. The loop serves as a bypass to the nearby canal lock and also feeds a mill chase.

Brimsdown Ditch crosses the site at its north-west corner. Though now mostly culverted, historical maps show this was once an open watercourse. The area is fairly flat rising from 13 metres above sea level at its lowest point to just 15 or so at the highest end.

Ponders End Waterfront falls within Flood Zones 2 and 3. However, Ponders End South Street and Ponders End Central are not identified as areas at risk of flooding.

Further information on flooding can be found in Enfield Council's Level 2 Strategic Flood Risk Assessment.

Flood risk zone 2
Flood risk zone 3
Areas would benefit from flood defences

Flood defences
Growth areas



Fig. TA5.3 Flood risk: Ponders End

