Havering Local Plan 2016-2031
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Annex 7 part B
Regulation 18 Representations:
Additional Material Submitted
MARDYKE FARM
Havering Local Plan Representations
Land at Mardyke Farm, South Hornchurch

Prepared by GVA
A Bilfinger Real Estate Company
On Behalf of Barratt London
March 2015
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1. Introduction

1.1 This representation has been prepared by GVA on behalf of Barratt London in respect to the promotion of land at Mardyke Farm, South Hornchurch in the London Borough of Havering (LBH) (refer to site plan at Appendix A).

1.2 It is submitted in response to the current consultation on ‘A new Local Plan for Havering’ which seeks to identify the key strategic priorities for the Borough over the next 15 years and how these priorities should be addressed in the new Local Plan.

1.3 The purpose of this representation is to set out the case for a revision of the Green Belt boundary to exclude the Mardyke Farm site from the Green Belt alongside the provision of a strategic site specific policy that allocates the site for housing (and associated development) in the emerging plan. The site is deliverable (suitable, available and viable) in the short term and offers the opportunity to accommodate a high quality development of around 1,500 homes alongside a school, community facilities, and associated green infrastructure (including playing fields, parks, equipped children’s play, and natural greenspaces).

1.4 The case focuses on setting out the exceptional circumstances necessary to justify a revision to the Green Belt boundary, which comprises the following:

i) The following development needs exist:
   - There is a need to identify additional land for housing development in the borough in order to meet objectively assessed housing needs;
   - There is a need to provide new social infrastructure (including a school) and to support the upgrade of other infrastructure (including transport) in the local area;
   - There is a need for regeneration (physical, social, economic) of the local South Hornchurch/Beam Park area; and
   - There is a need to secure a sustainable long term future (including management arrangements) for the site.

ii) The site makes a limited contribution to the purposes of including land within the Green Belt, therefore its value in Green Belt policy terms is limited (the release of the site from Green Belt is therefore not likely to give rise to significant harm). Similarly, the site is considered to have only limited value in Green Infrastructure terms (any loss/harm can be appropriately mitigated).

iii) The site is deliverable, with development able to address each of the development needs set out above and therefore realise significant planning benefits in terms of housing, infrastructure and regeneration:
- It will be available for development from early 2017 (with delivery expected in the early part of the plan period);
- It is suitable for housing development in environmental, technical, townscapie, and infrastructure capacity terms; and
- Development is a viable proposition, with a willing landowner and developer in place.

1.5 The representation is structured as follows:

- **Section 2** describes the site and its surrounding context as part of the South Hornchurch/Beam Park neighbourhood;
- **Section 3** summarises the site’s planning history;
- **Section 4** considers the strategic policy context that underpins the case for development;
- **Section 5** considers matters associated with its existing use;
- **Section 6** outlines the housing need case;
- **Section 7** assesses the harm of the proposal in Green Belt policy terms;
- **Section 8** demonstrates the site’s suitability for development and its deliverability;
- **Section 9** sets out the likely regeneration benefits of the proposal; and
- **Section 10** concludes the representation by summarising the planning case and framing the development opportunity.

1.6 This main report is supported by the following appendices:

- **Appendix A** – Site Plan;
- **Appendix B** – Approved/Committed Landscape Plan;
- **Appendix C** – Development ‘vision’;
- **Appendix D** – Transport and Access Appraisal;
- **Appendix E** – Technical/environmental Appraisal; and
- **Appendix F** – Green Belt Assessment/Methodology Framework.
2. **Site and Surroundings**

2.1 The site extends to approx. 37ha and is located on the western edge of the London Borough of Havering (LBH), approximately 15 miles (24km) east of Central London.

2.2 The site is bound by the Beam River to the west (which forms part of the Beam Valley Country Park); Dagenham Road (A1112) to the north; the rear of existing residential properties fronting Rainham Road / Betterton Road / Frederick Road to the northeast, east and south east; and the Orchard Village housing development (former Mardyke Estate) to the south west.

2.3 The site comprises 2 separate landholdings:
   i) 37 ha - A former aggregates and landfill site which is currently being restored following the cessation of operations. There are no permanent buildings/structures on the site. Currently the site is being restored; however public access is allowed in non-operational areas. This land is under single ownership (Ebbcliff Ltd).
   ii) 4 ha - An area of public open space which includes an equipped children’s play facility. We understand that this land is under single ownership (London Borough of Havering).

2.4 The site is set within a suburban context typical of outer London which is characterised by low density 2-3 storey housing built in the inter-war and post-war periods, interspersed with more recent (and typically denser) development such as the Orchard Village scheme to the south west. These residential areas sit within a broader context that includes extensive areas of open space and industrial land (much of which is derelict).

2.5 Rainham District Centre which provides retail, services and community facilities is located approximately 1 km to the south east of the site. There are a number of educational establishments situated within close proximity to the site within the surrounding neighbourhoods, including: Newtons Primary School, The Leys Primary School, Britons Academy (Technology College), Whybridge Junior School and La Salette Catholic Primary School, all within 1km of the site.

2.6 The nearest London Underground Station is Dagenham East (District Line, Zone 5) located approximately 1km to the north-west of the site. National rail services are available from Dagenham Dock and Rainham (both Zone 6 and approximately 1.5km to the south-west and south-east respectively) providing C2C services to London Fenchurch Street in around 25 minutes. There are proposals for a new national rail station at Beam Park (approximately 1 km to the south). The site has a Public Transport Accessibility Level (PTAL) rating of 1-2.
3. **Planning History**

**Existing Use**

3.1 The site has been the subject of localised ad hoc sand and gravel (Drift Flood Plain gravels) extraction since at least the 1860’s. Ordnance survey maps from the 1930’s show the presence of commercial gravel extraction in the central northern part of the site which extended across the entire site by the late 1950’s. The resultant void was infilled with general undefined waste materials between 1961 – 1969.

3.2 Planning permission was granted in 1994 (ref. 0186.93) and an Environment Agency waste management licence issued to allow the site to be restored. The approved scheme involves extensive ground level raising (and re-contouring) with inert materials, which is to be seeded (grass) and supplemented with some limited tree planting. The scheme also includes the provision of an ‘ecological corridor’ that follows a surface watercourse along the eastern boundary. A copy of the approved Landscaping Plan is enclosed at Appendix B.

3.3 Conditions attached to the planning consent were amended in 2010 (ref. 0432.10) and again in 2014 (0455.14). The final phase of the site’s restoration commenced in April 2011 and is due to be completed in 2017.

3.4 The s.106 legal agreement associated with the planning consent (as amended) requires public access to 75% of the site following the completion of restoration works (15% is to be reserved for nature conservation with limited public access and 10% with no public access).

3.5 The future management and maintenance of the site is limited to a 10 year aftercare obligation linked with the associated legal agreement.

**Havering Local Plan**

3.6 The site was subject to a proposed allocation in the LBH Site Specific Allocations DPD (Submission Draft) (2008), for comprehensive redevelopment (housing/public open space) including the removal of part of the site from Green Belt. The proposed allocation was removed by the Inspector appointed to examine the plan on the grounds that the benefits of allowing development to proceed were not considered to constitute the exceptional circumstances required to justify a review of the Green Belt. The decision was based upon the Inspector’s conclusion that the borough had identified a sufficient supply of deliverable sites to meet housing needs/targets without having to rely on this site and consequently there was no ‘need’ argument to justify its release from Green Belt.
3.7 We note that historic housing delivery rates in the borough in the period since the Inspector’s decision have consistently fallen short of London Plan annual monitoring targets. This confirms that the supply of sites carried forward in the adopted Local Plan were not sufficiently ‘deliverable’ to meet housing needs in full and therefore a need case to underpin the allocation of the Mardyke Farm site did in fact exist (contrary to the Inspector’s decision at the time).
4. **Strategic Policy Context**

4.1 The starting point for determining the case for development at the site is the extant framework of national and London-wide planning policies, with which the new local plan should be in general accordance. We set out below an overview of the key pertinent policy considerations of relevance to the site (which we consider to be focused on housing, Green Belt, and public open space matters).

### National Planning Policy Framework

4.2 The National Planning Policy Framework sets out the Government’s planning policies for England and how these are expected to be applied. It provides a framework to within which local people and their accountable councils can produce their own distinctive local plans, which reflect the needs and priorities of their communities. The NPPF must therefore be taken into account in the preparation of local plans and is a material consideration in planning decisions.

4.3 The NPPF establishes a firmly positive ‘pro-development’ national policy position, which is underpinned by a ‘presumption in favour of sustainable development’. The Government has made it clear that the NPPF and its aforementioned presumption represent a significant step-change in national policy (which, notably, has come into force since the current Havering Local Plan was adopted).

4.4 The NPPF aims to proactively drive and support sustainable economic development to deliver the homes and infrastructure that the country needs. The framework states that every effort should be made to objectively identify and then meet the development needs of an area and respond positively to wider opportunities for growth. It continues that emerging plans should take account of market signals, such as land prices and housing affordability, and set out a clear strategy for allocating sufficient land which is suitable for development in their area, taking account of the needs of the residential and business communities. In order to achieve this goal, the NPPF encourages the effective use of land by reusing land that has been previously developed (brownfield land), provided that it is not of high environmental quality (paragraph 17).

### Housing

4.5 A key objective of the NPPF is ‘to boost significantly the supply of housing’ (paragraph 47). In order to achieve this, Local Planning Authorities should “Identify and update annually a supply of specific deliverable sites sufficient to provide five years’ worth of housing against their housing requirements with an additional buffer of 5% (moved forward from later in the plan period) to ensure choice and competition in the market
for land. Where there has been a record of persistent under delivery of housing, local planning authorities should increase the buffer to 20% (moved forward from later in the plan period) to provide a realistic prospect of achieving the planned supply and to ensure choice and competition in the market for land”.

4.6 As will be explained in Section 5 of this report, LBH does not have an up-to-date 5 year supply of housing land. The Council currently has a 4.04 year supply of housing land (against adopted FALP 2015 targets) and as such, falls short of the requirements set out in the NPPF.

Green Belt

4.7 With regards to the Green Belt, the NPPF seeks continued protection of Green Belts (paragraph 17) and states that ‘the fundamental aim of Green Belt policy is to prevent urban sprawl by keeping land permanently open’ (paragraph 79). It continues to identify openness and permanence as essential characteristics of the Green Belt.

4.8 Paragraph 80 of the NPPF highlights that the Green Belt serves the following five purposes:
   i) To check the unrestricted sprawl of large-built up areas;
   ii) To prevent neighbouring towns from merging into one another;
   iii) To assist in safeguarding the countryside from encroachment;
   iv) To preserve the setting and special character of historic towns; and
   v) To assist in urban regeneration, by encouraging the recycling of derelict and other urban land.

4.9 The NPPF states that Green Belt boundaries should only be altered in exceptional circumstances, through the preparation of the Local Plan. At such time, authorities should consider Green Belt boundaries having regard to their intended permanence in the long term, so that they should be capable of enduring beyond the plan period (paragraph 83). The implication of this criteria being that where significant development pressure exists and exceptional circumstances are warranted to develop in the Green Belt, it is considered appropriate for local planning authorities to seek to remove such sites from the Green Belt through the Local Plan-making process in order that they can deliver sustainable development to meet their identified development needs.

4.10 The NPPF continues that when drawing up or reviewing Green Belt boundaries, local planning authorities should take account of the need to promote sustainable patterns of development (paragraph 84). Sustainable patterns of development are not defined in policy. However, this is considered to relate to taking into account a range of additional factors beyond the contribution towards Green Belt purposes. These
factors might include local development needs, transport issues and accessibility to local services and public open space. With regard to sustainability, it is necessary to recognise the wider and updated context of how sustainable development is defined in the NPPF as set out above. Updated policy states it should contribute towards social, economic and environmental objectives.

4.11 The NPPF reaffirms the definition of Green Belt boundaries, stating (paragraph 85) that when defining boundaries, local planning authorities should:

- Ensure consistency with the Local Plan strategy for meeting identified requirements for sustainable development;
- Not include land which it is unnecessary to keep permanently open;
- Where necessary, identify in their plans areas of ‘safeguarded land’ between the urban area and the Green Belt, in order to meet longer-term development needs stretching well beyond the plan period;
- Make clear that the safeguarded land is not allocated for development at the present time;
- Satisfy themselves that Green Belt boundaries will not need to be altered at the end of the development plan period; and
- Define boundaries clearly, using physical features that are readily recognisable and likely to be permanent.

4.12 In summary, the NPPF supports the long-standing principles of Green Belt protection, whilst acknowledging that the objectives of the planning system continue to evolve, reflecting current land use pressures and social trends. The Government’s priority is to deliver growth and sustainable development through harmonising, wherever and whenever possible, the economic, environmental and social processes that deliver functioning places. Policy also reinforces the plan-led system which gives planning authorities the power to undertake Green Belt reviews to help inform emerging spatial strategies for Local Plans necessary in order to meet development needs. The role and function of the Green Belt therefore needs to be considered within this overarching context to assist in the delivery of sustainable development.

Public Open Space

4.13 There is a commitment under the extant planning consent for the site to revert to publicly accessible land following the completion of the restoration scheme (the future ‘baseline’ position), therefore policies relating to public open space and green infrastructure are relevant.

4.14 In this regard, the NPPF places a requirement on local authorities to set out a strategic approach in their Local Plans that plans positively for the creation, protection, enhancement and management of networks of green infrastructure.
**London Plan**

4.15 The Further Alterations to the London Plan (FALP) was adopted on 10th March 2015 and provides the overall strategic plan for London for the period to 2031. The policies of the FALP are now operative as formal alterations to the London Plan and therefore for part of the Development Plan for Greater London.

**Housing**

4.16 The Plan places significant policy priority on increasing the supply of new housing in London, and recognises that the capital is part of a global and national housing market as well as having its own, more local and acute housing market needs which places a unique challenge in reducing the gap between need and supply.

4.17 The former London Plan set an annual monitoring target of 32,000 net additional homes in London (Policy 3.3). However this target has been subject to a significant upward revision in the adopted FALP largely on account of revised population projections for London which suggest that London’s population is likely to increase significantly more than was anticipated in the past (an increase of 2 million people in the period to 2036).

4.18 The FALP is based on an accepted ‘need’ to provide a **minimum** 49,000 net additional homes per annum in London in the period 2015-36 (with recognition that the need in the early part of the plan period is likely to be greater than this). It makes clear at paragraph 3.18 that for Local Plans to be found sound they must demonstrate that they have sought to boost significantly the supply of housing as far as is consistent with the policies of the NPPF, with particular emphasis placed on demonstrating deliverability.

4.19 Paragraph 3.19i establishes two requirements for boroughs to satisfy through their local plans:

i. Meet the relevant minimum housing supply target defined in Table 3.1. For Havering, this is 11,701 for the period 2015-25 (an annual monitoring target of 1,170); and

ii. Noting that the defined borough targets fall short of the 49,000 objectively assessed annual housing need figure, boroughs are also required to seek to exceed the target by identifying additional sources of supply.

4.20 The FALP housing target for Havering is an increase from 9,700 in the adopted 2011 London Plan.
Green Belt

4.21 The London Plan’s policy position in respect to Green Belt is as per the NPPF (Policy 7.16).

Public Open Space

4.22 The site is not designated as Metropolitan Open Land, Local Green Space, or any other local open space designation in the Local Plan and therefore is not subject to protection under London Plan policies. Notwithstanding this, paragraph 7.58 requires that the value of such non-designated spaces should be considered as a material consideration that should be taken into account in the planning process, with Policy 2.18 setting out the strategic approach to Green Infrastructure across London.

4.23 Policy 2.18 places the onus on local authorities to plan strategically and positively for the creation, protection, enhancement and management of networks of green infrastructure through the production of a Green Infrastructure Strategy.

Conclusions - Implications for the New Local Plan

- The plan should identify (allocate) a supply of specific developable sites (or broad locations for growth) to accommodate a minimum 17,550 net additional homes (1,170 annual monitoring target over the 15-year period of the plan), and identify measures to exceed this minimum requirement. The preference is for development to be directed to brownfield land;
- In preparing the plan, the LPA should consider revising Green Belt boundaries in the context of achieving sustainable development (including the aim of significantly boosting the supply of housing) and the exceptional circumstances test; and
- The plan should include a Green Infrastructure strategy.
5. **Existing Use**

**Aggregates/Waste Use**

5.1 The site is not subject to any existing protective policy designations relating to minerals/waste in the current Local Plan. The site has fulfilled its functional life as an aggregates extraction and waste resource, and the completion of the site’s restoration works will in effect mark the commencement of a new chapter in its planning history.

**Green Infrastructure**

5.2 The planning permission and S106 Legal Agreement dated 1993 (and updated in 2011 and 2014 respectively) requires general public access to be provided to 75% of the site following the completion of restoration works (with 15% reserved for nature conservation with limited public access and 10% with no public right of way). This is effectively the future ‘baseline’ position in terms of the site’s use.

5.3 It is appropriate to reconsider whether this ‘future baseline’ use of the site is the most appropriate solution. The relevant considerations include the quality and type of provision; management arrangements; and whether there is a need for that type of space.

**Quality of Provision**

5.4 The approved landscaping scheme includes no ‘formal’ landscaping or recreation provision. Instead the majority of the site is to be simply seeded with grass, alongside some limited tree planting and protection of an ‘ecological corridor’ along the eastern boundary. Effectively it will mature into a ‘natural greenspace’ type of provision in Green Infrastructure (GI) terms.

5.5 The value of this space in GI terms should be considered in the context of other existing provision in the local area and associated needs (as considered below).

**Future Management**

5.6 The future management and maintenance of the site will be in accordance with the 10 year aftercare plan as required by the approved legal agreement.

**Green Infrastructure Need**

5.7 LBH undertook an assessment of open space provision in the borough as part of its evidence base to inform the 2008 Core Strategy. It is assumed that an up to date
assessment will be undertaken as part of the preparation of the new local plan, nonetheless at this point in time this remains the most up to date evidence base for GI matters.

5.8 The assessment identifies the site as is located within the ‘South Hornchurch’ ward which accommodates 12.98ha of open space, including, linear parks/open space, metropolitan parks, district parks, local parks, small local parks/open spaces and pocket parks. We note that this excludes the 74ha Beam Valley Country Park which is adjacent to the site (but falls within an adjacent ward). It also excludes the site (as committed future GI provision).

5.9 South Hornchurch is identified as where a significant proportion of homes are deficient in access to Local Parks and District Parks (having regard to the category hierarchy, and size/distance from homes guidelines set out in Table 7.2 of the London Plan). All of the borough’s wards are within the 3.2km catchment area of at least one metropolitan park.

5.10 The study includes a qualitative and quantitative assessment of existing provision. In qualitative terms, the study concludes that GI provision in South Hornchurch ward is ‘below average quality and value’. The quantitative assessment compares actual provision of numerous GI typologies against defined policy standards – Table 1 below summarises the position for South Hornchurch ward:

Table 1: Open Space Provision in South Hornchurch Ward Compared Against Policy Benchmark Standards (2005 Study)

<table>
<thead>
<tr>
<th>Ward</th>
<th>Public Parks</th>
<th>Natural Greenspace</th>
<th>Playing Pitches</th>
<th>Allotments</th>
<th>Amenity Space Need</th>
</tr>
</thead>
<tbody>
<tr>
<td>South Hornchurch</td>
<td>-0.81ha</td>
<td>+10.88ha</td>
<td>+0.74ha</td>
<td>+0.03</td>
<td>Low</td>
</tr>
</tbody>
</table>

5.11 As is evident from the table above, the study indicates that in quantitative terms there is an ‘over-supply’ of access to natural greenspace in the ward, however an under-supply of parks. This is compounded by the qualitative deficiencies outlined above. This suggests that there is limited value in providing additional natural greenspace on the Mardyke Farm site.

Conclusions - Implications for the New Local Plan

- The current restoration works will cease in April 2017.
- The future committed use as publicly accessible natural greenspace is the more relevant consideration. Existing evidence indicates that there is no need for additional natural greenspace in the local area, therefore non-provision would
not result in a significant harm in GI policy terms. Notwithstanding this, there is a pressing need for more formal public parks and qualitative improvements to existing provision across all GI typologies, which the Mardyke Farm site could effectively help satisfy.

- The new Local Plan should be informed by an up to date GI assessment and include a GI strategy.
6. **Housing Matters**

6.1 The relevant housing considerations for plan-making focus on objectively assessed need and land supply.

**Need**

6.2 The borough’s objectively assessed need has been assessed at a strategic level in the London Strategic Housing Market Assessment (SHMA) and is defined in the FALP. As per Section 4, the new local plan is required to make provision for a **minimum** 17,550 net additional dwellings (with an expectation that this should be exceeded) (15 years x 1,170 per annum target).

**Supply**

6.3 The relevant supply side considerations are the London Strategic Housing Land Availability Assessment (SHLAA), historic delivery rates, and the Council’s identified supply of deliverable housing land.

**SHLAA**

6.4 The London SHLAA was prepared in 2013 to inform the FALP. It identifies a supply of land within LBH with capacity to accommodate 11,700 net additional homes in the period 2015-25 (which is consistent with the minimum FALP housing target for 2015-25). Headline details are set out in the table below:

<table>
<thead>
<tr>
<th>Table 2: LBH SHLAA Summary (LBH) (for the period 2015-25)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Overall Capacity (2015-25)</strong></td>
</tr>
<tr>
<td>Large Sites: 9,936 units</td>
</tr>
<tr>
<td>Small Sites: 1,505 units</td>
</tr>
<tr>
<td>Vacant units: 260 units</td>
</tr>
<tr>
<td>Total: 11,701</td>
</tr>
<tr>
<td><strong>Large Site Capacity Timescales/Phasing (2015-25)</strong></td>
</tr>
<tr>
<td>Phase 2 (2015-20): 4,765 units</td>
</tr>
<tr>
<td>Phase 3 (2020-25): 5,171 units</td>
</tr>
<tr>
<td>Total: 9,936 units</td>
</tr>
<tr>
<td><strong>Large Site Capacity by Source (2015-25)</strong></td>
</tr>
<tr>
<td>Allocation: 3,524 units</td>
</tr>
<tr>
<td>Approval: 2,311 units</td>
</tr>
<tr>
<td>Low probability: 345 units</td>
</tr>
<tr>
<td>Potential: 3,756 units</td>
</tr>
<tr>
<td>Total: 9,936 units</td>
</tr>
<tr>
<td><strong>Longer Term Large Site Capacity (2025-35)</strong></td>
</tr>
<tr>
<td>Phase 4 (2025-30): 1,212 units</td>
</tr>
<tr>
<td>Phase 5 (2030-36): 1,183 units</td>
</tr>
</tbody>
</table>

6.5 As is demonstrated by Table 2, above, the SHLAA indicates that the borough is heavily dependent on large sites to meet its FALP targets. Identified large sites comprise a combination of allocations, approvals and ‘potential’ (the content of this source of supply is kept confidential by the GLA). We are aware that a number of the allocated and consented sites are subject to delivery constraints (including viability, site...
availability, and technical issues) which may delay the delivery phasing anticipated in the table above and create a challenge for the LPA in meeting its housing targets particularly in the early part of the new local plan period.

**Historic Delivery Rates**

6.6 In considering the deliverability of identified land supply, it is appropriate to consider historic delivery trends.

6.7 The LBH Annual Monitoring Report (AMR) (2012-13) sets out the most up to date published details in respect to the borough’s historic delivery rates (noting that 2012/13 data is somewhat out of date), as summarised in Tables 3 below. This confirms a consistent trend of under-delivery of new housing in LBH when assessed against London Plan requirements which reinforces the challenge that the borough is likely to face in meeting FALP targets in the early part of the plan period in particular.

**Table 3: LBH Historic Housing Delivery Rates (LBH)**

<table>
<thead>
<tr>
<th></th>
<th>London Plan Target</th>
<th>Completions</th>
<th>Balance</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008/09</td>
<td>535</td>
<td>628</td>
<td>+93</td>
</tr>
<tr>
<td>2009/10</td>
<td>535</td>
<td>420</td>
<td>-115</td>
</tr>
<tr>
<td>2010/11</td>
<td>535</td>
<td>263</td>
<td>-272</td>
</tr>
<tr>
<td>2011/12</td>
<td>970</td>
<td>407</td>
<td>-563</td>
</tr>
<tr>
<td>2012/13</td>
<td>970</td>
<td>396</td>
<td>-574</td>
</tr>
<tr>
<td><strong>5-Year Total</strong></td>
<td><strong>3,545</strong></td>
<td><strong>2,114</strong> (average 423/annum)</td>
<td><strong>-1,431</strong> (average -286/annum)</td>
</tr>
</tbody>
</table>

**5-Year Housing Land Position**

6.8 LBH’s defined 5-year housing land supply provides a finer-grain position on deliverable short term land supply. The most recent data is published in the borough’s 2012-13 AMR (which we recognise is now dated) and summarised in Table 4, below:
Table 4: 5-Year Housing Land Position (LBH)

<table>
<thead>
<tr>
<th></th>
<th>5-year Annual Monitoring Target</th>
<th>+20% Buffer (on account of persistent under-delivery)</th>
<th>Total Requirement</th>
<th>Identified Supply</th>
<th>Balance</th>
</tr>
</thead>
<tbody>
<tr>
<td>London Plan (2011)</td>
<td>4,850 units (970/annum)</td>
<td>+970 units</td>
<td>5,820 units</td>
<td>5,676 units</td>
<td>-144 units</td>
</tr>
<tr>
<td>Proposed Further Alterations to London Plan</td>
<td>5,850 units (1,170/annum)</td>
<td>+1,170 units</td>
<td>7,020 units</td>
<td>5,676 units</td>
<td>-1,344 units</td>
</tr>
</tbody>
</table>

6.9 The above table indicates that the borough has an equivalent 5 year housing land supply position of 4.88 years and 4.04 years supply against adopted and emerging London Plan housing targets when taking into account a 20% buffer as required by the NPPF where there is a record of persistent under-delivery as is the case in LBH. As noted above, we note that a number of sites identified as part of the supply of ‘deliverable’ sites for the next 5-years comprise stalled consented schemes which indicates that much of the identified supply may be subject to deliverability constraints (this includes sites allocated in the Site Allocations DPD). This includes the examples set out in the table below:

Table 5: Examples of Stalled Schemes in LBH

<table>
<thead>
<tr>
<th>Location</th>
<th>Application Reference</th>
<th>Status</th>
<th>Approved Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>Angel Way Retail Park</td>
<td>P2246.07</td>
<td>Not started</td>
<td>350</td>
</tr>
<tr>
<td>Mardyke Estate Phase 3</td>
<td>P0959.12</td>
<td>Not started</td>
<td>124</td>
</tr>
<tr>
<td>Dozens Corner</td>
<td>U.00002.08</td>
<td>Not started</td>
<td>746</td>
</tr>
<tr>
<td>Roneo Corner</td>
<td>P1918.11</td>
<td>Not started</td>
<td>141</td>
</tr>
<tr>
<td><strong>Total Stalled Units</strong></td>
<td></td>
<td></td>
<td><strong>1,361</strong></td>
</tr>
</tbody>
</table>

Conclusions – Implications for the New Local Plan

- The new local plan should identify (allocate) a supply of specific developable sites (or broad locations for growth) to accommodate a minimum 17,550 net additional homes (1,170 annual monitoring target over the 15-year period of the plan), and identify measures to exceed this minimum target;
- The London SHLAA identifies a land supply to meet this need for the first 10 years of the plan, however interrogation of this evidence suggests that much of this identified supply is subject to delivery constraints (this is particularly applicable to sites earmarked to come forward in the period 2015-20). It will be necessary to
thoroughly test the deliverability of identified supply as part of the plan preparation process, and to identify an additional supply of deliverable sites if there is not a reasonable prospect of overcoming these delivery constraints (which we anticipate will be the case);

- The London SHLAA does not identify a sufficient supply of land to meet housing needs in the latter part of the plan (2025 onwards). An additional supply of land will need to be identified to meet these needs (while the FALP targets only cover the period 2015-25, the new Local Plan is required to roll these forward for the full term of the plan period); and

- It will be necessary to identify a further supply of land in order to exceed the minimum targets set out in the FALP.
7. **Green Belt Considerations**

7.1 The key planning policy constraint against the redevelopment of this site is its Green Belt designation. The Green Belt designation carries significant weight as a material consideration in planning policy and development management. Government policy is explicit that changes to Green Belt designations should be made through the Local plan process, in the context of promoting sustainable development as set out in the NPPF.

7.2 It is our view that exceptional circumstances exist to warrant the release of this site from the Green Belt. The main purpose of this section is to set out an assessment of the value of the site in Green Belt terms in order that the ‘harm’ of its loss can be appropriately considered. The assessment criteria relates to the five national Green Belt purposes as set out in the NPPF:

1. To check the unrestricted sprawl of large built-up areas;
2. To prevent neighbouring towns from merging into one another;
3. To assist in safeguarding the countryside from encroachment;
4. To preserve the setting and special character of historic towns; and
5. To assist in urban regeneration, by encouraging the recycling of derelict and other urban land.

7.3 The assessment is based upon the application of a Green Belt assessment ‘framework’ which is enclosed at Appendix F.

**(i) To check the unrestricted sprawl of large built-up areas**

7.4 The original purpose of the Green Belt was to restrict the outward expansion of Greater London, which represents the ‘large built-up area’ of interest to this assessment. Consistent with best practice, the assessment of Mardyke Farm against this first purpose of including land within the Green Belt focuses on the strategic level, with ‘Purpose 2’ providing a more local context.

7.5 The site is located within the extent of Greater London and is encircled by associated built development in all directions. The development of this site would not result in the outward expansion of the large built-up area of Greater London and accordingly, the site cannot be reasonably considered to provide an effective barrier against outward sprawl, instead representing concentration of development within the Capital’s existing built limits.

7.6 As such, the site cannot be considered to contribute to a wider Green Belt network that provides a strategic barrier against London’s outward sprawl, and is therefore considered to provided limited or no contribution to the first Green Belt purpose.
(ii) To prevent neighbouring towns from merging

7.7 The site forms part of the outer eastern suburbs of Greater London which comprises a web of overlapping neighbourhoods without distinctive boundaries.

7.8 The site is bordered on three sides by existing (mainly) residential development which is considered to be ‘typical’ in terms of its suburban character (no notable different or unique characteristics to define any of the adjacent neighbourhoods/townscapes from the wider suburban context). While the names of these adjacent neighbourhoods change, in practice it is our view that the site comprises an area of non-residential land that sits within a single sprawling suburb (or ‘place’).

7.9 On this basis, the site is not capable of acting as a gap (or break) between 2 or more definable towns/places and therefore is not capable of having a meaningful contribution to the Green Belt objective of preventing neighbouring towns from merging.

(iii) To assist in safeguarding the countryside from encroachment

7.10 The ‘countryside’ can be defined as open land with an absence of built development and urbanising influences, and characterised by rural land uses including agriculture and forestry. Consideration of relevant landscape character or quality designations should also be taken into account in assessing the role of the Green Belt in safeguarding countryside in accordance with a ‘functional’ view of the countryside.

7.11 The site is not considered to fall within the definition of a ‘countryside’ location as set out above. The site does not display any rural/countryside characteristics and comprises a former aggregates site with associated industrial / urbanising features within the existing built suburban extent of Greater London. The A1112 is also a major urban influence which is audibly intrusive. Furthermore, the site forms part of a network of safeguarded mineral sites as opposed to typical agricultural land uses which defines the Green Belt uses to the east of the borough and also marks the easternmost extent of London’s built form.

7.12 Environmental designations are important in relation to the third Green Belt purpose as aspects of biodiversity, forestry and wildlife conservation can be viewed as constituent ingredients of the ‘countryside’. There are no statutory environmental designations that affect the site, the nearest being the Ingrebourne Marshes SSSI located approximately 1.5km to the east of the site.

7.13 The landscape character and quality of the site is considered to be poor as reflected by the absence of any landscape designation. The current restoration works associated with the former site operations are considered to detract significantly from
the landscape / aesthetic quality of the adjacent Country Park. However, it is recognised that the landowner is committed to a scheme of landscaping works which will improve this ‘baseline’ position in the future.

7.14 Overall, it is considered that the site cannot reasonably be considered to constitute a countryside location by virtue of its former aggregate / landfill uses and associated urbanising features and surrounding suburban context. It is therefore considered that the release of this site for development would not constitute an encroachment into the countryside which might otherwise harm the objectives of including this site within the Green Belt.

7.15 Accordingly, the site is not capable of contributing to third purpose of the Green Belts.

7.16 Furthermore, it is considered that the release of this site for development would in fact assist LBH to safeguard the countryside by directing new development to address identified needs towards previously developed sites within an established suburban context. Such principles are promoted by the NPPF which seek to encourage the effective reuse of previously developed (brownfield) land to help to promote the vitality of urban areas and conserve the intrinsic character and beauty of the countryside.

(iv) To preserve the setting and special character of historic towns

7.17 This purpose of the Green Belt is to perform a ‘girdle’ role, as a green ring around historic settlements and/or to provide the landscape context to historic features that preserves historic setting by keeping land open.

7.18 A review of the local area confirms few historic assets of interest within the vicinity of the site with no historic towns, conservation areas, scheduled monuments or historic parks and gardens identified as applicable to this assessment. Two Grade II Listed Buildings have been identified within the vicinity of the site, notably: Stoneford Cottage within the built up Dagenham area to the west of the Beam River Country Park (which therefore does not share any inter-visibility with or relate to the site); and the old Essex Water Sub-Station located to the north of the site on the opposite side of the A1112 which relates directly to the Weir overflow reservoir to the north.

7.19 Accordingly, it is considered reasonable to conclude that the site does not contribute towards the preservation of the setting and special character of historic towns nor any other heritage assets. Consequently, the site is not capable of contributing to the fourth purpose of the Green Belt.
(v) To assist in urban regeneration, by encouraging the recycling of derelict and other urban land

7.20 The objective of this purpose is to constrain the supply of development land in order to encourage the recycling of previously developed sites which would not otherwise be developed, and therefore assist with urban regeneration. This objective can only be realised if there is a supply of derelict and other urban land that is capable of being recycled and which is deliverable.

7.21 It is our view that in the long term, constraining development on this site is likely to encourage the recycling of derelict land elsewhere (due to market forces). However, as discussed in the previous section, much of the supply of derelict land in the borough is subject to significant delivery constraints and therefore in practice is unlikely to come forward in the short term (whether or not this site is removed from the Green Belt). On balance, we consider the site to make a contribution to this Green Belt purpose but in practice the value (or significance) of this contribution is limited.

7.22 Conversely, Section 9 of this representation makes the case that the release of this site from Green Belt would, in fact, be expected to support the regeneration of the surrounding area which would neutralise the potential policy harm in respect to this purpose.

7.23 The above should be considered in the context that the site itself comprises previously developed land which offers the opportunity for recycling.

Summary

7.24 The NPPF confirms that the fundamental aim of the Green Belt is to keep land permanently open as a means of achieving 5 key purposes. The contribution of the Mardyke to these purposes is limited, as summarised in Table 6 below:

<table>
<thead>
<tr>
<th>Green Belt Purpose</th>
<th>Assessed Contribution of the Mardyke Farm Site to the Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i) To check the unrestricted sprawl of large built-up areas</td>
<td>Limited or no contribution</td>
</tr>
<tr>
<td>(ii) To prevent neighbouring towns from merging</td>
<td>Limited or no contribution</td>
</tr>
<tr>
<td>(iii) To assist in safeguarding the countryside from encroachment</td>
<td>Limited or no contribution</td>
</tr>
<tr>
<td>(iv) To preserve the setting and special character of historic towns</td>
<td>Limited or no contribution</td>
</tr>
<tr>
<td>(v) To assist in urban regeneration, by encouraging the recycling of derelict and other urban land.</td>
<td>Partial contribution</td>
</tr>
</tbody>
</table>
Conclusions - Implications for the New Local Plan

- In preparing the new local plan, the LPA should consider revising Green Belt boundaries in the context of achieving sustainable development (including the aim of significantly boosting the supply of housing) and the exceptional circumstances test; and

- It is considered that the Mardyke Farm site makes a limited contribution to the purposes of including land within Green Belt, and that this limited contribution (assist in urban regeneration) could be more effectively achieved through the development of the site. As a consequence, the site has limited ‘value’ in Green Belt terms and therefore the removal of this site from the Green Belt would not give rise to significant ‘harm’ in Green Belt policy terms.
8. Deliverability

8.1 Critical to the case for development at the site is demonstrating deliverability in order to confirm that it is capable of meeting the development needs.

Site Suitability

Landscape/Townscape

8.2 An appraisal of the site’s landscape and townscape setting has been undertaken to inform the ‘Development Vision’ (enclosed at Appendix C) which concludes that the site has limited landscape value and the approved landscaping scheme for the site offers minimal improvements. Furthermore, the surrounding townscape setting is not considered to be particularly sensitive to change.

8.3 Accordingly, the supporting appraisal demonstrates there are no insurmountable constraints to development at this site and the site presents the opportunity to deliver an exemplar scheme to the benefit of the local area.

Access and Transport

8.4 The site benefits from existing access onto the public highway (Rainham Road South/Dagenham Road) plus pedestrian connectivity to the south and west, and is an existing generator of a significant number of HGV movements.

8.5 The Transport and Access Appraisal (enclosed at Appendix D) confirms that satisfactory access to the site can be achieved to support the envisaged redevelopment, and that there are no insurmountable highway infrastructure capacity constraints to development. The appraisal indicates that there is a significant opportunity to meet the transport needs of future development at the site via sustainable modes through appropriate investment in walking, cycling and public transport infrastructure in line with area-wide strategic transport infrastructure plans.

Technical/Environmental

Flood Risk

8.6 A small proportion of the site falls within Environment Agency Flood Zone 3 where development would be subject to strict controls on flood risk terms. However, the majority of the site falls within flood risk Zone 1 and therefore is suitable in principle for residential development in flood risk terms. Any future planning application would need to be supported by a site specific flood risk assessment and surface water drainage strategy (incorporating SUDS).
Geo-environmental

8.7 The appended Geo-Environmental Appraisal (Appendix E) confirms the site to be readily available for redevelopment without the need for further remediation. The final phase of site restoration is scheduled for completion in 2017. Moreover, the deep thickness of restoration grade soils at the site will allow the site profile to be changed if required without implications on human health associated with ground gas or impacted groundwater.

8.8 The site therefore represents a ‘blank canvas’ ready for redevelopment.

Ecology

8.9 The appended Ecology Appraisal (Appendix E) confirms there are no overriding ecological constraints at the site to restrict future residential development.

8.10 The appraisal highlights the significant opportunities presented by the proposed redevelopment of the site to deliver enhanced wildlife habitats and ecological corridors to improve the function of the site as part of a wider ecological network.

Heritage Assets

8.11 The site is not designated as a Conservation Area, does not contain any listed buildings, and does not form part of the setting of any heritage assets. Accordingly the site is not constrained by any heritage assets

Social Infrastructure

8.12 We are aware that social infrastructure provision in the local area is under stress, particularly in respect to school provision which will be compounded by residential development on the site. This issue can be dealt with by increasing local provision, including on-site provision of a school.

8.13 To help inform the second stage in determining whether the site is suitable for residential development, a number of supporting studies have been commissioned to consider the environmental and technical constraints and opportunities presented by this site. These supporting studies are appended to this representation and the key messages drawn out and summarised below.

Utilities

8.14 We are aware that utilities infrastructure provision in the local area is under stress. This issue can be dealt with by increasing capacity.
Site Availability

8.15 The current restoration scheme is expected to be completed in early 2017 at which point the existing use will cease and the site will be available for development.

8.16 The future function of the site is limited to the obligations associated with the approved S106 agreement as set out above. This will require varying following established standard procedures as part of future planning application negotiations.

8.17 The majority of the site is under a single private sector ownership, with the balance owned by the local authority. The majority owner is willing to make the site available for development and has entered into an option agreement with a housebuilder to promote the site. The Council (as owner of the balance of the site) is able to make its land available.

Viability

8.18 The landowner and developer have confirmed that residential development on the site is a viable proposition.

Conclusions - Implications for the New Local Plan

- The site is suitable for housing development with no insurmountable environmental or technical constraints;
- The site is available for development from early 2017;
- There is a willing landowner and developer agreement in place, who are keen to progress housing development at the earliest opportunity;
- Housing development is viable; and
- Accordingly, for the purposes of preparing the Local Plan, the Mardyke Farm site should be treated as a deliverable source of housing land with an expectation of completions being achievable in the early part of the plan period.
9. **Regeneration Benefits**

9.1 There is a recognised need for regeneration in the local Beam Park/South Hornchurch area largely in response to legacy issues associated with its industrial past. Redevelopment of the site for housing (and associated use) offers the opportunity to address this, and deliver significant regeneration benefits for the local area, as discussed below:

**Local Market Conditions**

9.2 Much of this area of East London is identified for positive change, including the nearby Rainham West Site Allocation and Riverside Opportunity Area beyond. However, despite a buoyant housing market across London as a whole, local market conditions remain challenging with key housing sites struggling to get off the ground due to viability constraints (typically caused by high site preparation costs, infrastructure costs, and low end values). Accordingly, despite notable investments, the considerable development opportunities presented by these key housing sites and other regeneration initiatives in this area of London have not yet been fully realised by either the public or the private sector.

9.3 However, development at the Mardyke Farm site is not subject to the same viability challenges that constrain many other local site opportunities. Housing development here is viable and the landowner’s selected developer is committed to bringing it forward at the earliest opportunity. This will involve a significant capital injection into the local area which will represent a clear/demonstrable statement of confidence in the local market from one of the UK’s largest housebuilders. We would expect this to reduce the risk profile of the wider local area (including the strategic allocation sites referred to above) as a location for housing investment and improve achievable sales values through market re-positioning which, as a consequence, would be likely to help unlock development on other sites in the local area that have stalled on viability grounds.

**Physical Regeneration of the site**

9.4 The Mardyke Farm site currently represents a blight on the local area in amenity terms. This position will be mitigated in due course through completion of the restoration scheme, which will establish a future baseline position of unmanaged natural greenspace.

9.5 However, there is a significant opportunity to achieve an enhanced physical outcome for the site through redevelopment (refer to developer’s vision at Appendix
C), which would ‘lift’ the physical quality (and perceived attractiveness) of the wider area.

**Infrastructure**

9.6 The site offers the potential to accommodate a new school and would be expected to support the viability of transport infrastructure upgrades through increased patronage and CIL/s.106 contributions (in accordance with the standard tests). Such upgrades would firstly address any impacts generated by the development itself but would also be expected to deliver benefits to the wider community through support of strategic area-wide initiatives.

9.7 Local infrastructure upgrades would include potential opportunities for decentralised energy infrastructure.

**Vitality and Viability of Rainham District Centre**

9.8 The provision of new homes at the site would lead to a substantial increase in the district centre’s walk-in catchment expenditure level, which would have a positive impact on the vitality and viability of the centre.

**Conclusions - Implications for the New Local Plan**

- Housing development on this site offers the opportunity to trigger wide ranging regeneration benefits. These range from the physical regeneration of the site to impacts on market conditions across the wider local area (which would assist in unlocking regeneration/housing delivery on other sites).
10. **Summary and Conclusions**

10.1 This representation sets out the compelling case for a revision of the Green Belt boundary to exclude the Mardyke Farm site from the Green Belt alongside the provision of a strategic site specific policy that allocates the site for housing (and associated development) in the emerging plan.

10.2 The case focuses on setting out the exceptional circumstances necessary to justify a revision to the Green Belt boundary which are considered to be as follows:

- **i)** The following development needs exist:
  - There is a need to identify additional land for housing development in the borough in order to meet objectively assessed housing needs;
  - There is a need to provide new social infrastructure (including a school) and to support the upgrade of other infrastructure (including transport) in the local area;
  - There is a need for regeneration (physical, social, economic) of the local South Hornchurch/Beam Park area; and
  - There is a need to secure a sustainable long term future (including management arrangements) for the site.

- **ii)** The site makes a limited contribution to the purposes of including land within the Green Belt, therefore its value in Green Belt policy terms is limited (the release of the site from Green Belt is therefore not likely to give rise to significant harm). Similarly, the site is considered to have only limited value in Green Infrastructure terms (any loss/harm can be appropriately mitigated).

- **iii)** The site is deliverable, with development able to address each of the development needs set out above and therefore realise significant planning benefits in terms of housing, infrastructure and regeneration:
  - It will be available for development from early 2017 (with delivery expected in the early part of the plan period);
  - It is suitable for housing development in environmental, technical, townscape, and infrastructure capacity terms; and
  - Development is a viable proposition, with a willing landowner and developer in place.

**The Opportunity**

10.3 The Developer’s ‘Vision’ for the site is presented at Appendix C and highlights how the site could be developed to deliver approximately 1,500 new homes. The vision promotes a mix of housing types, with a focus on family homes, a new school and
community farm all set within an extensive landscaped environment including the provision for new sports and recreation, a village green and Public Park.

10.4 The vision for the site has been developed through the establishment of key design principles which flow through the site. These principles are considered in detail within the accompanying report to demonstrate how Mardyke Farm could be developed to deliver an exemplar and exciting new neighbourhood.

**Procedural Considerations**

10.5 The scale of the opportunity at Mardyke Farm and the ability for this to convert into new housing completions in the early part of the plan period, means that it would be appropriate to include the site as a ‘strategic’ allocation in the first part of the new Local Plan (as opposed to a subsequent Site Allocations DPD).

**Next Steps**

10.6 The landowner/developer is keen to work collaboratively with LBH and residents in the preparation of the new local plan and to ensure that the most appropriate policy position for the Mardyke Farm site is taken forward.
Appendix A
Site Plan
Appendix B
Approved / Committed Landscape Plan
A Vision for MARDYKE FARM

By Studio Egret West
On behalf of Barratt London
March 2015
This document sets out our vision for the future of Mardyke Farm and provides a concept highlighting how the site could be developed to deliver approximately 1,500 new homes. The vision promotes a mix of housing types, with a focus on family homes, a new school and community farm all set within an extensive landscaped environment including the provision for new sports and recreation, a village green and Public Park.

The vision has been developed through the establishment of key design principles which flow through the site. These principles are considered in detail below and highlight how the vision for Mardyke Farm has been developed to deliver an exemplar and exciting new neighbourhood.
London is rapidly expanding. The city’s population is projected to grow to 10 million by 2030. That means an additional one million people to accommodate in a city with an already insatiable demand for housing.

As we look to the future, the epicentre of London’s regeneration process is shifting east. Vast swaths of land are being transformed into mixed use neighbourhoods together offering around 26,000 jobs and 16,000 homes in the London Riverside area. Investment in public transport infrastructure with a planned new station on the c2c line to London Fenchurch Street and an extension of the London Overground to Barking Riverside and Abbey Wood (connecting to Crossrail) will help unlock development potential and connect this part of London with the City and other key areas.

The LB Havering will deliver a significant portion of new housing at Beam Park over the coming years, but is nevertheless falling short of the London Plan annual housing target. More homes are needed, and more sites to deliver them.

Just north of Beam Park lies Mardyke Farm, officially part of the Green Belt but not very green. From 1860 to 1960, the site was extracted of gravel and sands, significantly reducing its recreational and ecological value. It was infilled with uncontrolled waste in the 1960s, and is today being restored using inert materials to create a new elevated landform with publically accessible grassland and wildlife habitats. But Mardyke Farm could be more than a natural landscape. It could be a natural landscape and the home of a new and ecologically driven residential neighbourhood; a low rise and organic framework of houses and apartments interwoven with a diverse range of managed green open spaces for people and wildlife that effectively extend the Beam Valley Country Park into the site and right to the doorstep of the neighbouring residential community.
Mardyke Farm sits in a low rise suburban environment of family homes with generous gardens.

The nearest stations are Dagenham East to the north (District Line) and Dagenham Dock to the south (c2c rail service). Plans for a new station at Beam Park will improve access to public transport and provide a 25 minute rail link to central London. Several bus services operate in the vicinity of Mardyke Farm, and with the potential for up to 1,500 new homes on the site, we believe that there is scope for a new bus route or alternatively a route extension to service the site. This route would ideally link with the planned Beam Park rail station and the future Barking Riverside Overground station to the south, as well as Dagenham East to the North.

A number of primary and secondary schools are located in the surrounding area, however with the injection of new family homes on the scale of Beam Park and Mardyke Farm, an additional school will be required. Local shops, services and community facilities are located at Dagenham East and Rainham District Centre approximately 1 km south east of the site.

The Sustrans National Route 13 of the National Cycle Network, which runs along New Road (A1306) will connect Tower Bridge in East London with Fakenham in Norfolk when complete.
During the restoration of Mardyke Farm a 12 metre thick layer of clean inert material has been added to the site, dramatically altering its topography and creating a gently rising mound with a high point of 14 metres at the heart of the site, dropping to around 3 metres around the site perimeter.

The Beam Valley Country Park straddles the western boundary. Most of it is a Local Nature Reserve designated for its running water and associated wet grassland and ditch habitat.

A great crested newt population has been recorded in an open swale on the eastern boundary. The breeding pond and the key areas of terrestrial habitat are being retained and enhanced during site restoration.

An area of mature trees area located to the north west along the Beam Valley Country Park boundary.

Currently, the sole entry to the site is from Rainham Road South to the north. Two pedestrian walkways to the south provides access from Frederick Road to an existing area of sports and play.
Principle 1
Extending the Country Park

The Beam Valley Country Park is a 74 hectare landscape on previously derelict land.

The park is one of the area’s greatest assets. The park has woodland and grassland, former gravel pits and the River Beam and Wantz Stream. Birds found on the site include kingfishers, reed warblers, reed buntings and skylarks.

Before Mardyke Farm was a working aggregate site, it formed part of this green open landscape. We want to reconnect the site with the Country Park by extending a finger of verdant green into the centre of the site to create a village green at the top of the hill with views across the Country Park.

This landscape is for everyone’s enjoyment - new and existing residents, visitors and passers-by.

The existing tree planting is retained and enhanced.
Mardyke Farm has been a working site for over 100 years. It has lain empty of development for a long long time.

So how to fill a void? Our answer is to establish a generous ecological buffer around the perimeter of the site along adjacent properties that shields and prevents being overlooked, to create a visual green for people and a protected habitat for wildlife.

At present, public recreational access is available to the south of the site only. The ecological buffer would increase site accessibility, welcoming pedestrians via controlled walkways to enjoy the many facilities and recreational assets on site.
A central spine connects the site with the surrounding area, bridging boundaries and inviting people in. We see this as a slow, pedestrian priority route for cars with the potential for an extended/new bus service.

A majority of vehicles would access the site from the north, whilst the southern access would service around 100 homes. A bus gate would limit through traffic to buses only.

A dedicated cycle lane runs the full length of the spine, linking to the Sustrans National Route 13 along New Road (A1306).

Bus stops are strategically located near key points of attraction: the play/sports fields to the south, the Village Green at the centre, and the main entry to the north.

A secondary perimeter route runs along the ecological buffer. We promote this as a shared surface street where cars slow down and cyclists and pedestrians take priority.
With up to 1,500 new homes on the site and several regeneration sites in the neighbouring area, a new school is required to complement the existing offer.

The school is strategically located to the south of the site, providing easy access for both families living at Mardyke Farm and to those living in the neighbourhoods to the south.

The school site measures approximately 2 hectares, and will utilise the existing 4 hectare play/sports area for school activities. The school buildings can be used as community facilities after school hours.
Mardyke Farm takes its name from the historic farm that preceded the aggregate works. We want to bring back the farm to Mardyke Farm, right at the heart of the site, on the village green on top of the hill.

This is not a farm in a conventional sense - it’s not only a place to grow fruits and vegetables to sell in the local farmers’ market/ café, but it’s a place to grow ideas and businesses in the form of an entrepreneurial hub. It’s a place to cultivate creativity and to exhibit it to a wider audience in multifunctional communal spaces. It’s a place for little people to grow up in the crèche.

In short, it’s a fantastic local facility for residents and visitors, combining shopping with community facilities and local business.
Principle 6
As Many Family Homes as Possible

This is a family orientated area, and we have maximised the number of family homes on the site, varying from single family homes to maisonettes to mews houses and duplexes. Building heights range from 2 to 3 storeys.

The homes are arranged in a series of organically formed residential blocks accessed via green play streets.

The organic block forms create an easily navigable grain, whilst allowing moments of surprise and delight in the form of small pocket parks and open spaces for neighbours to meet, greet and play.
Principle 7
Fingers of Medium Density Accommodation Overlooking the Beam Country Park

The Beam Valley Country Park edge is populated by medium density buildings that open up towards the parkland to soak up the views. The buildings step down in height towards the site boundary, and as the ground level drops down towards the River Beam and Wantz Stream.

Family duplexes are arranged over ground and first levels, with apartments above. Communal podium gardens provide amenity and play.
Principle 8
Healing the Southern Edge

The south-western edge of the site is defined by the backs and exposed gardens of family houses and an apartment building within the Orchard Village Estate. These buildings deserve an improved setting, which we can deliver as part of the Mardyke Farm development.

We propose to “heal the edge” by completing the block with a new medium rise apartment building with internal mews houses and communal gardens.
Principle 9
A Network of Green Walkways and Cycleways

Green space is maximised on site to create a sense of houses in landscape, and to reinstate a strong connection to the Beam Valley Country Park.

Apart from the dedicated cycle lane, walking and cycling is encouraged through an extensive network of green routes that permeates the residential grain and extend into the neighbouring parkland to connect with existing trails and paths.

Pedestrian priority play streets are provided within the residential neighbourhood, linking with the central spine, to ensure the site is permeable and accessible.

A raised boardwalk within the ecological buffer makes this biodiverse environment accessible to people in a controlled way. A north-south boardwalk extends the western site boundary, weaving and meandering across the landscape, rising gently at the centre of the site to circumvent the village green.
Although significant public transport upgrades are on the agenda, the site’s low PTAL rating (1-2) means that sufficient car parking standards are required.

Along the Beam Valley Country Park edge, undercroft car parking facilities are seamlessly integrated into the buildings, utilising the level change. The car parking is wrapped by residential uses. Communal amenity space provided atop, on podium level.

On street car parking is provided for the family homes, integrated into the play streets and along the perimeter street.

Overall, a parking ratio of 1:1 is provided for all homes.
The Mardyke Farm neighbourhood has been designed with nature and ecology at the forefront, with a 4 hectare village green at the centre, an 8 hectare ecological buffer around the edge towards existing properties, 4 hectares of play/sports fields and a series of smaller pocket parks interwoven into the residential grain. All to maximise green space and to protect and enhance site ecology.

Shaped by the topography of the site, our masterplan provide up to 1,500 homes, a primary or secondary school, and space for shops, business and community facilities in the Mardyke Farm pavilion on the village green.

**NUMBER OF HOMES**
- Houses: 250
- Maisonettes: 350
- Duplexes: 250
- Apartments: 650

**TOTAL:** 1,500 homes
Neighbourhood Study
Houses and Play Streets
Neighbourhood Study
School
School Playground
The existing site could be perceived as a man-made mountain. It is a plateau of unfinished landscape potential which can enhance its green belt setting if given a proper treatment.

At 14 metres AOD, the site is highly visible from the Beam Park Nature Reserve to the west. From the top of the mound, the site gently slopes at a gradient of 1:30, and then more steeply (1:15) around the site perimeter where it blends into the surrounding topography and grades into the back gardens of adjacent properties.

An agreed approach to the restoration/remediation of the site has been developed to best locate ecological enhancements and improvements on the site.

The following proposals work hand in hand with the restoration scheme to avoid major excavation/earth moving for construction of homes and road infrastructure (to be confirmed by engineer). This allows for ample ecological mitigation to highlight the site’s importance next to the Beam Parklands which could serve as a major driver to attract visitors to the area.
The site has a great farming history and there is even mention of a 17th-century windmill.

To enhance the site’s setting, a countryside landscape is proposed to remind users of the site’s history. This can be replicated with boundary treatments of loose stone walls, hedgerows, hedgebanks, and almost a barn/farm yard vernacular.

Building upon the principles set by the masterplan, key moves have been identified to unlock the site’s landscape potential to enhance its natural beauty while still meeting the amenity requirements of a growing community.

A series of curved boardwalks and paths allow seamless connections north and south to existing and future transport stations and to neighbouring residential areas. Gateways and entrances east and west will also allow better use of the Beam Parklands and to help existing residents in South Hornchurch use the park.

The following sections highlight the key components of the landscape design.
The proposed development will provide an 8 hectare dedicated ecology area along the eastern and southern edge of the site.

The vast majority of this ecology area will comprise retained areas of swales, rough wildflower grassland, ruderal and scrub, with smaller areas of retained native scrub and woodland belts as well as new wet pond features. The project ecologist has advised an appropriate approach to both the retention and future management of this landscape. This approach will be as follows:

- Retain/enhance the existing ecologically rich landscape and embrace its valuable environmental qualities;
- Enhance people’s experience of the area by providing raised timber boardwalks and seating areas;
- Enhance existing wetland and marginal landscape environment, combining further diversity and offering additional ecological habitat opportunities;
- Provide viewing platforms and information boards to allow appreciation of ecological habitats;
- Take appropriate management actions such as the removal of non-native, overly aggressive, or un-desirable species from these areas, to encourage the growth of other more desirable species that are present.

Eastern Ecological Buffer

Potential for wildflower grassland and invertebrate habitat creation to enhance habitat for notable invertebrates

Creation of new ponds and scrapes to extend and enhance habitats for Great Crested Newts, Eels and other...
Wherever possible existing trees will be protected and retained.

As the site slopes west towards the Beam River, we propose to reinforce the earth with additional tree planting. A mix of lower native scrub planting will reinforce stability and allow for views from the village green across the parklands ensuring natural surveillance.

The Boardwalk will become a publicly accessible space, providing access to Mardyke Farm and long distance views across the landscape. Hovering breakout seating areas cantilever into the park and add a unique element of identity to the development. Hedgerows and other types of planting limit visual intrusion from the Beam Valley Country Park.
The traditional definition of a village green is “a common open area within a settlement”.

A village green usually consists of common grassland and it is often located at the heart of a rural settlement. Historically, a village green would have been used for grazing. At the centre of the masterplan is a proposed village green that will provide a place for residents to gather and remember the history of Mardyke Farm long ago. The space will have a community focus and flexibility to accommodate a changeable program of events and activities. It is located at the highest point of the site, maximising views across the adjacent parkland and beyond. Some of the key features of the village green will be:

- Open lawn with a mix of semi mature specimen trees;
- An informal play space for ball games, exercising or picnics;
- Open space with overlooking and passive surveillance by neighbouring properties and surrounding footpaths and roadways;
- Sculpted earthworks to contain the main green space, create informal seating banks around the edge of the green and focus users into the centre of the space;
- Ecology/SUDS features to connect the site and create a heart of the drainage and potential flooding story. These can help feed allotments or other growing spaces for residents.
A variety of doorstep play for all ages and abilities is accommodated within a series of pocket parks. The play and amenity areas will accommodate the following:

- Inclusive access connecting each space;
- A ‘farming’ and rolling hill vernacular with loose stone walls, large mounds and farm animal play equipment throughout;
- Play equipment that is natural in form and appearance providing an attractive mix of play apparatus;
- Planting that is integrated throughout and heightens the play experience. Planting has been carefully selected to offer sensory attributes of scent, colour, touch and sound;
- Integration between building fronts and the landscape.
Private gardens can function both as a fantastic amenity for families and as ecological corridors.

We propose a series of garden trees and shrub planting with visual and ecological interest to tie in with the overall masterplan.

There is also potential to incorporate living roofs, which can serve as interconnected corridors for birds and other wildlife.
The neighbouring Beam Park Local Nature Reserve is very flood sensitive. We wish to capitalise on this and use it as an opportunity to educate residents about water retention.

A key corridor is created from the top of the hill, the village green, with water moving through a system of planted terraces that can. The water then moves down the hill in both eastern and western direction towards either the Beam River or the ecological water features to the east. In the residential neighbourhood, the SUDS corridor is incorporated into a strong “home zone” streetscape with trees using the water to help create verdant living front doors to the homes.

To achieve this, the following features are proposed:

- Indigenous species throughout the SUDS corridor, capturing ecological qualities of the native grassland meadows;
- Step-free pedestrian access meandering through the ecological corridor;
- Ecologically rich planting;
- Informal natural play and seating opportunities.
The external school grounds are an important aspect of the school design. Boundaries between outside and inside are purposely blurred, adding different outdoor ecological experiences that help tell the story of the site and its history.

The external space is composed of the following playful, imaginative design features:

- Play spaces set on different levels stepping down the hillside;
- Integrated, curved and fully accessible ramped access;
- Colourful and varied materials offering a fun challenging and diverse external environment;
- Sports provision;
- Play and fitness equipment and features;
- A variety of outdoor learning spaces able to accommodate both small groups and larger groups for outdoor activities and learning;
- Planting that has a calming and beneficial effect with sensory species used throughout play spaces, a variety of trees, orchard planting and robust boundary planting to discourage children playing or accessing areas close to the top boundary walls;
- Allotment beds for growing vegetables and to encourage outdoor learning;
- Amphitheatre for school gatherings and meetings;
- Cycle and scooter parking;
- Entrance space for meeting and greeting.

The sports ground is open to the public after school hours.
A range of street typologies will reflect the anticipated use of each street. Wherever possible we have taken measures to introduce planting, traffic calming and a warm palette of natural materials.

Our proposals aim to achieve the following:

- Pedestrian safety and priority;
- Integrated planting on each street layout;
- Integrated Sustainable Urban Drainage;
- A changing planting character for each typology to avoid repetition and provide interest all year round.
As the majority of courtyards are open sided to the Beam Valley Country Park, they must have the ability to enhance the ecological capacity as well as adding amenity value.

This can be done by maximising the amount of planting and softscape with mounding that can resemble the mounding on the main part of the site but on a smaller scale. Mini mounds create some vertical interest for play or amenity while some can become oasis of verdant ecology and even SUDS capacity. The curvy nature of these areas creates softness to the site and a slight diversion from the rigidity of the apartment blocks. The courtyards must also integrate with the green roofs that step down the hillside to create a complete experience of nature and ecology.
A single high quality and robust palette of materials is proposed throughout the site, primarily following the character areas identified earlier.

Natural aggregate concrete paving carpets that delineates the main pedestrian routes through all areas of public realm. Change in paving type is used to announce key entrances and areas of public open space. Resin bound gravel is used in areas more sympathetic to surrounding ecology or to mediate between areas of paving and areas of rubberised play surface. To help identify the school grounds as something different and unique within the masterplan, a splash of colour is proposed to the play spaces.

The materials chosen will reflect the earthy colours of the former farm and complement the architectural materials. This subtle approach to paving detailing provides a high quality canvas that integrates the surrounding landscape and architecture. To ensure that infrastructure does not overwhelm the external environment we intend to use raised tables at key pedestrian crossings and for all residential streets rumbled concrete setts will be the preferred carriageway surface. If level changes across the site necessitate retaining structures, stone walls will be complementary to the overall material palette. As important as the materials themselves is the quality of workmanship in constructing the landscape, this is important for longevity of the site.

The majority of the site will have footpath gradients less than 1:21, where steeper gradients are required, these will be compliant to relevant and prevalent standards (at the time of writing, BS 8300:2009).

Surfaces will be designed in accordance with prevailing standards, where technical design constraints, aesthetic aspirations and access/inclusive design issues are in conflict, consultation will take place to establish an acceptable solution. Contrast surfacing will be used to delineate crossings in shared surface areas.

Tree Planting Design

The tree species planting palette would be greatly influenced by the existing mixture of trees existing along the site boundaries. The proposal aims to strengthen these environments with a rich woodland mix that overtime will mature to reinforce the slopes of fill and add ecological and visual interest.

Site wide street trees will continue to pioneer the site providing a network of trees along each residential street. Species vary with a mix of native trees such as Sorbus aucuparia and Acer campestre combined with damp tolerant trees for SUDS beds, such as Alnus glutinosa and narrow columnar forms such as Quercus robur Fastigiata Koster.

Larger species such as Liriodendron tulipifera, Robinia pseudoacacia and Quercus robur could be strategically located to enhance wayfinding throughout the site. Feature trees will be implemented within the Village Green forming a memorable parkland space.

Trees will also be selected for their changing seasonal colours, blossom, form and fruit. Clusters of birch and cherry trees will provide a fresh pioneering backdrop of native species, whilst Liriodendron tulipifera and Quercus palustris are used as feature specimens to define entrances and significant external spaces.

Natural Grassland and Wildflower Planting Design

A substantial amount of grassland meadows will be created for the ecological buffer. These will create areas of open habitats that are characteristic of the previous conditions on the site, including sparse wildflower grassland, scrapes and bare-ground which are ideal for notable invertebrates and birds.
Long Sections
Short Sections

Short Section A

Short Section B

Short Section C
Appendix D
Transport & Access Appraisal
BARRATT LONDON

PROPOSED MIXED-USE ALLOCATION:
LAND AT MARDYKE FARM, SOUTH HORNCHURCH

TRANSPORT AND ACCESS APPRAISAL

REPORT REF NO W420-01
PROJECT NO. W420
MARCH 2015
PROPOSED MIXED-USE ALLOCATION:
LAND AT MARDYKE FARM, SOUTH HORNCHURCH

TRANSPORT AND ACCESS APPRAISAL

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REPORT REF. NO W420-01
PROJECT NO. W420
MARCH 2015
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## DOCUMENT CONTROL SHEET

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EXECUTIVE SUMMARY

Barratt London are progressing a planning strategy for the 37ha Mardyke Farm site which is situated on land to the south of the A1112 (Dagenham Road) to the west of South Hornchurch in Havering. The strategy seeks to secure a revision of the Green Belt boundary to exclude the site from the Green Belt, as well as a site specific policy that allocates the site for housing and associated development. It would then be the intention to secure the reallocation within the emerging Havering Local Plan.

There is a wide selection of services and facilities in the vicinity of the site which cater for everyday needs. The site is within walking distance of a number of bus stops which are served by routes that run towards Romford, Rainham, Barking and Dagenham. The London Riverside Opportunity Area (LROA) is situated immediately to the south of the site. There are a number of improvements proposed within the LROA including a new railway station at Beam Park and additional bus connections. These will therefore improve the public transport accessibility of the area and will allow residents to access a wider range of employment opportunities without needing to use the private car.

The proposed development will take primary access from the A1112 to the north in the form of a new roundabout or signal controlled junction. This access will serve the majority of the site and the internal site access road could form a loop-type arrangement. A second point of access could also be provided to the south via Lower Mardyke Avenue or Roman Close. Although Roman Close is not currently adopted, it has recently been improved as part of the Orchard Village development. The proposals would offer the opportunity to provide improvements to the A1112 to the north of the site including additional crossing opportunities for pedestrians and cyclists.

The proposals will form connections with the existing pedestrian and cycle networks in the area. The main internal site access roads will contain footways on both sides to facilitate pedestrian movements through the site. A segregated cycleway could also be provided through the site to link the existing cycle routes along the A1112 to the north and the A1306 to the south. There may also be potential to provide a shared cycle/footway along both sides of the A1112 in the vicinity of the site to enhance the accessibility of the site for cyclists.
The proposals could also offer the opportunity to provide a bus link through the site which could be served by existing bus services in the area. New bus stops would be provided as part of this arrangement to reduce walking distances, improve bus connections between the north and south and further integrate the site with the surrounding area. There could also be the potential to provide a bus gate to prioritise bus movements within the site and reduce bus journey times. These proposals would improve north-south bus connections between the LROA, the site, Romford and future Crossrail.

A total of two options have been examined for the proposed site access junction with the A1112 to the north of the site. The first option featured a single roundabout access. The second option featured a single traffic signal junction. Initial modelling has revealed that both junction arrangements have the potential to operate within capacity during the future development year of 2031. The signal controlled option was shown to operate further within capacity limits and may therefore offer a more long-term solution. However, further investigation would be required as part of a more detailed transport assessment to substantiate these findings.

This transport appraisal demonstrates that a proposed residential development at the site (with associated uses) would offer a wide variety of benefits to the surrounding area. The site is also situated in a sustainable location and the proposals and their improvements are considered to be in accordance with current national and local policy. In view of the above, we consider that the site is suitable for allocation as a residential development in transport terms.
1.0 INTRODUCTION

1.1 Ardent Consulting Engineers (ACE) has been appointed by Barratt London to advise on the transport opportunities and constraints relating to the proposed allocation of land at Mardyke Farm for residential use and associated development. The site is situated in the vicinity of Beam Park to the west of South Hornchurch in Havering.

1.2 The London Borough of Havering (LBH) is the local planning authority and the local highway authority. Transport for London (TfL) are statutory consultees given the site location and development size. TfL is also the highway authority for the A13 which is classified as a “Red Route” and forms part of the Transport for London Road Network (TLRN) approximately 1km to the south of the site. The site is located within the northwest corner of the South Hornchurch ward and is located adjacent to the London Borough of Barking and Dagenham’s (LBBD) eastern boundary.

1.3 This appraisal has been prepared in support of an allocation of the site to provide a residential development (with associated uses) in the emerging Havering Local Plan, which will cover the period until 2031. Initial discussions have been held with LBH Highways to understand their position with regards to the site, transport and access.

1.4 The report investigates potential access options that could be provided to serve the proposed residential development (with associated uses) on land to the south of the A1112 (Dagenham Road). Access has been investigated and designed with reference to current design guidance including Manual for Streets (MfS) and the Design Manual for Roads and Bridges (DMRB).
1.5 Following this introduction, the remainder of the report is structured as follows:

- **Section 2.0** describes the site location and existing conditions surrounding the site including accessibility and facilities;
- **Section 3.0** examines existing local policy and provides details of the London Riverside Opportunity Area situated immediately to the south of the site;
- **Section 4.0** provides details of the proposed development and the likely trip generation and distribution;
- **Section 5.0** investigates two potential vehicular access options which could be used to serve the site from the north and undertakes the associated modelling;
- **Section 6.0** provides details of the internal design and off-site considerations that should be used to inform the design and layout of the proposed development; and
- **Section 7.0** summarises the potential benefits that the proposed development of the site could bring to the surrounding area.
2.0 SITE LOCATION AND EXISTING CONDITIONS

Site Location

2.1 The site is approximately 37ha in area and is located to the west of Rainham and South Hornchurch and to the southeast of Dagenham as shown at Plate 1 and in more detail at Figure 1. The site is bordered by the A1112 (Dagenham Road) to the north, residential properties to the east and south, the Orchard Village housing development to the south and Beam River to the west.

Existing Use

2.2 The site is currently being restored with completion due in April 2017. The 4ha area to the south of the site, which is owned by the London Borough of Havering, is currently being used for recreational purposes. This area is situated to the rear of the residential dwellings on Frederick Road and can be accessed via footways from Frederick Road to the east and Roman Close to the west.
Existing Access Arrangements

2.3 An existing access is located to the north of the site which forms a priority junction with the A1112 (Dagenham Road). This access is situated approximately 300m to the west of the A125/A1112 roundabout.

2.4 There are also a couple of stopped-up accesses which run into the site from the south. Lower Mardyke Avenue runs into the southwest portion of the site for a distance of approximately 50m. A spur road also feeds off Roman Close which although not currently adopted, has recently been improved as part of the Orchard Village development. Further details are provided later in this section.

2.5 As previously noted, pedestrians are able to access the southern portion of the site to the rear of the residential dwellings on Frederick Road via footways which can be accessed from Frederick Road and Roman Close. The existing vehicular and pedestrian access arrangements for the site are shown on Plate 2.
Plate 2: Existing Access Arrangements

Existing Travel Patterns

2.6 To determine the existing travel patterns of residents living in the area, 2011 Census Method of Travel to Work data has been obtained for the South Hornchurch ward where the site is located. This information is presented below in Table 2.1 and the full data is contained within Appendix A.
Table 2.1: Method of Travel to Work Mode Share for the South Hornchurch Ward (source: 2011 Census)

<table>
<thead>
<tr>
<th>Mode</th>
<th>Share</th>
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<tr>
<td>Underground, Metro, Light Rail, Tram</td>
<td>12.5%</td>
</tr>
<tr>
<td>Train</td>
<td>10.2%</td>
</tr>
<tr>
<td>Bus, Minibus or Coach</td>
<td>9.9%</td>
</tr>
<tr>
<td>Taxi</td>
<td>0.8%</td>
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<tr>
<td>Motorcycle, Scooter or Moped</td>
<td>1.0%</td>
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<tr>
<td>Driving a Car or Van</td>
<td>54.8%</td>
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<tr>
<td>Passenger in a Car or Van</td>
<td>4.7%</td>
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<tr>
<td>Bicycle</td>
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<tr>
<td>On Foot</td>
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<td>Other Method of Travel to Work</td>
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<td>Total</td>
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2.7 Table 2.1 shows that although the majority of residents living within the Ward currently drive (55%), there are opportunities to use bus, London Underground and train services with approximately 33% residents using public transport. The proportion of users travelling on-foot (4%) and by bicycle (1%) is however low and the proposals would provide the opportunity to increase the uptake of these modes such as by improving pedestrian and cycle routes and connections.

Orchard Village Development

2.8 The Orchard Village development is situated to the south of the site and is bounded by Lower Mardyke Avenue, Walden Avenue, Lowen Road and Roman Close. The proposals include up to 555 new homes and an approximate investment of £80 million to regenerate the former Mardyke Estate and improve the lives of residents and the community in the area.

2.9 The first two phases (approximately 200 new residential dwellings) have now been completed and the construction of Phase 3 is currently underway. Phase 3 is projected to be completed late
2014/early 2015 and will provide further residential units, as well as community and retail uses.

2.10 The proposed development will provide the opportunity to integrate the site with the Orchard Village development including by means of secondary access to the south via Roman Close or Lower Mardyke Avenue for example. The site will also benefit from the investment being made including the improvements to the local highway network and the additional facilities which will be available to residents.

Local Highway Network

A1112

2.11 The A1112 (Dagenham Road) borders the site to the north and is classified as an “Urban All-Purpose” dual carriageway (UAP2) based on the road types contained within DMRB TA 79/99. The A1112 accommodates an Annual Average Daily Flow (AADF) of approximately 21,800 vehicles based on traffic flows provided by the Department for Transport (DfT) for 2013. Further details of traffic flows along the A1112 are provided later in this section.

2.12 The A1112 commences at the roundabout junction with the A125 at its eastern extent and then runs westwards towards the roundabout junction with the B178. The A1112 then runs northwards through Dagenham East and Chadwell Heath towards the A12 in the form of a single carriageway with one lane in each direction.

2.13 The A1112 is subject to a 30mph speed limit, is street lit and contains footways on both sides between the A125 and B178 roundabout junctions. Although the A1112 consists of two lanes in each direction in the vicinity of the site, the nearside lane is taken up by a bus lane in each direction. The bus lanes are in operation at
all times and can be used by buses, cyclists and taxis. The bus lanes are replaced by cycle lanes further to the west where the A1112 enters a residential area and remains a dual carriageway with one lane in each direction. There are a number of bus stops located along the A1112 which are served by bus route 103.

**A125**

2.14 The A125 (Rainham Road) forms a three-arm roundabout junction with the A1112 to the north of the site and runs northwards towards Romford via Elm Park and Rush Green, as well as to the east through South Hornchurch towards Rainham and the A1306. The A125 is a single carriageway road which is street lit and subject to a 30mph speed limit. The A125 runs through residential areas, has footways on both sides and provides uncontrolled and signalised crossings for pedestrians. Bus route 103 runs along the A125 to the east.

2.15 The A125 is a principal route which accommodates an AADF of approximately 31,800 vehicles to the north of the A1112/A125 roundabout and 25,200 vehicles to the south of the A1112/A125 roundabout based on 2013 flows provided by the DfT. The A125 is classified as a UAP1 single carriageway road based on DMRB and predominantly carries through traffic.

**B178**

2.16 The B178 (Ballards Road) forms a three-arm roundabout junction with the A1112 to the northwest of the site and runs southwards towards the A1306 (New Road). The B178 is a single carriageway road which is street lit and subject to a 30mph speed limit. Footways run along both sides of the carriageway and segregated cycle lanes are also in place along part of the link as it runs through a park. The B178 passes through a residential area to the south of
the park and accommodates bus stops which are served by bus route 145.

**A1306**

2.17 The A1306 (New Road) runs to the south of the site and forms two junctions with the A13 including near Purfleet to the southeast and to the south of Dagenham near Dagenham Dock railway station to the west. The A1306 also forms a signalised junction with Lower Mardyke Avenue (which provides a link into the site), as well as a signalised junction with the B178 and a roundabout junction with the A125 as outlined above.

2.18 The A1306 is a dual carriageway road which is street lit, subject to a 30mph speed limit and consists of two lanes in each direction in the vicinity of the site. Bus lanes run along the nearside lane of the A1306 in each direction in a similar fashion to the A1112 to the north of the site. Bus routes 145, 165, 174, 175, 287, 365 and 372 run along the A1306.

2.19 The A1306 is a principal route which accommodates an AADF of approximately 13,100 vehicles in the vicinity of the junction with Lower Mardyke Avenue (based on 2013 flows). It is therefore considered that the A125 is classified as a UAP3 dual carriageway road which carries mixed traffic and provides frontage access, bus stops and pedestrian crossings.

**Other Local Roads**

2.20 Frederick Road borders to the south, forms a priority crossroads junction with Betterton Road to the east and turns into Lowen Road at the priority junction with Roman Close to the west. Roman Close also borders the site to the south and has recently been improved as part of the Orchard Village development e.g. it now features shared surfacing to improve access for pedestrians and cyclists. A spur
road currently runs northwards from Roman Close into the southern part of the site where it is currently stopped-up. It should be noted that Roman Close is not currently an adopted highway.

2.21 Lowen Road runs between Roman Close to the east and Lower Mardyke Avenue to the west. Lower Mardyke Avenue runs in a north-south direction and provides access into the southern section of the site where it is also currently stopped up.

2.22 The local single carriageway roads outlined above contain one lane in each direction, are traffic calmed, subject to 20mph speed limits and primarily serve residential dwellings including the Orchard Village development. Frederick Road, Lowen Road and Lower Mardyke Avenue are also served by bus route 365 which runs in a westbound and then southbound direction.

2.23 Plate 3 shows how the site fits in with the surrounding local highway network.

Plate 3: Local Highway Network
Strategic Highway Network

**A13**

2.24 The A13 runs in an east-west direction to the south of the site and can be accessed via the A1306 New Road. The A13 is classified as a “Red Route” and forms part of the Transport for London Road Network (TLRN). The A13 forms a junction with the M25 at Junction 30 approximately 8km to the east of the site where it then continues eastwards into south Essex. The A13 also runs towards east London and forms a junction with the A406 North Circular Road approximately 7km to the west of the site.

2.25 The A13 is a dual carriageway road and consists of three lanes in each direction to the south of the site. The A13 accommodates an AADF of approximately 84,000 vehicles in the vicinity of the junction with the A1306 (based on 2013 flows). The A13 is classified as an “Urban Motorway” (UM) dual carriageway road based on DMRB, which provides a through route with grade separated junctions.

**A12**

2.26 The A12 runs in an east-west direction to the north of the site and can be accessed via the A1112. The A12 is also classified as a “Red Route” and forms part of the TLRN. The A12 forms a junction with the M25 at Junction 28 to the east and runs towards the A406 North Circular Road as well as east London to the west.

2.27 The A12 is a dual carriageway road which consists of two lanes in each direction to the north of the site. The A12 accommodates an AADF of approximately 50,000 vehicles through Romford in the vicinity of the junction with the A125 and can also be considered to be classified as an UM dual carriageway road.
Existing Traffic Flows (A1112)

2.28 The DfT provides traffic data in the form of Annual Average Daily Flows (AADF) which represents the number of vehicles that drive on a stretch of road on an average day of the year. The A1112 is classified as a Class A Principal Road in an Urban Area and traffic count data is available for a section of the A1112 in the vicinity of the site. The location of the manual count which was used to obtain the traffic data is shown in Plate 4 below:

Plate 4: A1112 Traffic Count Location (Ref: 71002)

2.29 Traffic count data has been obtained for 2013 which represents the most recent period available. The AADF has been presented by vehicle type and direction in Table 2.2 below.

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<tbody>
<tr>
<td>Eastbound</td>
<td>10,406</td>
<td>475</td>
<td>106</td>
<td>10,987</td>
</tr>
<tr>
<td>Westbound</td>
<td>10,293</td>
<td>460</td>
<td>101</td>
<td>10,854</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>20,699</strong></td>
<td><strong>935</strong></td>
<td><strong>207</strong></td>
<td><strong>21,841</strong></td>
</tr>
</tbody>
</table>
The above shows that the A1112 experiences a two-way flow of 21,841 vehicles across an average day. This consists of approximately 95% motorcycles, cars and LGVs, 4% HGVs and 1% buses. These flows have been converted to peak hour flows based on the assumption that 10% average daily traffic would occur during the average peak hour. This is considered to provide a robust approach, given that each hour represents approximately 4% of the 24hr period. These results are shown in Table 2.3 below.

### Table 2.3: A1112 Peak Hour Flows (2013)

<table>
<thead>
<tr>
<th>Direction</th>
<th>Cars/LGVs</th>
<th>HGVs</th>
<th>Buses</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eastbound</td>
<td>1,041</td>
<td>48</td>
<td>11</td>
<td>1,099</td>
</tr>
<tr>
<td>Westbound</td>
<td>1,029</td>
<td>46</td>
<td>10</td>
<td>1,085</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2,070</strong></td>
<td><strong>94</strong></td>
<td><strong>21</strong></td>
<td><strong>2,184</strong></td>
</tr>
</tbody>
</table>

The A1112 is classified as an urban all-purpose dual carriageway (UAP2), provides two lanes in each direction and has an approximate carriageway width of 7.0m in each direction. However, as the nearside lane cannot be used by general traffic, it is considered that up to 1,600 vehicles could be accommodated within one lane in each direction per hour (see Chapter 3 of DMRB TA 79/99). It is therefore considered that the A1112 currently operates within capacity, with approximately 1,100 vehicles travelling in each direction during the peak hour.

In light of the above, the surrounding highway network consists of a number of principal routes which are able to cater for large traffic volumes in excess of 20,000 vehicles per day. The A1112 and A1306 run as dual carriageways to the north and south of the site and provide access to other strategic routes including the A125, A13 and the A12. These routes predominantly carry through traffic and provide access to areas within east London as well as towards Kent and Essex.
Initial Accident Review

2.33 An initial review of accidents has been undertaken for the surrounding highway network based on road casualty data available on CrashMap. A summary of the number and severity of incidents which have occurred during the most recently available three year period (2011 to 2013) has been provided in Tables 2.4 and 2.5 below.

Table 2.4: Accident Data Summary (Links)

<table>
<thead>
<tr>
<th>Link (excluding junctions below)</th>
<th>Distance</th>
<th>Slight</th>
<th>Serious</th>
<th>Fatal</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>A1112 (between B178 and A125)</td>
<td>1.0km</td>
<td>11</td>
<td>0</td>
<td>0</td>
<td>11</td>
</tr>
<tr>
<td>A125 (north of A1112)</td>
<td>1.0km</td>
<td>5</td>
<td>0</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>A125 (between A1112 and Cherry Tree Lane)</td>
<td>0.9km</td>
<td>10</td>
<td>0</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>A125 (between Cherry Tree Lane and A1306)</td>
<td>1.0km</td>
<td>6</td>
<td>1</td>
<td>0</td>
<td>7</td>
</tr>
<tr>
<td>B178 (between A1112 and A1306)</td>
<td>1.5km</td>
<td>9</td>
<td>0</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td>A1112 (north of B178)</td>
<td>1.0km</td>
<td>18</td>
<td>3</td>
<td>0</td>
<td>21</td>
</tr>
<tr>
<td>A1306 (between B178 and Marsh Way)</td>
<td>1.1km</td>
<td>7</td>
<td>2</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td>A1306 (between Marsh Way and A125)</td>
<td>1.5km</td>
<td>8</td>
<td>2</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>Frederick Road</td>
<td>0.7km</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Roman Close</td>
<td>0.1km</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Lowen Road</td>
<td>0.3km</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>Lower Mardyke Avenue</td>
<td>0.5km</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>10.6km</strong></td>
<td><strong>75</strong></td>
<td><strong>9</strong></td>
<td><strong>0</strong></td>
<td><strong>84</strong></td>
</tr>
</tbody>
</table>

Table 2.5: Accident Data Summary (Junctions)

<table>
<thead>
<tr>
<th>Junction</th>
<th>Slight</th>
<th>Serious</th>
<th>Fatal</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Existing Site Access (A1112)</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>A1112/B178</td>
<td>6</td>
<td>0</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>A1112/A125</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>A1306/B178</td>
<td>3</td>
<td>1</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>A1306/A125</td>
<td>9</td>
<td>0</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td>A1306/Lower Mardyke Avenue</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>1</td>
</tr>
<tr>
<td>A1306/Marsh Way</td>
<td>9</td>
<td>1</td>
<td>0</td>
<td>10</td>
</tr>
<tr>
<td>A125/Cherry Tree Lane</td>
<td>8</td>
<td>0</td>
<td>0</td>
<td>8</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>37</strong></td>
<td><strong>2</strong></td>
<td><strong>0</strong></td>
<td><strong>39</strong></td>
</tr>
</tbody>
</table>

2.34 The above shows that a total of 123 incidents occurred on the surrounding highway network within a three year period including 84 incidents along links and minor junctions and 39 incidents at major junctions. This is equivalent to approximately 41 incidents
per year (an average of 1-2 incidents per junction per year and 2-3 incidents per kilometre link of highway per year).

2.35 The information presented above indicates that approximately 3-4 incidents occurred per year along the A1112 to the north of the site. This is representative of the incident rates along other surrounding links (such as the A125 and the A1306) and does not appear to be an accident hotspot. Furthermore, no incidents occurred at the existing site access junction with the A1112, or along Lower Mardyke Avenue or Roman Close. This suggests that the highway network in the vicinity of the site’s vehicular access points currently operates safely.

2.36 Notwithstanding the above, a more detailed analysis of accident data would need to be undertaken as part of a transport assessment in order to support a detailed planning application. This data would be obtained from Transport for London (TfL) to provide more specific details, such as the nature of the incidents taking place and the types of users involved.

Public Transport

Buses

2.37 The following provides details of the nearest bus stops to the site which are situated to the north on the A1112, as well as to the south on Lower Mardyke Avenue and the A1306 (see Figure 2 for locations):

- Bus Stop N (bus flag & shelter) - A1112 (westbound) adjacent to the site’s northern boundary to the west of the existing access;

- Bus Stop A (bus flag & shelter) – A1112 (eastbound) to the west of the existing access;
2.38 Pedestrians are able to use the signalised crossing approximately 270m to the west of the existing site access junction to access Bus Stop A on the northern side of the A1112. Pedestrians are also able to use the signalised crossing approximately 10m to the east of the A1306/Lower Mardyke Avenue junction to access Bus Stop MG on the southern side of the A1306.

2.39 Table 2.6 sets out the bus routes which currently serve the bus stops outlined above, as well as their approximate frequencies.
Table 2.6: Bus Services in the Vicinity of the Site

<table>
<thead>
<tr>
<th>Service</th>
<th>Route and Direction</th>
<th>Services in Hour Commencing</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>07:00</td>
</tr>
<tr>
<td>A1112 (EB) - Bus Stop A (York Road)</td>
<td>Chase Cross to Rainham Station</td>
<td>6 6 6 6 6 5</td>
</tr>
<tr>
<td>103</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A1112 (WB) - Bus Stop N (York Road)</td>
<td>Rainham Station to Chase Cross</td>
<td>6 6 6 6 6 6</td>
</tr>
<tr>
<td>103</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A1306 (EB) - Bus Stop MF (South Street)</td>
<td>Dagnam Park Square to C E M E</td>
<td>7 7 7 7 7 7</td>
</tr>
<tr>
<td>174</td>
<td>Barking Station to Abbey Wood Lane</td>
<td>3 4 4 4 4 5</td>
</tr>
<tr>
<td>287</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A1306 (WB) - Bus Stop MG (Lower Mardyke Avenue)</td>
<td>C E M E to Dagnam Park Square</td>
<td>7 7 7 7 7 7</td>
</tr>
<tr>
<td>174</td>
<td>Abbey Wood Lane to Barking Station</td>
<td>3 4 5 4 4 4</td>
</tr>
<tr>
<td>287</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A1306 (EB) - Bus Stop MC (South Street)</td>
<td>South Street to Havering Park</td>
<td>5 5 5 5 5 5</td>
</tr>
<tr>
<td>365</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lower Mardyke Avenue (SB) - Bus Stop MA (Orchard Village)</td>
<td>Havering Park to South Street</td>
<td>4 5 5 5 5 5</td>
</tr>
<tr>
<td>365</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

2.40 **Table 2.6** shows that the highway network in the vicinity of the site is served by up to 22 buses in each direction per hour.

_Rail_

2.41 Dagenham East is the nearest London Underground station to the site and is situated within an approximate 1.5km walking distance to the northwest. This station is served by the District Line which runs between Upminster to the east and through east and central London to the west.

2.42 Dagenham Dock is the nearest National Rail station to the site which is situated within an approximate 2.5km walking distance from the
southern boundary of the site at Lower Mardyke Avenue. This station is served by C2C services which run towards London Fenchurch Street, Grays, Pitsea, Southend and Shoeburyness.

2.43 Both these stations are outside what the Department for Transport (DfT) and Transport for London (TfL) would consider to be a reasonable walking distance which is set at 960m for sites within London. However, local bus services provide access to both Dagenham East and Dagenham Dock stations and could therefore be used to interchange with these.

Public Transport Accessibility Level

2.44 The Public Transport Accessibility Level (PTAL) index adopted by Transport for London (TfL) reflects walking times to public transport facilities, service range and reliability of services for the London area. The index is split into bands summarised by Table 2.7 below.

<table>
<thead>
<tr>
<th>PTAL Rating</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1a-1b</td>
<td>Very Poor</td>
</tr>
<tr>
<td>2</td>
<td>Poor</td>
</tr>
<tr>
<td>3</td>
<td>Moderate</td>
</tr>
<tr>
<td>4</td>
<td>Good</td>
</tr>
<tr>
<td>5</td>
<td>Very Good</td>
</tr>
<tr>
<td>6a-6b</td>
<td>Central</td>
</tr>
</tbody>
</table>

2.45 Site specific PTAL information has been obtained from TfL. The centre of the existing site has a PTAL score of 1b (very poor). Although there are a number of bus services accessible from within a 640m walking distance of the site, there are no underground or
railway services accessible from within a 960m walking distance of the site access. The results of the PTAL output are contained within Appendix B.

2.46 It is acknowledged that the site currently has a low PTAL score; however, there are proposals to improve the transport infrastructure in the vicinity of the site as part of the London Riverside Opportunity Area (LROA) proposals which are summarised later in Section 3.0. Furthermore, approximately 23% residents currently travel by London Underground or train and the PTAL score does not consider the potential for using bus services to interchange with these rail services.

Walking and Cycling

2.47 There are footways running along both sides of the A1112 to the north of the site which run between the roundabout junctions with the B178 to the west and the A125 to the east. The footways continue along the A1112 to the north of the B178 roundabout junction towards Dagenham East. There are also footways along the A125 to the east and north of the A1112/A125 roundabout junction.

2.48 A signalised pedestrian crossing is present on the A1112 approximately 270m to the west of the existing site access junction. This allows pedestrians to cross between the northern and southern footways and provides access to the bus stops on each side of the carriageway. The existing footway network to the north of the site also allows pedestrians to access Dagenham East London Underground station.

2.49 Footways are present on Lower Mardyke Avenue in the vicinity of the turning head to the south of the site. These run southwards towards the signalised junction with the A1306 New Road and allow
pedestrians to access the bus stops along this link as well as the employment and educational opportunities to the south of the site.

2.50 Cyclists are currently able to use the bus lanes which run along the A1112 to the north of the site. There are then cycle lanes present along the A1112 to the north of the A1112/B178 roundabout junction. National Cycle Network (NCN) Route 13 runs to the south of the site along the A1306 (New Road) and can be accessed via Lower Mardyke Avenue or Roman Close. NCN Route 136 also runs to the east of the site and passes along a section of the A125 as well as through Hornchurch Country Park. These routes are shown on Figure 2.

Local Facilities

2.51 There are a range of existing facilities in the vicinity of the site, namely:

- Open space and sports facilities for recreation including Beam Valley Country Park, Bretons Outdoor Centre and Manor Road Sports Ground;
- Numerous educational establishments including nurseries and schools, as well as Brittons Academy;
- Local shops including a newsagents, post offices, restaurants, cafes, pubs/bars, supermarkets and retail outlets;
- Employment areas including Suttons Business Park to the south;
- Additional facilities including libraries, police stations, healthcare services, places of worship and community centres;
- Bus stops served by routes providing direct links to South Hornchurch, Rainham, Elm Park, Hornchurch and Romford;

- Dagenham East London Underground station served by the District Line which runs between Upminster to the east and through east and central London to the west; and

- Dagenham Dock and Rainham railway stations served by C2C train services to/from London Fenchurch Street, Grays, Pitsea, Southend and Shoeburyness.

2.52 Further details and a plan showing the location of facilities in the area are contained on Figure 1.

Conclusion

2.53 It is considered that the proposals will integrate the site with the surrounding networks and land uses thus minimising walking distances to local services and facilities and reducing the need to travel by vehicular modes. The site is therefore situated in a sustainable location for residential development in accordance with current national government policy set out in the National Planning Policy Framework and local policy set out in the Local Development Framework. Further details on local policy is contained in the following section.
3.0 LOCAL POLICY AND OPPORTUNITY AREA PROPOSALS

LBH Highways

3.1 Initial discussions have been held with LBH Highways to understand their likely requirements for the site in terms of transport and access on the hypothetical basis that the site will support a residential development with associated uses. A summary has been provided below:

- The design approach for the site should be in accordance with Manual for Streets and should prioritise walking and cycling links;
- The site/proposals should comply with the policies contained within the Local Development Framework (LDF);
- Primary access should be taken from the A1112 to the north to limit the extent of additional traffic on the residential streets to the south;
- Primary access to the north could take the form of one or more junctions depending on the type of arrangement, which may need to be controlled;
- The development should avoid contributing to existing rat running and congestion issues in the area.
- The bus lane along the A1112 should be maintained; and
- A transport assessment would be required to support a planning application for the site/proposals including modelling of key junctions.

3.2 Further more detailed discussions would need to be held with LBH such at a pre-application stage or as a planning application becomes progressed. The site also borders the London Borough of Barking & Dagenham (LBBD) who would also likely need to be consulted.
Local Development Framework

3.3 The LDF was adopted by the Council in 2008. Since then, the Government has published its National Planning Policy Framework (NPPF) and the Mayor of London has published a new London Plan (with subsequent alterations). As a result, the Council is currently preparing a new Havering Local Plan which will replace the LDF and cover the period up until 2031.

3.4 The LDF continues to guide future planning in the Borough until the emerging Havering Local Plan is adopted. The Core Strategy and Development Control Policies Development Plan Document (DPD) forms the most important LDF document which sets the Council’s approach to planning the whole borough up to 2020. The following provides a summary of the Core Policies and Development Control Policies which relate to transport.

3.5 **Core Policy (CP) 9 ‘Reducing the Need to Travel’** states that the need to travel will be reduced by locating major developments in places with good public transport accessibility, relating residential densities to existing and future public transport access levels, ensuring there is a range of local employment opportunities and improving opportunities for informal recreation in the Havering countryside.

3.6 **CP10 ‘Sustainable Transport’** states that sustainable transport will be promoted by:

- Achieving integration between different transport modes;
- Submitting a travel plan and transport assessment for proposals with material transport implications;
- Ensuring that new development does not overload the capacity of the public transport and strategic road networks;
• Working in partnership with the relevant agencies to seek funding for and deliver public transport improvements including in the London Riverside Opportunity Area;

• Relating maximum car parking standards to public transport accessibility;

• Minimising the distance to local public transport nodes;

• Increasing accessibility to Romford Town Centre by considering the potential to introduce a Park and Ride facility to encourage modal shift; and

• Seeking contributions for improvements to public transport accessibility and capacity (and other transport improvements).

3.7 Development Control Policy (DC) 32 ‘The Road Network’ states that new development will not be allowed where it would have an adverse impact on the functioning of the road hierarchy.

3.8 DC33 ‘Car Parking’ states that car parking provision should not exceed the maximum standards set out in Annex 5.

3.9 DC34 ‘Walking’ states that developers will be required to take account of the needs of pedestrians and address desire lines to local facilities including schools and public transport nodes. In certain circumstances, contributions may be sought to promote walking in the Borough, pedestrian accessibility towards important local facilities or the pedestrian environment at transport interchanges.

3.10 DC35 ‘Cycling’ states that developments will need to take account of cyclists by providing safe and secure cycle parking (in accordance with Annex 6) and changing/shower facilities, encouraging access by and circulation of cyclists and providing cycle priority measures where necessary. Contributions may be sought to provide off-site
improvements to the cycle network and cycle facilities including at key public transport nodes.

3.11 **DC36 ‘Servicing’** states that adequate servicing arrangements will need to be provided for new housing developments and should be located within the curtilage of the development where possible, allowing vehicles to leave in forward gear.

**LBH Residential Design Supplementary Planning Document**

3.12 The LBH Residential Design Supplementary Planning Document (SPD) was adopted in 2010 and aims to improve the quality of new residential schemes by providing guidance on how they can be built to a high quality. The document forms part of Havering’s LDF and is a material consideration for decisions on planning applications.

3.13 One of the main objectives of the document is to promote the accessibility and local permeability of residential developments which can be achieved by meeting the following criteria:

- To be well integrated with surrounding networks, movement patterns and land uses;
- Featuring a network of well-connected streets to improve internal permeability;
- Providing safe and clearly defined pedestrian and cycle routes which follow desire lines to facilitate movement; and
- Prioritising pedestrian and cyclist movements, such as by separating routes and encouraging lower traffic speeds.

3.14 In addition to the above, car parking should be well integrated within a development so as not to dominate the landscape and provided in accordance with Development Control Policy DC33.

3.15 Cycle parking should be provided in safe, secure and accessible locations and in accordance with Development Control Policy DC35.
3.16 Waste and recycling storage should be carefully considered so that they can be easily accessed by both residents and waste/recycling collection vehicles.

**London Riverside Opportunity Area**

3.17 The site is located immediately to the north of the London Riverside Opportunity Area (LROA) which covers 3,000 hectares and extends from the Royal Docks to the west to Rainham Marshes to the east. The LROA encompasses the southern part of the London Borough of Havering, as well as parts of Barking & Dagenham and Newham. The extents of the LROA and how this relates to the site is shown below in Plate 5.

![Plate 5: LROA Extents](image)

3.18 There are a number of transport improvements proposed within the LROA including improvements to the A13, a new mainline rail station at Beam Park, additional bus corridors/connections and a potential river crossing over the Thames which would be accessed from the A13. These will help facilitate the delivery of new homes and jobs in the area as well as to reduce physical barriers to travel, improve
connections, reduce crowding on public transport and lower highway congestion.

3.19 Beam Park station is proposed to be situated between Dagenham Dock and Rainham stations on the Essex Thameside branch of the C2C line. The station would be accessed from Marsh Way to the south of the A1306 (New Road) which would place it within an approximate 800m walking distance of the site’s potential southern point of access on Roman Road. Funding is currently being sought for the new station which could open as early as 2020.

3.20 Additional bus corridors are sought within the LROA to improve east-west connections across Barking Riverside as well as between Rainham Village and Beam Park. There are also proposals to improve bus connections between the LROA and areas to the north including towards Romford and future Crossrail. The site could facilitate these arrangements by accommodating a bus link in a north-south direction.

3.21 There are a number of strategic cycle routes which serve London Riverside including CS3 (Barking to Tower Gateway), LCN13 connecting Rainham with the City, LCN57 linking Dagenham with Epping and LCN58 running between Rainham, Romford and Epping. The proposals would offer the opportunity to link the site with the existing routes nearby and could also potentially provide a cycle route through the site and improve existing cycle facilities along the A1112.
4.0 THE PROPOSED DEVELOPMENT AND LIKELY TRIP GENERATION

4.1 The site consists of approximately 37ha of land and the level of development being considered as part of this appraisal is outlined below:

- Up to 1,500 residential units;
- Educational facilities including a school;
- Community use;
- Area of public realm;
- Pedestrian and cycle routes; and
- A potential bus link.

4.2 The proposals therefore seek to deliver a residential development with associated employment, educational and recreational facilities which will reduce the need to travel in accordance with LDF Policy CP9. The proposals will focus on delivering pedestrian and cycling routes through the site along key desires lines in accordance with MfS, the Residential Design Guide SPD and LDF Policies DC34 and DC35.

4.3 Plans showing the indicative masterplan for the site are provided in Appendix C.

Trip Generation

4.4 All person trip rates have been obtained from the TRICS/TRAVL database for similarly sized mixed use residential developments situated within outer London with low PTAL ratings of 1-2. A total of two sites were selected in total and details of these as well as the trips are contained within Appendix D.
4.5 The 2011 Census ‘Method of Travel to Work’ dataset for the South Hornchurch Ward (where the site is located) has then been used to infer likely resident travel patterns for the proposed development (see Table 2.1). A summary of the all person trips rates and anticipated all person trip generation for the proposals (based on the site’s area of 37ha) has been provided below in Table 4.1.

<table>
<thead>
<tr>
<th>Proposed Trip Generation</th>
<th>Weekday am peak hour</th>
<th>Weekday pm peak hour</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>In</td>
<td>Out</td>
</tr>
<tr>
<td>Person trip rates (per 100sqm)</td>
<td>0.064</td>
<td>0.233</td>
</tr>
<tr>
<td>Person trips (37 ha)</td>
<td>238</td>
<td>861</td>
</tr>
<tr>
<td>Vehicle driver trips (54.8%)</td>
<td>130</td>
<td>472</td>
</tr>
<tr>
<td>Vehicle Passenger trips (4.7%)</td>
<td>11</td>
<td>40</td>
</tr>
<tr>
<td>Pedal cycle trips (1.3%)</td>
<td>3</td>
<td>11</td>
</tr>
<tr>
<td>Walk trips (4.2%)</td>
<td>10</td>
<td>36</td>
</tr>
<tr>
<td>Train trips (10.2%)</td>
<td>24</td>
<td>88</td>
</tr>
<tr>
<td>Underground trips (12.5%)</td>
<td>30</td>
<td>107</td>
</tr>
<tr>
<td>Bus trips (9.9%)</td>
<td>24</td>
<td>86</td>
</tr>
<tr>
<td>Motorcycle Trips (1.0%)</td>
<td>2</td>
<td>9</td>
</tr>
<tr>
<td>Other trips (1.4%)</td>
<td>3</td>
<td>12</td>
</tr>
</tbody>
</table>

4.6 The above shows that the development is projected to generate the highest number of trips during the AM peak period, where approximately 602 two-way vehicular trips are anticipated to occur. Further details of the information obtained from the Census database and the trip generation calculations are held in Appendices A and D.

4.7 It should be noted that the site was formerly a landfill site and is currently being restored. As a result, the proposed level of trips shown above will not strictly be all additional. Furthermore, vehicular trips associated with the residential development are likely to consist primarily of light vehicles, rather than the heavy vehicles associated with the site’s former use. Nonetheless, for the purposes of this appraisal it has been assumed that the trips shown in Table
4.1 would be additional to the network and would consist of 5% HGVs e.g. for deliveries/ servicing movements to provide a worst case assessment.

**Vehicle Trip Distribution**

4.8 The distribution for the residential element has been derived from 2011 Census Travel to Work Origin-Destination (O-D) data for the resident population of the Havering 028 Middle Layer Super Output Area (MSOA) which covers a smaller area than Ward level and is therefore more specific to the site.

4.9 In the absence of detailed traffic count data, the distribution has only been examined as far as travelling eastbound or westbound along the A1112 to determine the likely level of vehicular trips projected to use this link as well as the two roundabout junctions. The assumptions used to inform the distribution are presented in Appendix D and the results are provided below in Table 4.2.

**Table 4.2: Anticipated Vehicular Trip Distribution**

<table>
<thead>
<tr>
<th>Direction</th>
<th>Junction</th>
<th>Destinations</th>
<th>Proportion</th>
</tr>
</thead>
<tbody>
<tr>
<td>East</td>
<td>A1112/A125</td>
<td>South Hornchurch, Rainham, Romford, Upminster, Thurrock, Brentwood, Basildon, Dartford</td>
<td>63.8%</td>
</tr>
<tr>
<td>West</td>
<td>A1112/B178</td>
<td>Barking, Dagenham, Redbridge, Tower Hamlets, Newham, City of London</td>
<td>36.2%</td>
</tr>
</tbody>
</table>

4.10 The above shows that the majority of trips are anticipated to depart/arrive from the east via the A1112 and the A1112/A125 roundabout. These trips will be travelling towards destinations within Havering as well as areas further to the east in Essex and Kent.
Future Development Year

4.11 The 2013 peak hour traffic flows for the A1112 (Table 2.3) have been factored up to the future year of 2031 to reflect the end period of the emerging Havering Local Plan. These have been based on growth factors derived from the National Transport Model (NTM) and the National Trip Ends Model (NTEM) using the Trip Ends Model Program (TEMPRO). NTM projections for “Urban Principal Roads” in the London were used together with NTEM factors for the Havering (main) area. The obtained growth factors are shown below in Table 4.3.

Table 4.3: Growth Factors (2013 to 2031)

<table>
<thead>
<tr>
<th>Time Period</th>
<th>Growth Factor</th>
</tr>
</thead>
<tbody>
<tr>
<td>AM Peak</td>
<td>1.238</td>
</tr>
<tr>
<td>PM Peak</td>
<td>1.243</td>
</tr>
<tr>
<td>Average Day</td>
<td>1.256</td>
</tr>
</tbody>
</table>

4.12 The above shows that traffic flows along the A1112 between 2013 and 2031 are anticipated to increase by a factor of 1.238 during the AM peak which represents the worst case period in terms of development trips. In addition, average daily flows are anticipated to increase by a factor of 1.256 which would result in a 2031 AADF of approximately 27,500 vehicles along the A1112.

Traffic Flow Diagrams

4.13 A number of traffic flow diagrams have been put together for the 2013 and 2031 AM peak hour scenarios based on the information provided within this section and Section 4.0. The diagrams show the existing and projected levels of traffic anticipated to travel along the A1112 to the east of the proposed site access junction towards the A1112/A125 roundabout and to the west of the proposed site access towards the A1112/B178 roundabout.
4.14 The following scenarios have been examined for the AM peak hour:

- 2013 Existing A1112 Traffic
- 2031 Baseline A1112 Traffic
- Development Traffic Distribution
- Development Traffic Generation
- 2013 With Development Scenario
- 2031 With Development Scenario

4.15 The traffic flow diagrams are contained within Appendix E.

Projected Traffic Flow Increase

4.16 The 2013 peak hour traffic flows for the A1112 (see Table 2.3) have been compared with the anticipated level of additional traffic which is expected to occur as a result of the proposed development. The AM peak hour has been examined as this represents the period when the proposed development is anticipated to generate the highest level of vehicular trips. The results are shown in Table 4.4 below.

Table 4.4: 2013 AM Peak Hour Flows

<table>
<thead>
<tr>
<th>A1112 (East of Access)</th>
<th>Direction</th>
<th>Existing</th>
<th>Development</th>
<th>Total</th>
<th>% Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eastbound</td>
<td>1,099</td>
<td>307</td>
<td>1,406</td>
<td>28%</td>
<td></td>
</tr>
<tr>
<td>Westbound</td>
<td>1,085</td>
<td>84</td>
<td>1,170</td>
<td>8%</td>
<td></td>
</tr>
<tr>
<td>Two-Way</td>
<td>2,184</td>
<td>391</td>
<td>2,575</td>
<td>18%</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>A1112 (West of Access)</th>
<th>Direction</th>
<th>Existing</th>
<th>Development</th>
<th>Total</th>
<th>% Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eastbound</td>
<td>1,099</td>
<td>48</td>
<td>1,146</td>
<td>4%</td>
<td></td>
</tr>
<tr>
<td>Westbound</td>
<td>1,085</td>
<td>174</td>
<td>1,260</td>
<td>16%</td>
<td></td>
</tr>
<tr>
<td>Two-Way</td>
<td>2,184</td>
<td>222</td>
<td>2,406</td>
<td>10%</td>
<td></td>
</tr>
</tbody>
</table>
4.17 The results for 2031 (which reflects the end period of the emerging Havering Local Plan) have also been calculated for the AM peak hour and are presented in Table 4.5 below.

Table 4.5: 2031 AM Peak Hour Flows

<table>
<thead>
<tr>
<th>Direction</th>
<th>A1112 (East of Access)</th>
<th>A1112 (West of Access)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Baseline</td>
<td>Development</td>
</tr>
<tr>
<td>Eastbound</td>
<td>1,360</td>
<td>307</td>
</tr>
<tr>
<td>Westbound</td>
<td>1,343</td>
<td>84</td>
</tr>
<tr>
<td>Two-Way</td>
<td>2,703</td>
<td>391</td>
</tr>
</tbody>
</table>

4.18 The results show that the proposals are anticipated to increase two-way traffic flows along the A1112 by approximately 14% to the east of the access and 8% to the west of the access in 2031 during the AM peak hour.

4.19 Predicted two-way flows on the dual carriageway section of the A1112 to the north of the site are anticipated to reach a maximum of around 3,100 vehicles per hour in 2031. This link has a capacity of approximately 3,200 vehicles per hour, and is therefore projected to almost reach capacity in 2031 with development traffic. The proposed development may therefore be required to contribute towards improvements to the A1112 in the vicinity of the site to increase link capacity and avoid adverse impacts in accordance with LDF Policy DC32.

4.20 In addition to the above, it is considered that the A1112/A125 and A1112/B178 roundabout junctions would need to be assessed as part of a detailed planning application for the proposed
development. Further junctions may also need to be assessed including:

- A1306 New Road/Lower Mardyke Avenue 3-arm signalised junction;
- A1306 New Road/Marsh Way 3-arm signalised junction;
- A125 Rainham Road/A1306 New Road 4-arm roundabout;
- A1306 New Road/B178 Ballards Road 4-arm signalised junction;
- A1112 Rainham Road North/A124 Wood Lane 3-arm roundabout; and
- A125 Upper Rainham Road/A124 Hornchurch Road gyratory.

4.21 It should be noted that although the above is considered to provide a robust assessment, the results are based on a number of assumptions and are therefore indicative. A more detailed analysis would need to be undertaken as part of a transport assessment when supporting a planning application to provide more definitive results.

**Potential Increase in Public Transport Usage**

4.22 The results in Table 4.1 show that the proposed development is projected to result in an additional 109 bus trips, 137 London Underground trips and 113 rail trips during the AM (worst case) peak hour.

4.23 The site is currently served by up to 22 buses each way per hour, which indicates that approximately 2-3 additional passengers would use each of these services at peak time. However, additional passengers may also use these services to access Dagenham East London Underground station and Dagenham Dock railway station given that these are outside of a reasonable walking distance.
In light of the above, the additional public transport demand would need to be examined as part of a detailed planning application, particularly in terms of nearby bus stops and Dagenham East London Underground station. The proposals will seek to improve bus services in the area such as by providing a bus link through the site which will help to cater for this additional demand. In addition, the transport improvements proposed as part of the LROA will provide additional capacity on the local public transport network as well as increasing opportunities for residents to access rail and bus services. These factors will therefore also need to be considered.

**Travel Plan**

A Travel Plan would need to be implemented in conjunction with any development on the site in order to promote the use of sustainable modes of transport (walking, cycling, public transport and car sharing) by those living there. This would be prepared in accordance with good practice guidelines in force at the time of any planning application submission (such as TfL’s *Travel Planning for New Developments in London, November 2013*) and would comprise initiatives such as appointment of a Travel Plan Co-ordinator to promote the existence of the plan and annual monitoring to track progress against mode share targets which would be set.
5.0 VEHICULAR ACCESS OPTIONS TO ACCOMMODATE THE DEVELOPMENT

Opportunities and Constraints

5.1 There are a number of opportunities to allow a proposed residential development to be served from the site. The A1112 forms a principal route to the north and is considered appropriate to provide a primary point of access which could be achieved via one or two site access junctions. The site fronts the A1112 for a distance of approximately 350m which provides sufficient scope to provide an access within a location that avoids other junctions and bus stops. It is noted that the majority of traffic needs to access/egress the site to the north and this arrangement would therefore facilitate this.

5.2 There are also opportunities to the south in the form of two currently stopped up links which could provide secondary/emergency points of access. Emergency-only access may also be achievable via Frederick Road. It is considered that the site can be well served by the surrounding highway network and that residents would have a number of different options to access/egress the site which would reduce the reliance on any one access point having to be used.

5.3 Notwithstanding the above, there are also a number of constraints which need to be considered. In terms of access to the north, the A1112 is currently a dual carriageway, accommodates bus lanes, bus stops and forms other junctions in the vicinity of the site frontage. The A1112 also forms a bend to the east in the vicinity of the A1112/A125 roundabout junction which may reduce visibility upon the approaches to a new junction. These factors will therefore influence any proposed access options e.g. avoiding bus stops and integrating bus lanes where possible.
5.4 The nature of the residential roads to the south limit the amount of additional traffic that could potentially be accommodated. A moderated level of development should therefore be served by any secondary access to the south and a direct link through the site should be avoided to deter rat-running. Roman Close is currently not adopted and Lower Mardyke Avenue would need to be improved/upgraded in the vicinity of the site’s southern boundary to facilitate access. This would also be subject to the redline boundary of the site.

**Design Requirements**

5.5 To determine the appropriate number of accesses and junction type to serve the development the Highway’s Agency’s Design Manual for Roads and Bridges (DMRB) has been used.

5.6 DMRB is used primarily for the design of trunk and motorways and given the nature of the A1112 which is a principal urban road; DMRB has been adopted as the appropriate guidance to inform this assessment. The assessment used the following chapters from DMRB:

- TD42/95 ‘Geometric Design of Major/Minor Priority Junctions
- TD16/07 ‘Geometric Design of Roundabouts’
- TD50/04 ‘The Geometric Layout of Signal-Controlled Junctions and Signalised Roundabouts

5.7 Traffic counts undertaken in 2013 were factored to represent a development design year of 2031 (the end year of the Local Plan). The 2031 AADF for the A1112 was estimated at 27,500 vehicles and the two-way peak hour flow was estimated at 2,700 vehicles.

5.8 A trip generation for the proposed development has been undertaken in **Section 4.0** of this report. The trip generation
indicated that the development would generate a two-way peak hour flow of approximately 600 vehicles. The traffic flows can be found in Appendices D and E.

Number of Accesses

5.9 To serve a development of this size the number of vehicular accesses needs to be carefully considered to suit the requirements of the emergency services as well as to provide good connections to the surrounding highway network.

5.10 It is considered that primary means of access would be taken from the A1112 to the north which would ultimately be used to serve the majority of the development. A second point of access could be provided to the south e.g. from Roman Road or Lower Mardyke Avenue to serve a smaller section of the development. An emergency point of access may also be able to be provided from Frederick Road.

5.11 Further to the above, there may be potential to provide a second point of access from the A1112 to the north. This option has not however been investigated as part of this initial appraisal. Further details of the access arrangements investigated for the main access on the A1112 are provided in Section 6.0.

Types of Access

5.12 The Design Manual for Roads and Bridges provides information regarding junction type. Using the traffic flow information and trip generation it is possible to determine the appropriate junction type for the primary access which will serve the proposed development. Where the design year major road flow is above 18,000 vehicles, DMRB TD42/95 suggests a roundabout (or other type) would be required to serve the development.
Access Options

5.13 Based upon the information presented above the following access options have been developed for consideration in this report:

1) Single roundabout access to the north with secondary/emergency access to the south; and
2) Single traffic signal access to the north with secondary/emergency access to the south.

5.14 The secondary/emergency access could be taken from Roman Close by utilising the existing spur road which partially runs into the site (see ACE Drawing W420-SK04). Lower Mardyke Avenue also provides a potential secondary/emergency access option into the site (see ACE Drawing W420-SK05A) subject to the site’s redline boundary. Vehicle restriction measures could be implemented to prevent unauthorised access and to control the level of movements generated to the south of the site.

Primary Access Option 1: Single Roundabout

5.15 The roundabout junction has been designed with reference to DMRB TD16/07. Table 6/1 in TD16/07 indicates that a normal roundabout could be provided where flows are less than 16,000 AADT on any approach along a dual carriageway.

5.16 To meet the requirement for entry path deflection and other geometric parameters outlined in TD 16/07, it is considered that the smallest normal roundabout that would be able to be accommodated on the A1112 to support the development would have an Inscribed Circle Diameter (ICD) of approximately 60 metres. Due to the level of traffic passing through the junction, two lane approaches (with a minimum width of 3.0m) have been provided on each arm and the
bus lanes have not been provided through the roundabout to allow general traffic to use both lanes.

5.17 Owing to the need to realign the A1112 to achieve adequate deflection at the roundabout (particularly to the west), the most suitable location is in the centre of the site’s northern boundary in the vicinity of the existing site access. It should be noted that as this report only provides an initial appraisal, the proposed layout of the roundabout does not currently incorporate the junction with York Road to the west. The potential for accommodating York Road within this type of layout would be investigated as part of a more detailed report such as a transport assessment if the roundabout forms the preferred option.

5.18 The proposed roundabout includes a 2.5m segregated cycleway and a 2.0m footway on both sides of the site access arm. Furthermore, 3.0m wide shared cycle/footways have been shown along the eastern and western approaches to the roundabout, as well as around the roundabout. Toucan crossings have been provided on the A1112 arms and an uncontrolled crossing has been provided on the site access arm to allow pedestrians and cyclists to cross.

5.19 A plan showing the proposed junction location and arrangement is contained on ACE Drawing W420-SK02A.

**Primary Access Option 2: Single Traffic Signal Access**

5.20 The traffic signal junction has been designed with reference to DMRB TD 50/04. The junction has again been located within the centre of the site’s northern boundary in the vicinity of the existing site access for the following reasons:

- To ensure appropriate spacing from other junctions e.g. York Road to the west;
To be situated on a straight section which avoids the bend to the east; and
To avoid existing bus stops and help link the development with the existing bus stops.

5.21 Due to the level of flow passing through the junction, two lane approaches (with a minimum width of 3.0m) have been provided on each arm and the bus lanes have been removed (through the junction) to allow general traffic to use both lanes. A 3.5m wide right turn lane has been provided on the eastern approach for traffic wishing to turn right into the site from the A1112. This right turn lane is approximately 25m in length in front of the stop line and is therefore able to accommodate a queue of four vehicles.

5.22 The proposed signal junction includes a 2.5m segregated cycleway and a 2.0m footway on both sides of the site access arm. Toucan crossings have then been provided on the site access arm and A1112 eastern arms to allow pedestrians and cyclists to cross between the site and the northern side of the A1112. The proposals also include a 3.0m wide shared cycle/footway along the southern and northern sides of the A1112 which would accommodate both pedestrians and cyclists.

5.23 Keep clear markings have been provided to the west of the proposed signal junction to allow vehicles to turn in/out of York Road. An additional toucan crossing has been provided to the west of the junction with York Road to provide pedestrians and cyclists with an additional opportunity to cross between the northern and southern shared cycle/footways. This will also allow vehicles to turn right into York Road without having to give-way to vehicles travelling eastbound i.e. when the toucan crossing is in use.

5.24 A plan showing the proposed junction location and arrangement is contained on ACE Drawing W420-SK01A.
5.25 Details of the proposed staging and phasing for the signal controlled junction are contained within Appendix G.

**Capacity Assessments**

5.26 Junction capacity assessments using the analysis tools ARCADY (for roundabouts) and LINSIG (for the traffic signals) have been undertaken for the two access options outlined above. The 2013 existing year scenario and 2031 future year scenario have been tested for each junction with development traffic applied. The flows have been taken from the traffic flow diagrams contained within Appendix E as detailed within the previous section.

5.27 As previously noted, these traffic flows are considered to represent a worst case assessment for the following reasons:

- All vehicular trips have been assumed to be additional to the network i.e. existing trips associated with the site have not been discounted;
- The peak hour flows for the A1112 are based on 10% of the AADF flow which presents a robust methodology;
- The 2031 flows are based on robust growth factors (approximately 24% growth between 2013 and 2031);
- The peak hourly level of development traffic has been considered which occurs during the AM peak (08:00-09:00);
- Delivery/ servicing and potential bus movements have been considered i.e. 5% development has been shown as HGVs;
- The majority of development traffic (63%) has been assumed to turn right out of the site; and
- All development traffic has been applied to the main access on the A1112, despite an alternative access being available to the south which would serve part of the development.
**Option 1 - ARCADY Assessment**

5.28 Junction capacity assessments have been undertaken for the proposed roundabout option for the 2013 and 2031 with development scenarios using ARCADY 8. An RFC of 0.85 or higher is generally considered to demonstrate that practical capacity has been reached.

5.29 The ARCADY model includes crossings on each of the arms and to further ensure that the modelling is robust, it has been assumed that 60 two-way pedestrian movements would be made during the peak hour. This represents the combined level of pedestrian and cycle trips that are anticipated to be generated by the proposed development during the AM peak as outlined in Table 4.1. A total of 60 two-way movements have been shown to cross the site access arm, and 30 two-way movements have been shown to cross the A1112 arms.

5.30 Further to the above, it has been assumed that 5% of all movements would consist of HGVs including those associated with the site. The three crossings have all been modelled as toucan crossings (including across the site access for robustness) to consider delay associated with pedestrians and cyclist movements at this junction.

5.31 The results of the ARCADY assessments are presented in Table 5.1 below.
Table 5.1: ARCADY Results for Roundabout Option

<table>
<thead>
<tr>
<th>Junction Arm</th>
<th>AM Peak Hour (Worst Case)</th>
<th>2013 Existing Flows + Dev</th>
<th>2031 Base Flows + Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Junction Arm</td>
<td>Max RFC Max Queue</td>
<td>Max RFC Max Queue</td>
</tr>
<tr>
<td>A1112 (E)</td>
<td>0.634</td>
<td>2</td>
<td>0.763</td>
</tr>
<tr>
<td>Site Access (S)</td>
<td>0.442</td>
<td>1</td>
<td>0.508</td>
</tr>
<tr>
<td>A1112 (W)</td>
<td>0.696</td>
<td>3</td>
<td>0.839</td>
</tr>
</tbody>
</table>

5.32 The results presented in Table 5.1 indicate that the normal roundabout operates within capacity during the 2013 and 2031 development year scenarios. However, the roundabout is shown to operate very close to capacity during the 2031 peak hour scenario, with a maximum RFC of 0.839 on the A1112 (W) arm where a maximum queue of six vehicles is anticipated to form.

5.33 In light of the above, the layout/ geometry of the A1112 western arm may need to be amended to provide additional capacity as part of any further assessments should a normal roundabout form the preferred option. The full ARCADY output data can be found in Appendix F.

Option 2 - LINSIG Assessment

5.34 Junction capacity assessments have been undertaken for the proposed signal controlled option for the 2013 and 2031 with development scenarios using the analysis tool LINSIG 3.

5.35 A Degree of Saturation (DoS) of 90% is considered to demonstrate that practical capacity has been reached for a given arm. A DoS of 100% or above indicates that the ultimate capacity has been reached (or exceeded).

5.36 In terms of the operation of the junction as a whole, the Practical Reserve Capacity (PRC) identifies the additional capacity that could
5.37 The LINSIG model includes the priority junction with York Road to the west of the proposed signal controlled site access junction, as well as the proposed toucan crossing on the A1112 further to the west. The movements in/out of York Road have been shown to give-way where necessary and it has been assumed that 60 two-way movements (30 in, 30 out) would be made during the peak hour.

5.38 The traffic flows have been inputted as Passenger Car Units (PCUs) based on the flows shown on the traffic flow diagrams in Appendix E. It has also been assumed that several routes along the A1112 would only be used by buses, taxis and motorcyclists due to the bus lanes which are present on the junction approaches. For the purposes of this assessment, it has been assumed that these routes would be used by six buses in each direction per hour (equivalent to 12 PCUs) based on the frequency of bus service 103, as well as 5% of light vehicles e.g. taxis and motorcyclists.

5.39 Table 5.2 provides a summary of the LINSIG output for the development scenarios.

Table 5.2: LINSIG Results for Signal Controlled Option

<table>
<thead>
<tr>
<th>Junction Arm</th>
<th>2013 Existing Flows + Dev</th>
<th>2031 Base Flows + Dev</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>DoS Max Mean Queue Total Delay</td>
<td>DoS Max Mean Queue Total Delay</td>
</tr>
<tr>
<td>A1112 East</td>
<td>64.4% 17.3 5.1</td>
<td>71.8% 21.3 6.1</td>
</tr>
<tr>
<td>Site Access</td>
<td>70.4% 10.9 4.8</td>
<td>84.5% 12.8 6.6</td>
</tr>
<tr>
<td>A1112 West</td>
<td>57.6% 11.4 4.0</td>
<td>65.3% 13.9 4.5</td>
</tr>
<tr>
<td>York Road (Entry)</td>
<td>4.2% 0.0 0.0</td>
<td>5.2% 0.5 0.3</td>
</tr>
<tr>
<td>York Road (Exit)</td>
<td>9.4% 0.3 0.1</td>
<td>12.1% 0.9 0.4</td>
</tr>
<tr>
<td>Total Junction</td>
<td>PRC 32.42</td>
<td>PRC 45.85</td>
</tr>
</tbody>
</table>

theoretically be accommodated. A negative PRC suggests that the junction is projected to operate over capacity.
5.40 The LINSIG output shows that the junction operates within capacity during the 2013 and 2031 with development scenarios. Again, the junction is shown to approach capacity during the 2031 peak hour scenario with a maximum Degree of Saturation of 84.5% anticipated to occur on the site access arm. The junction is however anticipated to have a Practical Reserve Capacity of 5.5% indicating that some additional capacity may be available.

5.41 Nonetheless, the layout of this junction or signal staging/ phasing may need to be amended to provide additional capacity as part of any further assessments should a signal controlled junction form the preferred option. The full LINSIG output data including the anticipated phasing and staging arrangements can be found in Appendix G.

Discussion

5.42 Modelling has been undertaken for the two access options which indicate that both junction arrangements are projected to operate within capacity during the 2013 and 2031 development scenarios for the worst case hour. The signal controlled junction is shown to operate further within its capacity limits than the roundabout option and may therefore offer a more long-term solution in terms of providing access in/out of the site.

5.43 The proposed signal controlled junction may also be considered to offer the preferred option as it would require less land take than the normal roundabout and would not require the A1112 to be realigned to the south. However, it is considered that further investigation would be needed as part of a more detailed transport assessment to provide more definitive results i.e. based on traffic counts undertaken during the peak hours.
5.44 Further to the above, there could be potential to provide a second point of access onto the A1112 to the north of the site. This may help to relieve any potential pressures that may arise from having just one access point to the north by providing residents with an alternative option to access the strategic highway network. Again, this would require further investigation.
6.0 INTERNAL DESIGN AND OFF-SITE CONSIDERATIONS

Vehicular Access

6.1 The main point of vehicular access will be taken from the A1112 to the north in accordance with LBH Highways’ initial views. This point of access would serve the majority of the development and could take the form of a loop-type arrangement. The internal road layout should be designed in accordance with MfS to cater for the anticipated vehicular demand depending on the number of units served. Direct vehicular routes would be avoided to deter rat-running through the site.

6.2 The vehicular routes through the site would need to cater for servicing and emergency vehicles. Refuse vehicles would need to be able to access bin stores from within an appropriate distance. Internal turning heads may also need to be provided to cater for the movements of refuse vehicles and fire tenders and to avoid these vehicles reversing for long distances. Swept paths should be undertaken to inform the design to ensure these larger vehicles would be able to manoeuvre through the site. Loading facilities may also need to be provided.

6.3 It is considered that a smaller portion of the development could be served from a southern point of access. This could take the form of a priority junction with Roman Close (see ACE Drawing W420-SK04) or Lower Mardyke Avenue (see ACE Drawing W420-SK05A) and would need to serve an appropriate level of development so as not to increase traffic levels beyond acceptable levels. This area has recently been improved and redeveloped as part of the Orchard Village development and further improvements could be made if needed to facilitate access in/out of the site, such as for a potential bus link.
6.4 There may also be potential to provide an emergency-only access link through the southeastern corner of the site via Frederick Road between residential properties 50 and 52. A footway currently runs between the properties which is stopped-up by bollards at Frederick Road to prevent vehicular access. There is an approximate minimum width of 4.1m at this location and it is therefore considered that this option would only be suitable for providing emergency access, rather than forming a potential secondary point of access. The emergency link could take the form of a stopped-up shared access road to provide access to pedestrians and cyclists.

6.5 The potential primary, secondary and emergency points of access are illustrated on the indicative masterplan plans contained within Appendix C.

**Pedestrian and Cycle Links**

6.6 The proposals will form connections with the existing pedestrian and cycle networks in the area. The existing footways along the A1112 could be upgraded to shared cycle/footways to accommodate both pedestrians and cyclists. Toucan crossings could also be provided on the A1112 in the vicinity of the site to provide pedestrians and cyclists with increased opportunities to access both sides of the carriageway. These could be integrated as part of the proposed A1112/site access junction (see Section 5.0 for further details).

6.7 Additional pedestrian and cycle links could be provided at the proposed southern access point(s) on Roman Road and Lower Mardyke Avenue, as well as via Frederick Road (between properties 50 and 52) using the existing footway/ or a potential shared emergency link. This would allow the site to be easily accessed on-foot and by bicycle from the south and east, as well as to the north via the main site access. The main internal site access roads will feature footways on both sides to facilitate pedestrian movements through the site and along key desire lines.
6.8 The proposals could provide a segregated cycleway through the site in a north-south direction. This would link the existing cycle routes along the A1112 to the north and the A1306 to the south and would therefore improve connections and the accessibility of the site for cyclists. This would also provide residents with additional opportunities to cycle, helping to increase the low proportion of residents (1.3%) that currently travel by this mode.

**Bus Link**

6.9 The proposals could incorporate a bus link which would run through the site between the A1112 to the north and one of the potential southern accesses to the south. Bus routes would then be able to make use of Lowen Road and Lower Mardyke Avenue to access the A1306 to the south, under the same arrangement as existing bus route 365. There are currently four bus routes which run in the vicinity of the site which may potentially be able to make use of such a link. These existing bus routes are shown on **Figure 2**.

6.10 The bus link would need to be able to sufficiently cater for bus movements and swept paths could be used to inform the design. A bus gate restriction could be provided within the site to prioritise buses and control general access at a specific location. This would reduce bus journey times and increase the attractiveness of this mode of travel. Pedestrian and cyclist movements could also be facilitated by this type of arrangement. An indicative bus gateway restriction arrangement is provided within **ACE Drawing W420-SK03**.

6.11 Bus routes 174 and 365 currently start in the vicinity of the site to the south and run along the A1306 to/from Dagenham, Hornchurch, Romford, Gidea Park, Collier Row and Harold Hill. It is considered that these routes could be extended so that they start/end within the site to allow these services to be more easily accessed by residents. This would provide residents with easy access to
approximately 11-12 bus services per hour (every five minutes) in each direction. It should be noted that the journey times between existing destinations would be unaffected given that the extension would be at the start/end of the route(s).

6.12 Bus route 287 also runs along the A1306 to the south of the site and provides a direct link between Rainham and Dagenham. An initial appraisal of this route suggests that there may be limited potential to divert/extend this route through the site due to the additional journey time this would incur for existing users. However, the route could be diverted to serve the site (as well as existing residents within South Hornchurch) by running along the A1112 and then turning left into the site to travel southwards back towards the A1306.

6.13 Bus route 103 runs along the A1112 to the north of the site between Rainham and Romford. As this route currently serves the bus stops situated on the A1112 in the vicinity of the site, diverting the route may provide limited benefit. The proposals will offer the opportunity to improve crossing facilities on the A1112 to improve the accessibility of these existing bus stops.

6.14 New high quality bus stops with shelters, seating and raised kerbs could be provided within the site to facilitate passenger boarding/alighting. It is considered that up to four bus stops (two in each direction) could be provided to allow residents to be within an easy walking distance of either pair of stops.

6.15 The potential bus link would improve north-south bus connections in line with the aspirations of the LROA proposals. The proposed development could also potentially offer contributions to improving existing bus stops in the area such as those along the A1112 in the vicinity of the site.
Car Parking Provision

6.16 The LBH Car Parking Standards are contained within Annex 5 of the Core Strategy and Development Control Policies Development Plan Document (DPD) and are based on those provided in the London Plan. As the proposed development will be predominantly residential, the car parking standards have been examined for C3 Dwelling Houses. These are based on a density matrix as presented below in Table 6.1.

Table 6.1: LBH Maximum Car Parking Standards

<table>
<thead>
<tr>
<th>Predominant Housing Type</th>
<th>Maximum Car Parking Provision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Detached, Semi-Detached and</td>
<td>High 1.5-2 spaces per unit</td>
</tr>
<tr>
<td>Terraced Houses and Flats</td>
<td>Medium 1-1.5 spaces per unit</td>
</tr>
<tr>
<td>Mostly Flats</td>
<td>Low &lt;1 space per unit</td>
</tr>
</tbody>
</table>

6.17 Table 6.1 shows that a parking provision of 1-1.5 spaces per unit would be appropriate for a large residential development consisting of a mixture of housing and flats. This equates to between 1,500 and 2,250 parking bays for a site consisting of 1,500 residential units.

6.18 In terms of motorcycle parking, one space should be provided per 20 car parking spaces, with a minimum of one space being provided for developments with more than ten car parking spaces.

6.19 Parking bays associated with Wheelchair Housing should be designed in accordance with the Wheelchair Housing Design Guide. Blue Badge holders should be able to park to easily use the development.
Cycle Parking Provision

6.20 The LBH Cycle Parking Standards are contained within Annex 6 of the Core Strategy and Development Control Policies Development Plan Document (DPD) and are in line with TfL’s standards. The minimum requirement for C3 Dwelling Houses is provided below in Table 6.2.

Table 6.2: LBH Minimum Cycle Parking Standards

<table>
<thead>
<tr>
<th>Housing Type</th>
<th>Minimum Cycle Parking Provision</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flats</td>
<td>1 space per unit</td>
</tr>
<tr>
<td>Dwelling Houses</td>
<td>1 space per 1 or 2 bedroom dwelling</td>
</tr>
<tr>
<td></td>
<td>2 spaces per 3+ bedroom dwelling</td>
</tr>
<tr>
<td>Sheltered Accommodation</td>
<td>1 space per 450sqm</td>
</tr>
</tbody>
</table>

6.21 The above shows that one cycle space should be provided per flat or one or two bedroom dwelling, whereas two cycle spaces should be provided for dwellings with three or more bedrooms. The proposed development would therefore accord to this standard.
7.0 Benefits of the Development

7.1 The site is well positioned in relation to the surrounding area which consists of a variety of residential, employment, open space/recreational, educational and retail uses. The A1112 runs to the north of the site and there are a number of bus stops situated close by. The public transport accessibility of the site will improve in the future as part of the LROA proposals.

7.2 The proposals will seek to provide additional opportunities for walking and cycling routes through the site which will create and serve key desire lines between the north and the south. These routes would provide connections with existing pedestrian and cycle routes thereby integrating the site with the surrounding area. Additional crossing facilities could be provided on the A1112 to benefit pedestrians and cyclists, and existing routes could be upgraded such as providing shared cycle/footways along both sides of the A1112. Cycle parking will be provided in accordance with the standards in safe, secure and accessible locations.

7.3 The proposals will offer the opportunity to provide a bus link through the site to further improve accessibility by public transport. New bus stops would be provided as part of this arrangement to minimise walking distances. The bus link would improve connections to key public transport interchanges such as Dagenham East London Underground station allowing existing bus services to be better integrated.

7.4 The development would likely best be served by a primary access point to the north and secondary/emergency points of access to the south. These arrangements would be designed to limit the extent of additional traffic on the residential streets to the south and to allow servicing vehicles to access the site, serve the development and exit in forward gear. Car parking will be well integrated and also provided in accordance with the appropriate standards.
7.5 The LROA is situated immediately to the south of the site and the proposals have the potential to improve the accessibility of the site particularly by rail and by bus. However, the proposed transport improvements require funding to be secured to allow them to come into fruition. The proposed development will not only reduce north-south barriers and improve local bus connections, but will offer the opportunity to provide contributions towards the LROA proposals. It is therefore considered that the proposed development of the site and LROA will be of mutual benefit to one another.

7.6 The proposed development would also offer the opportunity to provide additional improvements to the surrounding area. This could be in the form of improved pedestrian/cycle facilities along the A1112 and additional/improved bus stops and connections. These improvements will complement those being provided as part of the Orchard Village development to the south which will also be of benefit to the site.

7.7 A Transport Assessment and Travel Plan would need to be produced as part of any planning application at the site. These reports would provide further details of the likely impacts of the proposals on the public transport system and strategic highway network, as well as how these could be mitigated and additional transport improvements which could be put in place.

7.8 In light of the above, it is considered that a proposed residential development at the site with associated employment, educational and recreational facilities would offer a wide variety of benefits to the surrounding area. The potential development is considered to be in accordance with local transport policies detailed within the LDF and a transport assessment and travel plan would be produced as part of any planning application to further comply with these. The proposals will increase the opportunity for the proposed LROA transport improvements to be delivered by improving connections and offering potential contributions.
Figures
Drawings
NOTES:
1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE RELEVANT SPECIFICATION AND ALL OTHER RELATED DRAWINGS ISSUED BY THE ENGINEER.
2. DO NOT SCALE FROM THIS DRAWING. WORK FROM FIGURED DIMENSIONS ONLY.
3. ALL DIMENSIONS SHOWN ON THIS DRAWING ARE IN MILLIMETRES UNLESS OTHERWISE STATED.
4. ALL DIMENSIONS, LEVELS AND SURVEY GRID CO-ORDINATES ARE TO BE CHECKED ON SITE AND THE ENGINEER NOTIFIED IMMEDIATELY OF ANY DISCREPANCIES PRIOR TO THE COMMENCEMENT OF THE WORKS.
5. NO DEVIATION FROM THE DETAILS SHOWN ON THIS DRAWING IS PERMITTED WITHOUT PRIOR PERMISSION FROM THE ENGINEER.

NOTE
OTHER OPTIONS INCLUDE;
• RISING BOLLARDS;
• AND CAMERA ENFORCEMENT
BOTH WILL HAVE HIGHER COST TO INSTALL AND ONGOING MAINTENANCE

ISSUE FOR INFORMATION ONLY
CONSIDERATION TO BE MADE TO INSTALL VEHICLE RESTRICTION MEASURE TO PREVENT UNAUTHORIZED ACCESS

EMERGENCY ACCESS TO USE EXISTING CARRIAGEWAY TO CONTINUE INTO SITE

NOTES:

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH THE RELEVANT SPECIFICATION AND ALL OTHER RELATED DRAWINGS ISSUED BY THE ENGINEER.

2. DO NOT SCALE FROM THIS DRAWING. WORK FROM FIGURED DIMENSIONS ONLY.

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5. NO DEVIATION FROM THE DETAILS SHOWN ON THIS DRAWING IS PERMITTED WITHOUT PRIOR PERMISSION FROM THE ENGINEER.

6. ALIGNMENT OF INTERNAL ACCESS ROAD SUBJECT TO REDLINE BOUNDARY AND HIGHWAY LAND SEARCH.
Appendix A

Census Travel to Work Data
<table>
<thead>
<tr>
<th>Method of Travel to Work (QS701EW)</th>
<th>South Hornchurch Ward</th>
<th>Havering London Borough</th>
<th>London Region</th>
<th>England Country</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Usual RiCount Persons Mar-11</td>
<td>9591</td>
<td>171128</td>
<td>6117482</td>
<td>38881374</td>
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<tr>
<td>Work Main Count Persons Mar-11</td>
<td>156</td>
<td>4038</td>
<td>202679</td>
<td>1349568</td>
</tr>
<tr>
<td>Undergrou Count Persons Mar-11</td>
<td>742</td>
<td>10763</td>
<td>902263</td>
<td>1027625</td>
</tr>
<tr>
<td>Train Count Persons Mar-11</td>
<td>610</td>
<td>20347</td>
<td>532720</td>
<td>1343684</td>
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<tr>
<td>Bus, Minib Count Persons Mar-11</td>
<td>592</td>
<td>8711</td>
<td>561605</td>
<td>1886539</td>
</tr>
<tr>
<td>Taxi Count Persons Mar-11</td>
<td>47</td>
<td>1216</td>
<td>20314</td>
<td>131465</td>
</tr>
<tr>
<td>Motorcycle Count Persons Mar-11</td>
<td>62</td>
<td>1016</td>
<td>45976</td>
<td>206550</td>
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<tr>
<td>Driving a C. Count Persons Mar-11</td>
<td>3263</td>
<td>54368</td>
<td>1120826</td>
<td>14345882</td>
</tr>
<tr>
<td>Passenger Count Persons Mar-11</td>
<td>277</td>
<td>3642</td>
<td>69659</td>
<td>1264553</td>
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<tr>
<td>Bicycle Count Persons Mar-11</td>
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<td>1020</td>
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<td>742675</td>
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<tr>
<td>On Foot Count Persons Mar-11</td>
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<td>7080</td>
<td>352612</td>
<td>2701453</td>
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<td>Other Metl Count Persons Mar-11</td>
<td>34</td>
<td>645</td>
<td>28538</td>
<td>162727</td>
</tr>
<tr>
<td>Not in Emp Count Persons Mar-11</td>
<td>3482</td>
<td>58282</td>
<td>2118585</td>
<td>13718653</td>
</tr>
</tbody>
</table>

Method of Last Updated: 30-Jan-13
Method of Source: Office for National Statistics
Method of National Statistics

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Appendix B
PTAL Calculations