Nine Elms Battersea Development Infrastructure Requirements Refresh Study 2019/20

Final report

On behalf of **London Borough of Wandsworth**

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1 Introduction

1.1.1 London Borough of Wandsworth (LBW) has commissioned Stantec (formerly Peter Brett Associates, PBA) to undertake a refresh of the Vauxhall Nine Elms Battersea (VNEB) Development Infrastructure Funding Study (DIFS) prepared by Roger Tym and Partners, PBA, and GVA Grimley, published in October 2010.[1]

1.1.2 The purpose of the original DIFS was to understand "the range of infrastructure that will be required to support new development in the OA...[and] identify how much will be collected in developer contributions in the OA, how much of this will be available for the proposed NLE [Northern Line Extension] and other infrastructure, the scale of the potential funding gap for the underground extension and a number of credible finance, funding and delivery models to close the gap and ensure viability for both development and infrastructure in the long term."

1.1.3 The development of the OA, in terms of completion of new homes, commercial space and infrastructure, is now well underway, including a two stop extension to the Northern Line. While the changes that have taken place since the original DIFS was carried out to major development sites, such as Battersea Power Station, Embassy Gardens and New Covent Garden Market, are immediately obvious to those visiting the area, this is less so the case for much of the supporting infrastructure which has also come forward. However, in relation to both growth and infrastructure, there is still a significant quantum which will come forward over the next 10 years.

1.1.4 Rather than a full DIFS study, LBW have commissioned this Development Infrastructure Requirements Refresh (DIRR) to report on matters relevant to development infrastructure funding that have emerged since the original study. The scope of the DIRR, and approach taken to undertaking it are covered in Chapter 2 below.

Figure 1.1 VNEB Opportunity Area, looking north-east, 2009

Source: Wandsworth Guardian

[1] In addition to LBW, the client group for the original study included the Greater London Authority (GLA), Transport for London (TfL) and London Borough of Lambeth (LBL).

1.2 Background

1.2.1 In March 2012, Greater London Authority adopted the VNEB as an Opportunity Area Planning Framework (OAPF) for urban regeneration.[2] The OA spans 227 hectares of central London on the South Bank of the Thames. It extends from Lambeth Bridge in the north, to Chelsea Bridge in the south, covering the Albert Embankment, Vauxhall and a large part of north Battersea.

1.2.2 For the purpose of this DIRR, we are concerned only with the part of the OA that falls within LBW, which we refer to as Nine Elms Battersea (NEB). We elaborate on geographical scope in Section 2.2.

1.2.3 Over the course of this commission, the COVID-19 pandemic emerged and resulted in significant short-term disruption; as an example, in the first national lockdown in spring 2020, most construction sites were suspended which will have had an immediate impact on the progress of construction across the OA. While these factors are relevant to a degree, it is the medium and long-term impacts, such as a shift towards greater homeworking and potentially reducing demand for city centre living, many of which are still manifesting themselves, which will have a material impact on the development of the OA and the infrastructure implications. The research to inform this study was undertaken in Q3/4 of 2019. Whilst the analysis and finalisation was carried out in the context of the pandemic it was agreed with the Client that it was impossible to anticipate the potential impacts of the pandemic with any certainty and that this is an area which will require careful monitoring to ensure that infrastructure provision is not over-specified and is delivered at the right time, as the longer-term effects become clearer.

1.3 What has changed since the original study?

1.3.1 Since the original DIFS, the OA is now host to considerable development and infrastructure. Large development sites within the OA are currently under construction. Completed phases of those sites have meant that new residents began moving into the area from 2015. The construction of the two stop extension to the Northern Line is now underway and expected to open in Autumn 2021.

1.3.2 Planning is still very much ongoing. The most significant development sites, described in Section 3, are being delivered in stages. The upper limits of development, and phasing of delivery, have generally been defined through outline planning permissions, which have been refined through detailed planning permissions. As we can expect with large developments delivered over a long period, planning has not been a linear process, with many applications to amend applications, or vary planning conditions, approved along the way.

1.3.3 Commonly, the effect of these changes relate to the balance of land uses across development, the number of units, and associated infrastructure projects. Section 3 below considers what the trajectory was and how it has changed over the last 9 years.

1.3.4 Planning decisions in the OA have been guided by the local development plan consisting of various iterations of the London Plan and LBW local plans and core strategies. Since the original DIFS, major development sites at NEB have also appeared in LBW site-specific allocations documents (2012 and 2016), further defining development expectations in the OA.

1.3.5 A development map of VNEB, including indicative delivery status as of 2019, is attached in Appendix B.

Objectives

1.3.6 Following the substantial changes that have occurred the study now updates the position in relation to the:

- need for infrastructure and existing projects in the three broad categories of transport infrastructure, utilities and social infrastructure (including open space)

[2] The draft OAPF and original DIFS were developed concurrently. The draft VNEB OAPF originally went out for consultation in November 2009. The revised chapter 12: Section 106/CIL went out for consultation in February 2011, following publication of the DIFS.

- associated funding arrangements
- review of the programme costs to date
- phasing requirements

Date of refresh

1.3.7 The research to inform this study was undertaken in Q3/4 of 2019, mainly using annual reporting to the end of March 2019, with the first draft of our report produced in February 2020. This report reflects the strategic planning contributions relevant at that point in time, taken from multiple sources. Current views on the requirements, costs and funding of infrastructure needed for development are likely to be superseded as new information is published and the implications of the Covid-19 pandemic become clearer.

1.3.8 The findings presented represent a 'snapshot in time'. Infrastructure requirements and funding sources are vulnerable to uncertainty and therefore necessarily subject to a considerable margin for error. As such total precision is not possible and the findings within the spreadsheets should be monitored and updated regularly as more information becomes available.

1.3.9 Subsequent revisions have been updates of this initial February 2020 report. Where relevant, and where known, financial figures have been updated to annual reporting figures from March 2020, and some background information has been edited.

2 Our scope and approach

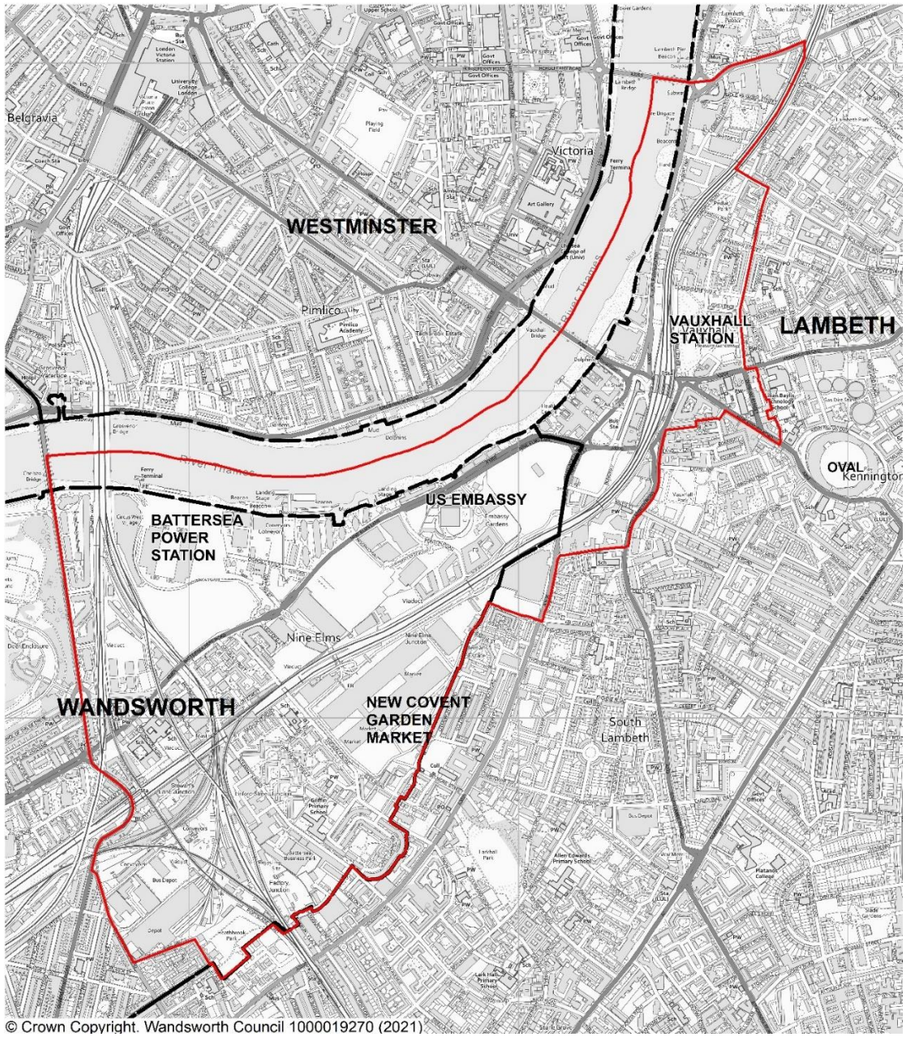
2.1 Introduction

2.1.1 This section defines the scope of our assessment, including key exclusions, and the approach we have taken to infrastructure costs, funding sources, and infrastructure phasing.

2.2 Geographical scope

2.2.1 The original DIFS covered Vauxhall, Nine Elms & Battersea (VNEB) in its totality, spread over LB Wandsworth and LB Lambeth. For this DIRR, we focus our attention on parts of the OA located in Wandsworth only, hence reference to Nine Elms Battersea (NEB).

Figure 2.1 VNEB Opportunity Area (red) and borough boundaries (black)



2.2.2 Within NEB, we subdivide the area into key 'neighbourhoods', which we describe in Section 3.

2.3 Types of infrastructure we are covering

2.3.1 The DIRR is fundamentally concerned with primary infrastructure, which we define as infrastructure required to accompany development in order to allow new households and jobs to function within a wider community. This infrastructure will be largely used by the community living and working in the development, but others would not be excluded from using these facilities.

2.3.2 Within primary infrastructure, we consider infrastructure in the three broad categories of transport infrastructure, utilities, and social infrastructure, each contained within their own chapter.

2.4 Key exclusions

2.4.1 The primary element of the original DIFS study was the two stop extension to the Northern Line. As this is now under construction and expected to open in Autumn 2021, and the funding mechanisms are well established, and secured through various legal agreements the NLE has been excluded from the scope of the DIRR.

2.4.2 A second key exclusion is secondary infrastructure, which we define as is infrastructure intended to create accessible, serviced and developable sites, for which developers build costs into their assessment of sites. Secondary infrastructure will typically include: internal access roads within sites; connections to the mains for drainage; sewage, gas, electricity, telecoms utility connections; small-scale communal / play spaces; and on-site or adjacent landscaping.

2.4.3 In addition to secondary infrastructure, we also exclude the following:

- Infrastructure that would normally be provided by central government, such as courts, prisons, hospitals.
- Privately owned developments that may fall under a looser definition of 'infrastructure', such as petrol stations, pubs, post offices.
- Care homes and adult social care. Whilst there is an aspiration to support their delivery, care homes are part of a quasi-private market in older peoples' residential care. Social care budgets pay for some places, whereas others are privately purchased.
- We also exclude NHS-aligned (or otherwise) providers of health-related commercial operations, such as pharmacies, optometrists, and dentists.

2.5 Reviewing what infrastructure is needed – our approach

2.5.1 An important starting point for this DIRR is an accurate baseline position relating to the relevant projects to identify what has been completed, what is no longer being taken forward, and what is outstanding.

2.5.2 To inform our baseline assumptions we have used the list of projects from the Council's current Nine Elms Capital Projects and the expenditure on these as of the end of March 2019 as the starting point for the current projects, their spending to date and future spending. This will supersede the list of projects in the original DIFS, which we have reviewed in terms of what has been delivered, what is outstanding, and for those outstanding areas, we have looked critically at whether it is still needed or can be better met in another form.

2.5.3 We have undertaken qualitative desktop research of documents provided by LBW in order to understand forthcoming infrastructure on a project-by-project basis. We have relied on a number of documents for this purpose, but particularly recent NEB Programme reports to the Council's Finance and Corporate Resources Oversight and Scrutiny Committee. Desktop research of documents held online include numerous Section 106 agreements and planning application documents held on the LBW planning application search database.

2.5.4 We have corroborated our findings with key contacts provided by LBW. This update is fundamentally reliant on information sharing with the various service providers and discussions we have had with them. We have sought to clarify the changing need for and provision of services, facilities and infrastructure within the Opportunity Area. Note that we have not been able to corroborate our findings in all cases.

2.5.5 Where this has not been possible, we have used industry standards to understand requirements.

2.6 Implications of population growth resulting from development

2.6.1 Growth from development can be measured using a number of different indicators, such as housing units, floorspaces by land use typology, and population. In turn, resident population estimates are typically driven by housing numbers and varies based on the balance of affordable, intermediate and market housing, and the mix of dwelling types according to bedroom numbers.

2.6.2 Sub-populations, particularly of children at different age levels, are relevant when estimating requirements for school places and for play and sports space. These are discussed in more detail under their relevant sections in Chapter 4.

2.6.3 Population estimates based on forthcoming development in NEB have been provided directly by LBW using a bespoke population yield calculator. This calculator was made specifically for the VNEB OA and was first produced in 2015 using specially commissioned 2011 Census data and the 2014 development phasing study, updated 2018, and the LBW 2017 Housing Survey[3]. Three population estimates were derived from three different combinations of these sources, all of which produce broadly similar results.

2.6.4 The population estimates we have used are derived from a combination of the most recent Phasing Study (2018), and the Census. This is because we regard this estimate to be the most robust, as the Phasing Study used is the most up to date, and the census sample size is far greater than that used in the LBW Household Survey.

2.6.5 In summary, the gross population estimate for NEB by the end of the build-out period of 2031 is 27,050. An annual breakdown is provided at Appendix C.

2.7 Our assumptions

2.7.1 Here we update some key *general* assumptions that were made in the original DIFS. Where more specific assumptions are relevant, they are discussed in their relevant chapters below. Note the discussion in Section 2.10 on caveats and exclusions.

2.7.2 After the balance of dwellings, office, retail, and other uses are known, one of the key assumptions relating to a DIFS is affordable housing, and how the amount of it affects the viability of developments, and the projected population and its demographic make-up. As we have been provided with population estimates by LBW, we have not sought to recreate or verify these calculations ourselves.

2.7.3 We do however note a key difference between the original DIFS and this DIRR being the implications of the Private Rented Sector (PRS) for infrastructure requirements, which are discussed in detail in Appendix D. While some PRS developments have been approved within NEB, we do not in our main analysis make any additional adjustment for a higher level of PRS development than that already in the trajectory.

2.7.4 In infrastructure terms, as set out above, we are not considering the extension to the Northern Line in this study. Instead, we assume that it will be delivered on programme by autumn 2021.

2.8 The cost and funding of infrastructure – our approach

2.8.1 'Gross infrastructure costs' capture the total cost of all known items required to deliver and/or meet the needs of development in the OA. This is something of a catch-all category, and therefore includes items such as highway connections to the wider network. Where cost information is available, we have used that in the DIRR. In most cases, these costs are estimates in advance of the individual schemes being scoped in detail. Therefore, as more clarity on individual projects emerges, costs will need to be reviewed.

2.8.2 We have sought to adopt a consistent basis to reviewing the available funding. This is complicated here for several reasons:

- There are two different tariffs in place: those paid against the DIFS tariff and the tariff conferred on Battersea Power Station
- Tariff payments are not indexed but the price base reflects the year in which permission was granted for the relevant application. This means that payments cannot simply be added.

2.8.3 In setting out the costs (and also funding) we have made every effort to resolve this and have sought to express both in 2020 prices.

2.9 The funding sources – our approach

2.9.1 The report provides an assessment of the different funding sources, specifically what has been paid for and how and the different sources proposed for each of the remaining projects, whether directly from the developer, a S106 contribution, through CIL, or other sources.

2.9.2 This DIRR does not capture all the costs required to deliver all of the planned infrastructure. Some of the development provided under Section 106 agreements is 'in-kind', meaning the infrastructure is delivered by the developer instead of there being a transfer of funding to a public sector agency which then delivers that infrastructure. In these instances, we have described as accurately as possible what the infrastructure consists of (or is planned to) and noted information about the delivery agent.

2.9.3 In social infrastructure projects particularly, there may be a combination. For example, a developer may provide the shell and core of a building, with the fit out to be completed by a public sector provider using CIL or mainstream funding. We are concerned with costs in so far as they relate directly to the public sector, however, we still aim to capture the requirements for infrastructure regardless of who is providing it.

2.9.4 In looking at available funding, we have considered LBW CIL and S106 income. CIL is indexed at the point of permission being granted whereas S106 contributions are indexed at the point of payment being triggered or actual payment date. While it is regrettable to not be able to directly compare the data, on balance we think there is more value in leaving CIL indexed and account for this when trying to determine how much funding is available against the increased costs of infrastructure over time.

2.10 The phasing of infrastructure – our approach

2.10.1 We have talked to providers and used judgement to understand when infrastructure might be required to support different sites and phases of development. We caution that this is not always an exact science. Development phasing and the infrastructure need arising from it very much depends on economic cycles, funding availability, technological change, the levels of congestion considered tolerable and so on.

2.10.2 The development trajectory is an important input because infrastructure sequencing is intended to respond to levels of infrastructure demand created by growth.

2.10.3 Since we began this work, the economic uncertainty arising from the COVID-19 pandemic may mean that the trajectory (and potentially also the form) of development may shift again. While always a requirement of the brief, the added uncertainty to what was already a long build-out trajectory underlines the need to

[3] A summary of the process undertaken to determine these population estimates is contained in Nine Elms Population Projections Briefing Paper (January 2019) by LBW.

identify triggers for infrastructure, particularly in the case of social infrastructure, which are tied to progress on development such that if the phasing changes, it remains clear when infrastructure will be needed.

2.11 Caveats and exclusions

2.11.1 For consistency, we have aimed to retain the same caveats and exclusions as the original DIFS, with some minor additions. These are summarised as follows:

- Infrastructure providers reserve the right to update the information provided. As might be expected, there are some gaps in knowledge and understanding of what is needed and how it might be paid for. Estimates will need to be refined.
- The service providers are at different stages in their planning processes. In many cases further work is needed to identify specific infrastructure requirements.
- The estimates of infrastructure requirements, costs and funding provided here involve generalisation. A study of this nature is by necessity a snapshot in time and the remaining development period is a further decade and it is not realistic to match resources, demand and location with the degree of precision necessary to reach perfectly reasoned conclusions on what infrastructure is required on any one given site or with any one service provider. As has been successfully done in the last ten years, s106 agreements will be subject to negotiation taking into account planning obligations SPD and requirements of site and the infrastructure needs and timing identified in this Study.
- This infrastructure assessment is not itself a policy document. Information included in the assessment does not override or amend the various agreed/adopted strategies, policies, and commitments which local authorities and other infrastructure providers currently have in place.
- This study will inform the refinement and definition of the LBW Nine Elms Infrastructure Programme over time.
- Our assessment of potential developer contributions from potential future development in the area does not purport to offer a valuation of any particular piece of land. They were prepared with the objective of estimating potential overall levels of contributions that could be secured from development to help fund infrastructure. They are not suited to any other purpose.
- Although this work can be used as a high-level guide, developers and Local Planning Authorities will not be able to solely rely on this work to negotiate individual Section 106 agreements. Our analysis is not at the level of accuracy that allows this function to be performed.
- It will be important to allow sufficient flexibility around funding. In the case of S106, for example, there may be changes to the way that these policies are used to pay for different infrastructure items that differ from this report.
- Public services, and hence the infrastructure they demand for delivery, are in a constant state of flux. Policy or technology can change rapidly. Most service providers do not plan beyond three years, and so cannot by definition be expected to know their precise requirements in (say) 10 years' time.
- Public finances are uncertain. While there is a Central Government focus on investing in infrastructure delivery, this is against a backdrop of significant pressure on local government funding, particularly with the increased cost burdens and in some cases parallel drop in incomes associated with the pandemic. They may recover at some point, but we are currently unable to predict the extent to which this might take place, or when. This means that public service infrastructure requirements as a result of growth are difficult to predict and are necessarily subject to a margin of error.
- Our objective is to make the study as accurate as possible, and land costs are excluded. This is because we believe that the inclusion of land costs for infrastructure in a strategic area-wide study such as this is likely to make the study less (not more) accurate. When land is needed, its price will vary widely depending on development location and planned use. We cannot be certain what its value at that time and anticipated use is. Land for infrastructure can also sometimes be provided at nil cost, for a variety of reasons. In some instances, land is not needed, because infrastructure will be located on land already owned by the organisation or agency involved.

3 What growth is planned and when?

3.1 Introduction

3.1.1 The amount of growth and its timing has a fundamental effect on the amount of infrastructure required, and when. The original DIFS provided guidance to this effect based on the estimated growth and development trajectory at the time for the chosen scenario (revised Scenario 5). These expectations are set out below in Section 3.2.

3.2 Growth estimates in the original DIFS

3.2.1 The original OAPF (Revised Scenario 5) set out the broad proposals for the new space to be developed in the OA, which was then adjusted through the DIFS which tested following uses:

- 16,000 homes across the OA
- At Battersea Power Station, 305,000 sqm (GIA) of non-residential ('employment') space comprising:
  - 56,000 sqm retail
  - 155,000 sqm offices
  - 94,000 sqm 'hotel and other commercial space'
- Elsewhere in the OA, 200,000 sq m (GIA) of 'mixed employment use'.

3.2.2 The 2010 DIFS considered the implications of this scale of growth over the period to 2031, taking a longer view than the OAPF, which looked to 2026.

3.3 Current growth estimates

3.3.1 The policy context has evolved since the original DIFS was undertaken. As set out in Section 3.2, additional new homes in the OA were expected to be in order of 16,000. The target for new homes across the whole OA was lifted in the London Plan 2016 to 20,000. The recently adopted London Plan includes an indicative 18,500 homes across the OA as a whole based on the 2017 SHLAA. Reflecting this uplift, LBW now expect that delivery in the Wandsworth part of the OA will be in the order of 16,500 with the balance to be delivered in Lambeth.

3.3.2 Current growth estimates are informed by the most recent 'global' survey of planned development in the OA, which was produced by LBW in March 2019 in collaboration with developers. This gives us an indication of the amount of the development delivered to date, and what is left to be delivered.

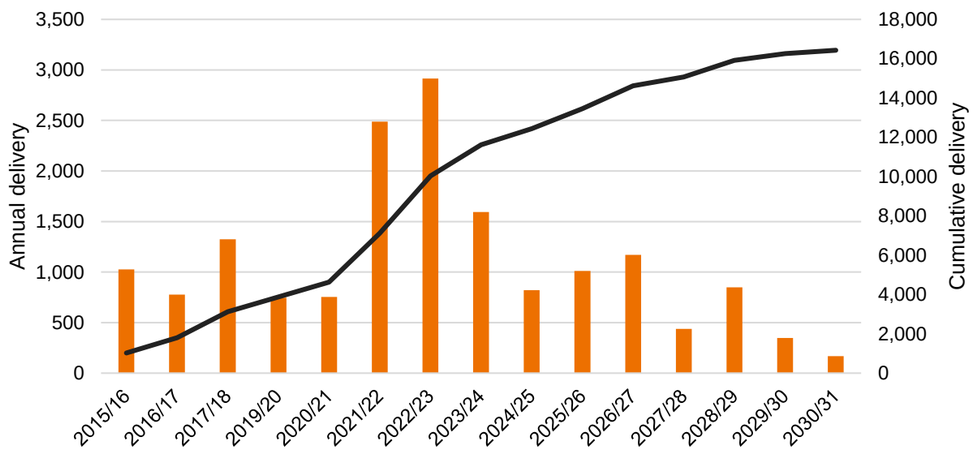
3.3.3 In looking at growth, there is no longer a need for this study to consider two different affordable housing scenarios. Since the original DIFS, we have obtained more reliable information in terms of the actual expected affordable housing provision in individual developments and across the whole OA (around 20% on average across the OA) and more certainty around the delivery of key developments, such as the redevelopment of Battersea Power Station sites.

3.3.4 We make the following assumptions about the development that has not yet been built:

- Anticipated phasing has been provided to us by LBW. This envisages that the whole NEB area will be completed by 2030.
- This does not take account of the potential for applications to come forward in the forthcoming 10 years which might seek changes to the numbers or type of development. For example, it is possible that in response to the current uncertainties generated by both the pandemic and Brexit that the rate of development may slow and/or a mix of different uses that make up that development come forward.
- In many cases, infrastructure delivery is tied to development sites. This could be either through direct developer delivery or relevant land transfers already having been agreed through planning obligations. A change to individual project phasing may therefore have an impact on infrastructure delivery.
- There are a handful of development sites that do not yet have a planning permission in place e.g. the current Thames Tideway construction site. We have not made any explicit assumptions about these beyond what has been provided to us by LBW.

3.3.5 The chart below shows the trajectory for the NEB area. This shows that while the NEB area forms a key housing site for the emerging Local Plan, the majority of growth will already have been delivered by the time the plan starts in 2023/4.

Figure 3.1: Anticipated residential delivery (net additional) within NEB



3.4 Key sites

3.4.1 Most future development is concentrated in a small number of large sites which we reference throughout this report. The map at Appendix B shows the key development sites. We include a further map below which also shows the distribution of commercial uses across the area. We then provide further information in Table 3.1 on the scale of uses in terms of what had been delivered by March 2019 and future delivery, broken out into residential units (net additional) and commercial floorspace.

Figure 3.2: Commercial uses within NEB

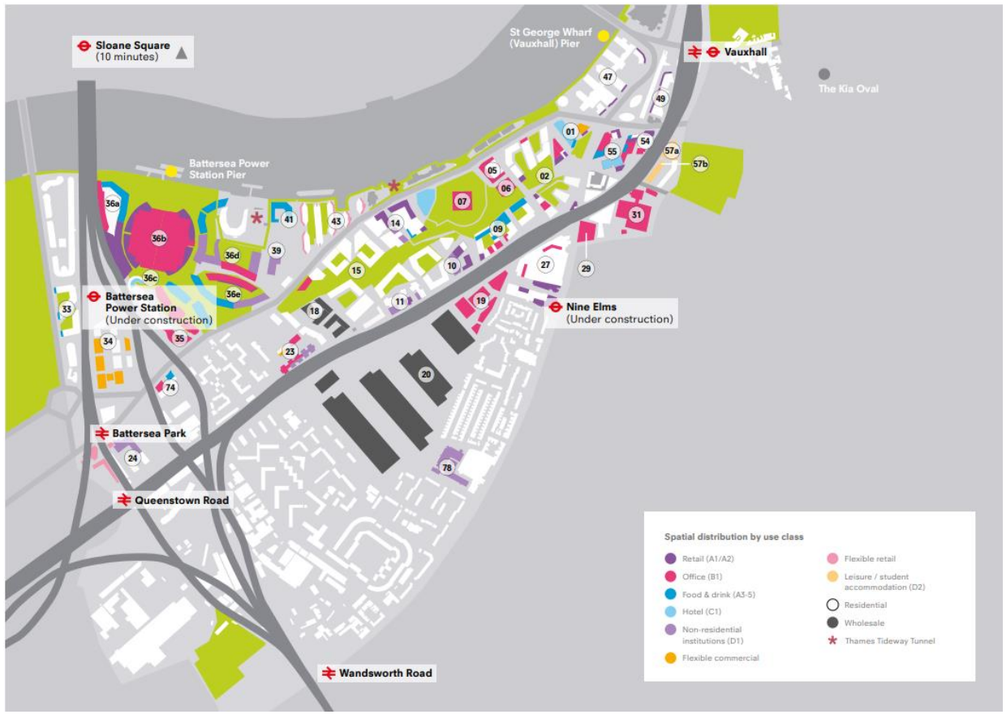


Table 3.1 NEB Site Delivery Summary as of March 2019

Site (Figure 3.2 number)	Use	Phasing		
		Delivered to date	Remaining to be delivered	Total
US Embassy (7)	Commercial (sqm)	226,605		
Battersea Power Station (23, 35, 36, 39, 41)	Homes (net additional)	865	3,374	4,239
	Commercial (sqm)	9,662	317,892	327,554
Embassy Gardens (5,6, 9 & 14)	Homes (net additional)	657	1,374	2,031
	Commercial (sqm)	5,909	22,588	28,497
Nine Elms Parkside (15)	Homes (net additional)		1,950	1,950
	Commercial (sqm)		10,099	10,099
Nine Elms Square (2)	Homes (net additional)		1,816	1,816
	Commercial (sqm)		13,181	13,181
New Covent Garden Market (18-20)	Homes (net additional)		1,099	1,099
	Commercial (sqm)		5,562	15,448
101 Prince of Wales Drive (34)	Homes (net additional)		955	955
	Commercial (sqm)		8,314	8,314
Riverlight (43)	Homes (net additional)	812	-1	811
	Commercial (sqm)	3,087	0	
The Residence (10)	Homes (net additional)	190	324	514
	Commercial (sqm)		2,474	2,474
One Nine Elms (1)	Homes (net additional)		494	494
	Commercial (sqm)		23,220	23,220
Vista (33)	Homes (net additional)	453	-2	451
	Commercial (sqm)	1257		1,100
Cringle Dock	Homes (net additional)		422	422
	Commercial (sqm)		0	
Lexington Gardens (11)	Homes (net additional)		360	360
	Commercial (sqm)		925	925
Booker and BMW sites	Homes (net additional)		307	307
	Commercial (sqm)			
Met Police warehouse	Homes (net additional)		51	51
	Commercial (sqm)			
Other Wandsworth sites	Homes (net additional)	152	777	929
	Commercial (sqm)	0	13,218	64,568
Wandsworth total	**Homes (net additional)**	**3,129**	**13,300**	**16,429**
	Commercial (sqm)	**246,520**	**417,473**	**663,993**

3.4.2 We note that names of these developments, or parts of them, have adopted different marketing names. In some cases, original references to the site simply referenced the site's owner, with all or part of that site now sold to other developers. We have tried to use the current branding for clarity; this is described below, along with a short description.

<u>Sites Under Development</u>

Battersea Power Station (BPS): the substantial phased development associated with BPS includes the restoration and redevelopment of the Grade II* Listed original building, and a number of surrounding sites between the bank of the Thames and the railway viaduct on the western end of NEB and around Pump House Lane and Cringle St, with a single development phase (4a) located towards the southern end of Sleaford Street. The development proposes a wide range of residential, office, retail, community/cultural space, and open space. The NLE, currently under construction, is proposed to terminate at a new station, Battersea Power Station, with two entrances - one at the bottom of BPS Phase 3b, and one to the east at the southern end of Prospect Park, on the boundary of the development and Battersea Park Road.

New Covent Garden Market (NCGM): this development is mostly comprised of the redevelopment of the NCGM site for similar purposes in a new layout on its large triangular land holding south of the railway viaduct. The development incorporates a revised road layout and new homes at the western and eastern ends. North of the railway viaduct, the development bookends the Linear Park at its western end with the 'Entrance site' which is currently the site of the 'temporary' flower market which will remain on site until the latter phases of the NCGM development are completed.

While not part of this site, the new Nine Elms Station, part of the NLE, will be located nearby, south of the railway viaduct on the corner of Wandsworth Road and Pascal Street and the walking route from the station to the river and the northern side of the railway tracks will cross NCGM.

Nine Elms Square: this phased development, currently under construction, was granted permission as part of NCGM and forms the Linear Park at its eastern end. The Nine Elms Square development is located on the site known as the 'Northern Site', or the (former) flower market site. It is located at the north-eastern end of NEB, comprising 12 mixed-use buildings, among them, three tower blocks, and open space within the Linear Park. It neighbours Embassy Gardens - home to the US Embassy and Penguin - to the west. The site is being taken forward by R&F Properties and they have been responsible for subsequent variations / reserved matters applications following the original permission.

Nine Elms Parkside: This site, on the former Royal Mail Group (RMG) site, comprises a residential-led development and includes sports pitches, a 2FE primary school and community facilities. The length of this development is largely separated from the railway viaduct by the **Lexington Gardens** residential-led site, and the **Metropolitan Police warehouse site**.

101 Prince of Wales Drive: located at the western edge of the NEB area, close to Battersea Park station, the site is being developed out by St William (Berkeley Homes-National Grid JV) for nearly 1,000 homes and over 15,000 sqm commercial space. This includes potential for cultural uses, although no tenants have been identified.

Embassy Gardens: this development comprises the three-phased mixed-use development surrounding the US Embassy building, completed in 2018. The development comprises dwellings, retail, cultural space, restaurants/cafes, and open space within the Linear Park and the final phases are now under construction.

Completed or largely completed sites

Completed sites: include Battersea Exchange, Riverlight, The Residence and Vista which together account for just over 2,000 homes. The other key completion is the US Embassy itself which is the largest concentration of commercial space outside the BPS site.

Other notable sites

Booker and BMW sites: the site, which fronts onto Nine Elms Road/Battersea Park Road, has planning permission for just over 300 residential units. The southern site boundary, along the railway viaduct, forms a key route within the Nine Elms Cycle Strategy but level changes across the site mean that a ramp structure will be needed to provide access into the adjacent BPS Phase 4a.

Cringle Dock: this is located adjacent to BPS and is the only significant site within the NEB area which does not have an extant permission. It is currently constrained by the on-going Tideway construction which is not anticipated to finish until 2024 so it will be some years before any development comes forward on the site.

4 Social infrastructure

4.1 Introduction

4.1.1 In this DIRR, we will consider what was identified and assumed in the original DIFS, explore what has changed and why and set out what we think is now needed, the cost and timing for each of the following categories of social infrastructure:

- Education
- Health
- Community and cultural facilities
- Open space, play space, sport and leisure
- Emergency services

4.1.2 We will also consider what has been spent to date and what funding is now required as well as identifying the likely delivery programme through a project schedule. We will also conclude on whether there any risks and uncertainties that are relevant to each infrastructure sector.

4.1.3 Demand for social infrastructure is generally driven by population growth. As the development composition and phasing has changed, so have population estimates which, in turn, change the amount and timing of infrastructure provision required.

4.1.4 This fact has had varying effects on how we view different categories of social infrastructure in this DIRR. For example, where provision is made onsite, such as for some types of play space, area requirements can correlate to the number of children of a particular age group resulting from that specific development, and commensurate adjustments can be made and documented through planning permissions. Where social infrastructure requirements are determined globally – as in, for all developments in the OA – we assess the requirements established in the previous DIFS against the requirements of new population figures. This is the case with education and health, but open space, as explained in the relevant section below, is an exception where both the original and new requirements would be met with under-provision due to constraints on the amount of space available.

Summary of the original DIFS' social infrastructure projects (LBW only)	
Education	Primary school/community centre/children's centre/sports etc. (and land)
	Secondary school contributions
Health	Primary care - space (and land) for c.9-10 GPs
Open space	Linear park
	Power Station Park
	Improvements to existing parks / outdoor sports
	Play space
Community	Community centre (and land)
	Library/archive (and land)
Emergency services	Police-neighbourhood & transport base
	Police-custody centre
	Police-patrol base
	Fire-upgrade of stations

[4] p.102

4.2 Education

4.2.1 In this section, we assess the education needs of planned growth in the OA against current population projections to see if planned provision will meet the future needs of the OA. This planned provision takes the form of land secured through planning obligations, and development costs funded by developer contributions.

4.2.2 Education in the OA is provided by the education authorities of the London Boroughs of Wandsworth and Lambeth. We focus on the demand for school places generated in the Wandsworth part of the OA only (NEB).

4.2.3 We focus on state provision of early years, primary and secondary education (including sixth form), and the capital costs thereof that are either funded by development or mainstream sources. We do not focus on operational costs or maintaining schools.

Original projects

4.2.4 Estimates of required education provision were provided as part of the 2010 DIFS for VNEB. The analysis incorporated different scenarios in terms of key developments coming forward, and different levels of affordable housing provision (which in turn affected the population profile).

4.2.5 The 2010 DIFS identified school place projections based on population estimates at the time, for each of the education authorities, and offset these against projections for capacity of existing schools. The higher affordable housing scenario (40%) forecast that a maximum 1,129 places would be required for children at primary school level. This compared to only 680 places under the scenario which tested the lowest level affordable of affordable housing (15%).

4.2.6 To meet forecast need, a new two-form entry (FE) primary school was recommended, with the potential to expand this to four FE if required. The 2010 DIFS stated:

'Not all of these forms of entry would be needed when the school first opened. It would be possible to construct a two-form entry school and then expand it once the levels of demand required the additional two forms of entry. This would also provide flexibility if lower levels of affordable housing are achieved, so creating lower child yields.'[4]

4.2.7 Flexible provision was therefore recommended to accommodate either scenario. It also recommended a 1.7ha site was safeguarded for a primary school, and that the site should allow for co-location with other facilities including a children's centre, community centre, and sports provision. Sports provision at the school is discussed in more detail in the Open Space, Play Space, Sports and Leisure section.

4.2.8 Specific locations were not identified in the 2010 DIFS but it did state a preference for a site on the south of the Linear Park which would facilitate a connection between the school, open space, and facilities within the school site that would be available for public use.

What's been delivered or is programmed

4.2.9 While none of the school places identified in the DIFS have been delivered to date, there has been some progress on securing commitment for facilities.

4.2.10 4.2.10 In the outline planning permission for Nine Elms Parkside, the Section 106 agreement included a Draft School and Community Facilities Brief. In line with original DIFS and the subsequently adopted planning policy , this obligation was constructed on a flexible basis and specified provision of a minimum two-FE primary, with nursery, school hall, community space, indoor and outdoor play areas, and other facilities.Conditions to the planning permission required a Reserved Matters Application (RMA) for the

school and associated facilities, referred to informally as Nine Elms Primary School, to be submitted before the end of March 2020.

4.2.11 The RMA submitted in March 2020 seeks permission for a two-FE primary school and nursery, and sports and community centre within a singular building surrounding an external play area, as shown in Figure 4.2. The building would accommodate a total floor area of 5,995m² GIA with capacity for 420 primary school pupils and circa 52 nursery school pupils and 1,575m² GIA of community sports centre space. It is envisioned that the school, nursery, and community sports centre would be capable of operating independently, but that the school sports facilities (including a 614m² MUGA), and others, such as school hall should be available for community use despite being separate to the actual community sports hall itself.

4.2.12 The submitted Design and Access Statement suggests that the earliest the school could be operational is September 2022. It also acknowledges the potential future expansion of the school to 4FE on the adjacent Metropolitan Police site, as described within the outline planning permission.

Figure 4.2: Excerpt of Proposed Nine Elms School and Community Facility Site Layout

(Source: submitted drawing, ref. IBI-00-PL-100-0002, application ref. 2020/1119)

4.2.13 Costs in the order of £32 million have been estimated in the process of developing of the scheme for the school, and community facilities on the allocated plot[5].

4.2.14 The original DIFS Schedule allocated a total of £45million for acquisition of the land and provision of the Primary school/community centre/children's centre/sports facilities in Wandsworth. This is inclusive of land acquisition costs for the RMG plot and the Metropolitan Police Warehouse site, now estimated to be £14.5 million. Following land acquisition and the required regulatory approvals, the delivery agency for the school is currently expected to be LBW/Education Funding Agency. The eventual operator is expected to be an Academy, in line with current policy.

4.2.15 In addition to the new school, LBW have been exploring the potential for a single FE extension to St George's primary school which is located within the NEB area. There is no firm programme attached to this at present; LBW do not yet consider there to be a pressing need for additional places but are instead monitoring capacity. The scheme does not have planning approval, and while some funding has been allocated (£1.35m) in the Nine Elms Capital Programme, this is unlikely to be enough to meet the costs of provision. The earliest the extension could be in place is 2022.

Analysis of future need

Population and school places

4.2.16 There is now greater certainty around population estimates for the developments globally. The child population estimates for different school age groups described in this section have been derived from overall estimates for NEB provided by LBW, amounting to 27,053 new residents over the years 2015/16-2030/31. Population estimates for each group are shown in Table 4.1 below.

4.2.17 The different needs of school age levels are considered when planning the amount, and location, of future provision. For example, primary school-aged children typically require smaller catchment areas to account for the transport needs of children at that age. By contrast, secondary school children will typically travel further within their home borough and may to travel to neighbouring boroughs.

4.2.18 As we are only concerned with place planning for state schools, we have adjusted the child yields to account for the proportion of children attending private schools (although this is of limited relevance for Early Years children for reasons discussed later). We have applied this in the form of a percentage discount. In discussion with staff from the LBW Education, Performance and Planning Division, we have agreed that across all levels only around 60% of children are likely to attend a state school. This is slightly higher than the figures suggested by the 2017 paper by BMG Research[6] (approximately 70%), but we have been informed that the lower figure more closely aligned with the figure for the borough as a whole.

4.2.19 Additionally, we agreed with LBW to assume that 70% of secondary pupils will continue into sixth form, to account for the continuance rate between years 11 and 12. This is based on a broad average of the Department for Education continuance rate of 62.5%[7], and LBW's actual continuance rate of 79.9%.

Table 4.1 Child population estimates and school place requirements for the overall development

Age / school level	Estimated population	Population with education requirements	Forms of Entry (FE)
2-3 / Early years	276	193	1.9
4-10 / Primary	1,306	914	4.4
11-15 / Secondary	538	376	2.5
16-17 / Sixth form	109	77	0.2
Total	2,229	1,560	

Source: Appendix C

[5] We note from experience that a typical two FE primary school costs in the region of £13 million, however this figure is not representative of the project at hand because of the additional community facilities.

[6] Nine Elms and Vauxhall Opportunity Area Household Research pp. 29-30

[7] Department for Education (2004) *Building Bulletin 98: Briefing Framework for Secondary School Projects* p. 64

Early years

4.2.20 The estimated population yield from growth in NEB for children aged 2-3 is 276 across the lifetime of the development.

4.2.21 It is difficult to determine the exact need for early years places as they are not centrally planned, and we must assume that the population at this age group does not automatically translate into required places. For instance, not all children at this age group attend an early years' facility at all as they may be cared for at home. Additionally, children at this age might not attend nursery full-time as carers might only use the 15 hours allowance provided by the Government; this means that fewer places will be required to meet overall needs.

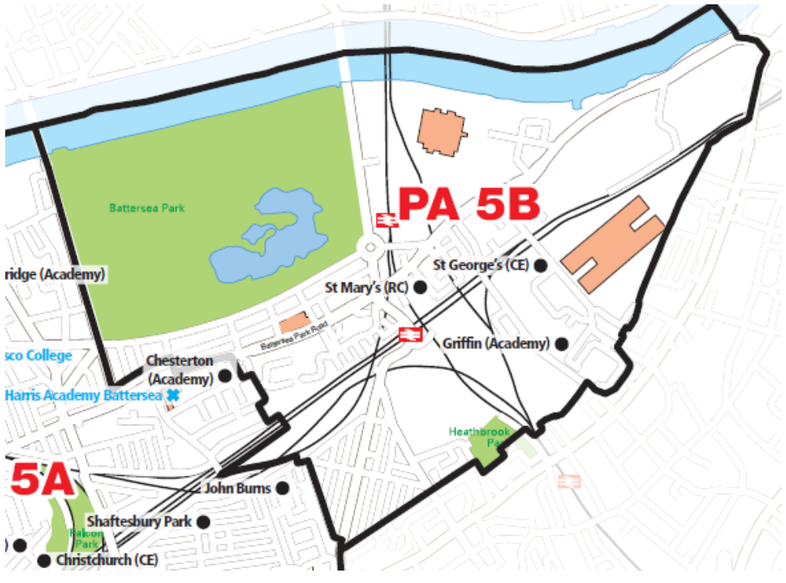
4.2.22 This analysis also does not offset demand against provision by the private sector, which is the majority for education at this level. However, it is noted that LBW maintains only three nurseries in the borough; therefore, it is likely that the figures above will overestimate need that will be met by LBW.

Primary education

4.2.23 By our calculation, the projected population of 914 children would require the equivalent of 4.4 FEs over the study period. However, this does not take account of any existing surplus spaces within existing schools which, given need is already identified in Appendix C for primary school places, are at present meeting needs for NEB residents.

4.2.24 LBW School Places Planning team prepares annual estimates of the surplus and deficit of school places based on Planning Areas (PAs)[8]. NEB is located within PA 5B which contains three existing primary schools, shown in Figure 4.1.

Figure 4.1: LBW Planning Area 5B



(Source: LBW School Place Planning Department)

[8] Report by the Director of Children's Services on the updated projected need for additional primary and secondary school places (Paper No. 19-55), and Appendices, February 2019. Estimates for 2020 are currently under preparation however they are confidential and have not been viewed by the author of this report.

4.2.25 The estimates for PA 5B show a 38% surplus of school places in 2019/20, declining to 7% in 2022/23, where after there would be a small deficit of places (-2% to -9%) for two years. A surplus of places would be brought about again in 2025/26 with the delivery of the new two-FE Nine Elms Primary School.

4.2.26 The subsequent (and at present uncommitted) two-FE expansion is anticipated by LBW to come forward in 2027/2028, at which point the surplus of places would increase (from 20%) to 38%, rising to 56% in 2032/33. This large surplus of places suggests a slower phasing of development at NEB than what is proposed in our trajectory.

4.2.27 Consultation with LBW confirmed that estimates were more conservative than our own, but acknowledged that a faster development construction programme would likely make the need for this expansion come forward in the DIFS period.

Secondary education

4.2.28 We have identified need for 376 secondary school places and 77 sixth form places over the lifetime of the development (Appendix C). In line with the original DIFS, these do not amount to need for a new secondary school.

4.2.29 PAs do not apply at secondary level; the capacity of all 11 states schools is considered together. This accounts for the fact that pupils at this school level are typically more able to travel throughout a borough, or outside it, for secondary schooling[9].

4.2.30 Secondary school place projections (2019) by LBW, including the development at NEB, show a small surplus of places (between 1-5%) in the years 2019/20 and 2024/25 after which a minor deficit appears (between -1% and -6%).

4.2.31 These estimates take into account phases of expansions as well as 'bulge' classes which accommodate temporary spikes in growth. Deficits are therefore kept relatively low, and as a result, it is not expected that a new secondary school would be required as a result of the growth from NEB. It is expected that population growth will be able to be absorbed by existing secondary schools in LBW. This will continue to be monitored in following reports.

Outstanding requirements

- Nursery education: there is an overall shortfall in programmed provision; however, this is likely to be overstated because typically nursery provision is met in the main part by the private sector.

- Primary education: as set out in Appendix C, there could be an overprovision in primary school provision towards the later end of programme. However, this does assume that the expansion land on the Met Police Warehouse site is brought forward for a further two-FE extension to the Nine Elms Primary School in line with LBW's forecasts (2027/28) when our forecasts suggest that only a single form extension is needed at that point.

Risks and uncertainties

Primary school provision

4.2.32 While an RMA has been submitted, in line with planning conditions for the Nine Elms Parkside planning permission, permission has yet to be issued. It is therefore possible that the scope of the application could change.

4.2.33 The planning application indicates the earliest that the two-FE school would be provided is September 2022. There is uncertainty around exactly when the expansion of Nine Elms primary school by two-FE

[9] Paper no. 19-55 notes LBW is currently a net exporter of pupils by a small margin (1.2%). This is not considered sufficiently great as to warrant an adjustment in school place estimates.

would be required. LBW will need to continue to monitor pupil places to determine the timing for this expansion.

4.2.34 As set out above, the potential for a one-FE expansion of St George's CE Primary in PA 5B has been explored by LBW over recent years but no commitment has been made to deliver it. In this way, it has similar status as the expansion land to the Nine Elms Primary School. Our analysis suggests that if all facilities were delivered, this would be an overprovision. Instead, it may be more pragmatic for LBW to consider seeking to bring forward the opening of the new primary school to mean that the question of expansion of St Georges can be considered in balance with extending the new school, depending on need at that point in the programme.

Early years provision

4.2.35 It is noted that provision was made for 'nursery accommodation' within the BPS outline planning permission[10], and sets out some overarching standards for the facility. The BPS permission (as varied) included 6,363m² of D1/D2 uses in development zones RS1, RS2 and RS6. While a nursery school/crèche *could* be provided within this floorspace, among other uses, no further detail has been provided, so we have no certainty will come forward[11].

4.3 Primary healthcare

4.3.1 This section looks at the primary healthcare infrastructure impact of planned growth in NEB and compares the current position with that described in the original study, and subsequent developments.

4.3.2 As with the 2010 DIFS, this review considers primary healthcare only. Ambulance services for NEB are principally provided by St Thomas' Hospital on Westminster Bridge Road. Funding for this health infrastructure is outside the remit of this study as it is derived from different tax sources. We also discount standalone dentists, pharmacies and optometrists.

4.3.3 Primary health care services across NEB are the responsibility of Wandsworth NHS Clinical Commissioning Group (CCG).

Original projects

4.3.4 The original demand for primary healthcare was driven by estimates contained in the Healthy Urban Development Unit (HUDU) modelling provided by the Wandsworth NHS Primary Care Trust (PCT), as the predecessor to the CCG. It estimated a requirement for 9-10 GPs based on an assumed additional population of 28,000 for Wandsworth, and importantly, no additional capacity in any other local practices. In addition to these 9-10 GPs, further GPs were identified as necessary to meet demand for part of the NEB within LB Lambeth.

4.3.5 The client group at the time believed that the HUDU model had overestimated the requirements for GPs, and instead recommended a total of 11 GPs for the entire OA to be accommodated in one facility, which formed the basis of the original DIFS recommendation.

4.3.6 It was noted at the time that sources of funding, particularly CIL, were in a state of flux, and that sources of funding would likely be from some combination of mainstream funding and development contributions, with the land secured by a Section 106 Agreement.

What's been delivered or is programmed

4.3.7 Nothing has been delivered to date. However, significant work has been undertaken to bring forward health care provision.

4.3.8 The 2010 outline planning permission at BPS[12] includes a health facility in Phase 6. The Section 106 Agreement states the requirement for, inter alia, the shell and core of a 2,000sqm GEA, including all utility connections, at ground level with inclusive access.

4.3.9 Since 2015 the NHS CCGs for Lambeth and Wandsworth have collaborated on a business case for facility delivery and investment in healthcare in OA in the years 2016-2030. This full business case (FBC) from December 2019 identifies the Sleaford Street Health Centre that forms part of BPS Phase 4a (brought forward from Phase 6) as required to support the primary healthcare needs of population growth in the OA over this period and follows on from a March 2016 Feasibility Report.While the original DIFS identified a need for 11 GPs across the whole OA, the detailed assessment undertaken as part of the FBC indicates a requirement of '19 new healthcare practitioners and uplift in other services of 6% in 2029/30 compared to the 2013/14 baseline'. To address this, CCGs proposed staged provision comprising using existing facilities to absorb early demand, renovation and extension of existing practices to deliver some further provision, a new facility at Sleaford Street and finally a new facility at Nine Elms Square.

4.3.10 The FBC confirms that at least some of growth that has already occurred in the OA has been accommodated by the practice at Riverside Medical Centre at St George's Wharf (LBL), whose patient list has grown by 61%. To mitigate additional pressure, provision has been made for the temporary upgrades on existing practice sites in years prior to the facility being delivered. Investments in temporary upgrades to other local facilities are proposed, which will ensure that demand for primary healthcare is met while the Sleaford Street Health Centre is awaiting delivery. Three of these facilities are in LB Lambeth.

4.3.11 The Sleaford Street Health Centre is in an advanced stage of planning and the building that it is provided within is under construction. It will accommodate around 19 new healthcare professionals, including GPs, based on a population of 33,780 for the entire OA, in a facility of 1,868m² GIA. Costs and timing of the facility are outlined in the following section.

4.3.12 Delivery of the Sleaford Street Health Centre is reliant on the construction programme for other developments on the same site and is expected to be delivered by 2023. Temporary upgrades to the Thessaly Road practice to accommodate growth from development in the interim are due to be completed this year (2020).

4.3.13 The NES s106 requires provision to be made for the delivery of a Primary Health Care Facility with a minimum floorspace of 1500 sqm as part of the development. The agreed Health Care Delivery Plan sets out a timeline for the delivery of this space and indicates that a decision on when the NHS Wandsworth CCG will take the space and how much space it will require will be made in 2025. The practical completion of the facility (shell and core) is currently anticipated in 2024 and the space will be occupied by meanwhile uses until required by the NHS or another operator. While the CCGs continue to want the provision to be safeguarded, there is a degree of uncertainty about when the overall demand will materialise, and reservations about the form in which it is expected to come forward across two units. Provision is made for regular review of requirements in the Health Care Delivery Plan.

Analysis of future need

4.3.14 The overall requirement for a primary health facility in the OA has not changed since the 2010 DIFS. We have not revisited the calculations as part of this study because of the extensive work that has been undertaken by the CCGs to inform their business case.

[10] S106 (Schedule 10) attached to the Battersea Power Station and Adjoining Lands 2009/3975

[11] See Revised Development Specification, p. 25, BPS S73 application 2014/2837.

[12] 2009/3575, as amended

Outstanding requirements

4.3.15 The investment for the Sleaford Street Health Facility is valued at £12.99 million[13]. This budget allocation was approved by LBW in July 2017[14] and subsequently a funding agreement between the Council and NHS was entered in 2020. This will paid by LBW from the Nine Elms tariff/CIL.

4.3.16 While there is no certainty that it will be needed, the FBC sets out that the likely cost of the final phase of provision of £10.63m. If the CCG takes up the option of bringing forward a further facility at Nine Elms Square, it is reasonable to expect that they will seek to secure funding for this under the same route as the Sleaford Street facility which establishes the precedent for this.

Risks and uncertainties

4.3.17 Delivery for the temporary facilities is proposed for 2020, and the Sleaford Street Health Centre in 2023. There is the potential for slippage in the delivery for both due to how soon these dates are, and in the case of the health centre, reliance on the timings of other construction projects.

4.3.18 The business case acknowledges that the rate of uptake at the Sleaford Street Health Facility, completed in 2023, will be influenced by the completion of developments, which are projected to be ongoing until 2029. In the intervening years it is suggested that the facility will be underutilised, and that potential void costs may need to be underwritten by the Wandsworth CCG if temporary tenants cannot be found. This risk has been accepted by the CCG when the FBC was approved.

4.3.19 If the second facility at Nine Elms Square is brought forward, the patient list is likely to be derived from both Wandsworth and Lambeth and the CCG Funding implications of this will need to be considered when the Business Case is developed. We have nominally allocated 75% of the costs to the tariff and 25% to 'other' sources to reflect this.

4.4 Community and cultural facilities

Original projects

4.4.1 The original DIFS reported findings on 'Community centres, libraries/archives and youth provision' in Chapter 12, and 'Arts and cultural centres' in Chapter 13. This section focuses on the facilities (normally in former Classes D1 or D2 use) that are (or were) intended to be public and subject to a legal agreement with, and/or funds contribution to LBW. It is noted that there is a lot of D1 and D2 floor area to be developed that will be owned and operated by the private sector.

4.4.2 It anticipated a 500m² multi-use community facility was required in Nine Elms, to be co-located with the proposed primary school, now referred to as the Nine Elms primary school on the Nine Elms Parkside site. The original DIFS envisaged that this would serve the purposes of a 'traditional' community hall, capable of accommodating meetings, productions, and night school classes, rather than indoor sports facilities, to be provided separately.

4.4.3 It was suggested that this facility would cost £650,000, although it was acknowledged that there may be cost savings from construction with the primary school, reducing the cost by as much as 25% to £487,500. In addition to capital costs, it was recommended that the tariff should contribute £14,550 towards the annual operational costs of the community centre.

4.4.4 The original DIFS recommended a library of 1500m², possibly located in the BPS development, at a cost of £600,000. This library would possibly also include an archive, at a slightly higher cost (£769,202). The operational costs of the facility would be the responsibility of LBW.

4.4.5 The discussion on arts and cultural centres was more hypothetical, with a more definitive strategy pending further analytical work by LBW. Specific facilities required at in Nine Elms were not identified in the original DIFS, however, it did give some consideration to provision of facilities across a broad set of categories with some potential associated costs[15]. It assumed any arts and cultural facilities would be contained within developments and would be phased accordingly. It was also recommended that art located in the public realm should be part of a separate strategy, which could then justify developer contributions.

What's been delivered or is programmed

Community facilities and libraries

4.4.6 A co-located community facility was written into the requirements of the Section 106 agreement for the Nine Elms Parkside site[16]. The approved 'Outline School and Community Facilities Brief' makes reference to minimum areas for sports provision and community facilities, but did not provide details of the community space to be provided. We note that the illustrative 2FE expansion scenario, on the neighbouring Metropolitan Police Site, also includes potential community space.

4.4.7 A community facility (1,575m²), in the form of a sports and leisure facility, is now proposed as part of the Nine Elms Primary School development on plot C2 of the Nine Elms Parkside site. An RMA for the school site has been submitted to LBW and is pending a decision. This development is described in closer detail in the Section 4.5 as its use is clearly aligned with sports and leisure, rather than a more 'traditional' community hall although there is potential for community use of other facilities within the school including the assembly hall on a dual-use basis.

4.4.8 The original 2011 Section 106 agreement for BPS included provision of a 1500m² library for occupation by LBW in the area adjacent to what would become The Prospect development[17]. However, the vision for this facility moved on from that of a typical library on the basis that '[o]ften a library serves as the meeting space and backdrop for [nurturing and supporting local people], yet the reality is many libraries are either no longer fit for purpose or having to shut their doors due to funding cuts'[18]. This is enshrined in the 2014 Section 106, including the expectation that the facility would be operated by LBW[19]. The Summary of Proposals document for the S73 application confirmed:

"This will replace a library that was originally to have been provided in Phase 6 of the masterplan. Instead, the Community Hub will provide library and other education, social and cultural facilities, accessible to all, to be delivered earlier and funded by the developer (fit out and operation of the approved library was to have been paid for by the Council under the approved masterplan)".

4.4.9 The community hub would be leased to and maintained by a community interest company or social enterprise. The hub would be subject to a Community Hub Management Plan, to be approved by LBW, who would also have some reasonable influence on the facilities and services within the hub. Public access to public facilities within the hub would be ensured.

4.4.10 The provision of a Community Hub has remained through to the most recent Ninth Deed of Variation to the Section 106 agreement for BPS, dated 4 November 2019. This confirms the location of the facility as Phase 3C, above part of the station box for the NLE's Battersea Park Station, at the southern end of Prospect Park.

[13] Nine Elms Infrastructure Programme Report to Nine Elms Programme Board, 12 June 2019

[14] Paper 17-225 - June 2017 (Finance and Corporate Resources Overview Scrutiny Committee

[15] These included: galleries; multi-use arts venues and theatres; production rehearsal and education space for arts activities; museums; and art in the public realm. The report emphasised that this space had to be separate from community centres.

[16] 2011/2462, Part Two of the Third Schedule

[17] Part 5, Schedule 10, 2009/3575

[18] Battersea Power Station Phase 3 Exhibition Boards, 2015

[19] Schedule 10, S106 agreement Third Deed of Variation dated 5/12/2014, BPS S73 amendment 2014/2837

4.4.11 Designs for the community hub were granted permission in 2014, however we note the design is being revisited.[20] This is acknowledged in a recent S73 application submitted to LBW, in which the community hub is shown greyed out with the following advice given: 'all above ground elements of the proposed NLE station are shown for illustrative purposes and subject to separate approvals'[21].

Arts and culture

4.4.12 The Nine Elms Cultural Strategy 2017-2020 seeks to develop the OA as a vibrant and successful 'place'. The intended approach to achieve this includes enhancing the neighbourhoods and promoting the growth of creative clusters, particularly around a Food and Horticulture Quarter, Visual Arts Quarter, and Battersea Design and Technology Quarter.

4.4.13 The strategy outlines several high-level outcomes for culture in Nine Elms by 2020. Relating to potential cultural facilities, this includes that 'at least two world-class cultural institutions will have established a permanent base in Nine Elms'[22]. Rather than connected to social infrastructure, it is assumed these institutions would be located within some of the larger spaces delivered and operated by the private sector.

4.4.14 Based on the 2015 Planning Obligations SPD, a total requirement for culture, community, and library space of 7,400sqm based on a ratio per population to floorspace has been identified by this Study. Approximately 5,200sqm has been secured for arts and culture and community space in development that is planned or underway. The delivery trajectory for this space shows that it will be delivered in advance of the need arising and that the deficit does not appear until later in this decade. It is therefore important that space that has been secured but not yet delivered is brought forward as planned or increased, and not diminished, and in future appropriate facilities are secured within the sites in the OA that do not yet permissions, and that where revisions to existing permissions are sought this deficit is considered.

4.4.15 The 2015 SPD is now under review and may affect the requirements for community space. As sites come forward, it will continue to be necessary to provide appropriate facilities in accordance with policy. This reinforces the need for active and ongoing management of infrastructure delivery in the area over the long term to ensure that what is brought forward meets the current policy, an identified need and has a robust business case.

4.4.16 The D1 and D2 floor area secured within individual developments at the time of the original DIFS has begun to come forward and cultural anchor organisations have been appointed in line with the Nine Elms Cultural Strategy. Space has been secured within all development sites and Matt's Gallery and World Heart Beat appointed as the cultural anchor tenants at Bellway and Ballymore's sites respectively. The recruitment of cultural anchors at the RMG Nine Elms Park site and the BPS Phase 4a site is expected to commence in 2020 and 2021.

Analysis of Future need

4.4.17 Much of the guidance that was in place at the time of the original DIFS remains relevant, and we now have greater clarity about the timing of development coming forward.

4.4.18 We have identified need for 5,400 sqm of community space, 800 sqm library space and 1,200 sqm of arts and cultural space arising from the development. While the guidance on how community and library space is becoming increasingly out of date - the 2015 SPD is currently under review - it is pragmatic to take a rounded view of how the these are provided. We therefore think it is worth considering community, library, and arts and culture needs holistically, as the programmed hub at BPS does; this indicates an overall requirement of 7,400 sqm.

4.4.19 On the basis of the approximately 5,200sq m that has already been secured, there is an outstanding need for 2,200 sqm of floorspace.

4.4.20 Using the standards contained in the 2015 SPD, there would therefore be a deficit of equivalent to 7 community centres at 300 sqm each. This is evidently impractical and intuitively would result in an over provision. We therefore propose the equivalent funding (£10.3m, discussed below) should be allocated to either new facilities, if space can be identified, or upgrades to existing facilities.

4.4.21 We note that it will be challenging to find accommodation for space of this scale and that the school facilities (1,575 sqm) are intended to provide out-of-hours access, which will be of benefit to the community as well.

Outstanding requirements

4.4.22 Applying a typical cost per sqm of £4,700 which we have found in work elsewhere in London, this indicates that a further c. £10.3m funding should be set aside to meet outstanding community needs.

4.4.23 In relation to cultural and arts space, again the guidance on the form of this is the same that existed when the original DIFS was undertaken and many of the conclusions that we drew in that study about why it was not sensible to attach a detailed requirement and cost to those facilities remain valid. However, greater clarity is emerging with the development of the cultural strategy; and to allow those aspirations to be realised, we suggest that it is sensible to set aside funding based on a blended cost of cultural facilities i.e. £3.8m. This can then be directed to suitable projects as they arise.

Risks and uncertainties

4.4.24 In line with planning conditions for the Nine Elms Parkside planning permission, an RMA for the primary school and community facility was required to be submitted before March 2020 and is pending consideration.

4.4.25 LBW is currently producing a Libraries Strategy, which is expected to contain some commentary on the community hub at BPS. At the time of publication, this strategy has not been formally agreed and has not been viewed by the authors of this DIRR. This may result in different requirements from those identified above.

4.5 Open space, play space, and sport and leisure

Original projects

Public amenity space

4.5.1 It was acknowledged prior to the original DIFS that NEB is poorly served by open space[23]. It was identified by the report that, due to land constraints, it would be impossible to apply the same level of provision afforded other parts of LBW if development in the OA were to be viable at all.[24]

4.5.2 Two main public open spaces were recommended:

- Linear Park: the larger open space was the 3.5-hectare park, envisaged as a strategic green link connecting Battersea Park and Lambeth Palace Gardens, and has been a central element of master planning for NEB since the OA's inception. The linear shape of the park means that it is highly accessible to all the contributing developments; however, it was noted at the time of the original DIFS

[20] BPS S73 amendment 2014/2837, Drawings PL-801/08, PL-802/08; we note another S73 application has been registered with LBW (2020/0579), which is pending consideration.

[21] S73 application 2020/0579. Validated 27/2/2020; pending consideration. Drawing PL101/06

[22] Nine Elms Cultural Strategy 2017-2020, p. 5

[23] LBW Open Space Study (2007)

[24] The Open Space Study recommended a quantity standard for public parks of 2.15ha per 1,000 population. Based on the population yields analysis, this would create a need for between 52ha and 55ha of land. It was also due to space limitations that allotments, at 0.077ha per 1,000 people, were considered undeliverable by the original DIFS.

that this shape would likely mean the park 'will not be possible to accommodate formal outdoor sports provision and only minimal play provision along with seating areas, etc.'[25].

- Power Station Park: a two-hectare park at Battersea Power Station was also recommended. The Power Station Park was incorporated into the original BPS planning permission (Phase 2), located between the north-facing elevation of BPS and the Thames.[26]

4.5.3 Power Station Park formed part of the original BPS hybrid planning permission. An Open Space Audit (OSA)Technical Note stated that a significant increase in provision of public open space at the site would have to be achieved to meet the target provision of 2.15 hectares (ha) per 1,000 population recommended by LBW's Open Space Study (as much as 14.8 hectares). In agreement with the original DIFS, this would be unfeasible due to the proposed density of the development, and credit was given for the offering of a 'significant amount of open space' in the form of Power Station Park.

Sport, leisure, and play space

4.5.4 The original DIFS considered sport and play space in the same chapter. Play space is driven by child population growth and has three main types based on child age group: Doorstep (0-4), Neighbourhood (5-11), and Local (12-18). The type provides guidance on what the space should contain, and how far it should be from development. Greater London Authority (GLA) Supplementary Planning Guidance (SPG) requires 10m² of play space per child at new developments[27].

4.5.5 Doorstep play spaces are separate from private amenity spaces (such as balconies, terraces, and private gardens on ground level), but are generally located in communal amenity spaces within developments, within courtyards, on roofs, terraces or podia. Like private amenity spaces, communal amenity space is assumed within development costs.

4.5.6 The play space needs of older children (Neighbourhood and Local categories) are generally co-located with public amenity space. These spaces can be in the form of play areas, sports fields, and Multi Use Games Areas (MUGAs) and other playable space which children have unrestricted access to. These spaces are described in this chapter.

4.5.7 Sport and leisure provision is of course not limited to children. In this report we do not consider provision in the form of commercial gyms; however, we do note the intention for indoor sports facilities located at Nine Elms primary school to be available to the general public at agreed times, as an arrangement which was promoted in the original DIFS.

4.5.8 The original DIFS recorded high level contributions from CIL that would go towards paying for improvements within public amenity spaces, on a per hectare basis. This assumed a more active LBW involvement in the delivery of these open spaces, which has since reduced. Instead, improvements would be delivered, and maintained, by individual developments, with LBW maintaining some operational oversight through the Delivery and Management Plans and ensuring the public nature of public amenity spaces is not eroded.

What's been delivered or is programmed

Public amenity space

4.5.9 Linear Park: this remains the key piece of open space in the NEB area and now is expected to extend to 4.26 ha (compared to 3.5 ha in the original DIFS). The designs for the park, in various stages of detail, have been determined by the development proposals for individual sites that are host to it, particularly in design codes and parameter plans. Our current understanding of the Linear Park is therefore informed by multiple planning permissions (as varied), reserved matters approvals and associated legal agreements.

LBW maintains some strategic oversight of the park's delivery. It means that the park will only be complete when all those schemes are completed; their status is summarised below.

- **NCGM - Entrance site:** the majority of which is located on the southern side of the railway viaduct (the site of the redeveloped market) within NCGM. This was granted hybrid planning permission in February 2015.[28] The Entrance site, comprises the western approach to the Linear Park, made up of 3,392m², or 0.34 hectares, linking Nine Elms Lane to the Linear Park on the Royal Mail Group Site. This section of the Linear Park, being relatively small, would range from 30-45 metres in width and comprise grassed areas with some plantings and a bosque of trees.

- **Nine Elms Parkside:** Sitting at the heart of the Nine Elms regeneration area, Parkside is a residential led mixed use scheme of 1,870 units on the site of the Royal Mail sorting offices. Structured as a series of perimeter blocks with taller elements of 23 storeys, the scheme is set around the new Nine Elms Linear Park.

- **Embassy Gardens:** detailed design for most of the Linear Park would be determined through reserved matters applications. Some of the broad parameters of the park, and locations of key features such as play space, were put forward in the revised planning application documents[29]. Overall, the planning approval required 1.2 hectares for the Linear Park between Nine Elms Parkside and Nine Elms Square, spread over three key spaces: Embassy Square (5,280m²), Meux's Green (2,370m²), Mill Pond Green (2,564m²).

- **Nine Elms Square:** the park is located in phases 1A, 2A and 2B of the development, each subject to their own approval of details with regard to landscape. The park would be between 35 and 65 metres in width in this section, and make up 10,428m², or 1.04 hectares. At its easternmost portal the park would contain a 'gateway' public plaza opening out to an open space at the centre of the site surrounded by tall residential buildings. The open space would visually 'merge' with communal (private) open spaces associated with the residential buildings but would be separated by step changes and planting.[30] The development would provide a total of 12,134m² of communal amenity space located on ground level in courtyards, as well as on podium and terrace levels.

- **One Nine Elms:** a relatively small open space located at the northern-most part of the Linear Park, and comprising soft landscaping and a public plaza, forming the gateway to the park.

[25] P. 132
[26] 2009/3575
[27] The Mayor's Shaping Neighbourhoods: Play and Informal Recreation SPG (September 2012).
[28] Planning permission ref. 2014/2810
[29] Design and Access Statement, Design Principles Document, revised 2012
[30] 2014/2810, revised Design Code (September 2014) pp. 24-25

Figure 4.3: Linear Park landowners

Source: Adapted from Gillespies / Camlins Nine Elms Linear Park Ownership Plan

4.5.10 **Power Station Park:** this remains the principal public amenity space at BPS. Proposals for the development known as The Prospect were amended in 2014 to include additional public amenity space and a playground, currently estimated to be 0.27 hectares. This is discussed in the following section.

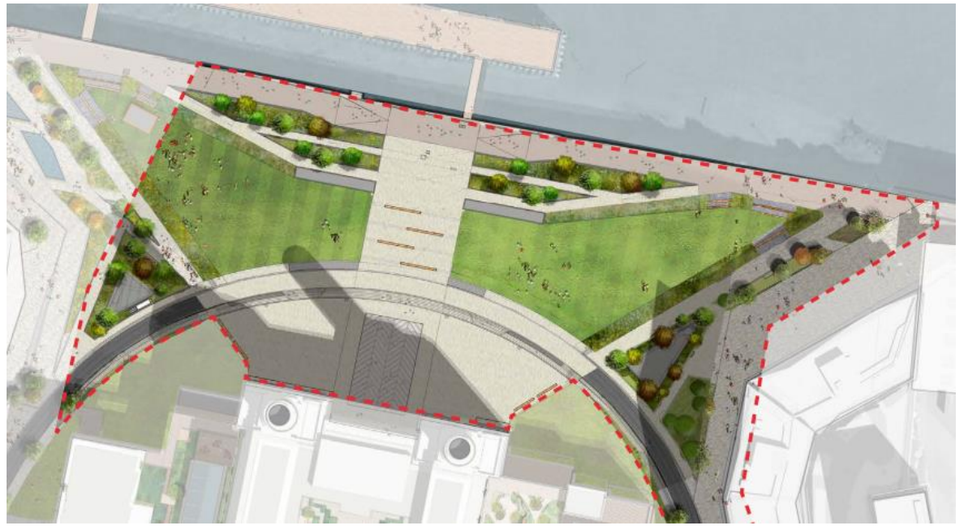
4.5.11 The majority of the park would be located in Phase 2, except for a small corner on the Phase 1 site which is complete. Reserved matters in respect of landscaping for Phase 2 were approved in 2017, but have recently been revised, and are shown in Figure 4.4.

4.5.12 Submitted documents do not provide a specific open space area for Power Station Park, instead referring to a much larger overall figure encompassing 'public realm' at 59,986m²[31]. For Neighbourhood play space, it was proposed that 7,960m² of would be provided in Power Station Park. The OSA stated that BPS would be in excess of its obligations for this play space type.

4.5.13 **Prospect Place:** this forms part of the BPS scheme as was initially envisioned as a 'linear open space' comprising a large pond, before being proposed, instead, as a green space called Prospect Park with a children's play area and community hub. Prospect Park remains in the pipeline and is estimated by LBW to provide 0.27 hectares of public open space.

[31] 2013/6639, Development Specifications, p.18; Approved Drawing A01013a. This is assumed to still be relevant.

Figure 4.4: Illustrative Masterplan – BPS Phase 2 Landscaping



Source: RMA 2019/1420, Illustrative Masterplan, DWG. NO. 3692-01-LPR-PL-LDA-DGA-P00-010

Park management

4.5.14 Management requirements are standard for all Section 106 agreements relating to the development of the Linear Park, pertaining to security, insurance and maintenance. Initially, these are required to be undertaken via the establishment of a single entity park management company for each individual development. Associated real estate management costs would be charged to residents as part of lease agreements and would be ringfenced for management of the park parcel associated with their development.

4.5.15 In the longer term, 'Parkco' has been proposed as a special purpose entity to undertake these functions on behalf of the developments collectively. It also proposes to establish an advisory board consisting of representatives of each developer, and one from LBW, to manage the park, co-ordinate events, and so on. Instead of specific byelaws imposed by LBW, it is proposed that a 'voluntary community charter', also referred to as the POPS Charter for the Linear Park, drafted collaboratively, would govern use of the park.

4.5.16 The Section 106 agreements also require the submission and approval of Delivery and Management Plans to LBW, to assist co-ordination of the phased delivery of the park and account for specific management requirements. Parkco would implement each landowner's approved Management Plan.

4.5.17 The Management Plan for Embassy Gardens (Ballymore) was approved by LBW in 2016. Management Plans for other development are under preparation but have yet to be submitted. It is understood that a similar management arrangement would be established for public amenity spaces at the BPS site.

Play and sports space

4.5.18 **Playspace:** the revised hybrid planning application documents identified an overall need for 6590m² of playable space at NCGM. Doorstep playable space would be provided in communal courtyard areas of residential buildings. Neighbourhood playable space would be located within the Linear Park, with additional space located opposite the railway arches in the Apex Site.

4.5.19 **Sports and leisure space:** The Nine Elms Parkside development will contain two open-roof MUGAs, with one associated with the community facility, and the other with the school, although it is understood that the building has been designed to ensure flexibility between uses and enable sharing of these facilities[32].

4.5.20 The second MUGA, nominally associated with the school, would be located on the second-floor roof above the school's main hall. In addition to the MUGA, play space for the use of the school has been provided in an external courtyard space at the centre of the school site, to be used as 'soft and hard play space' as well as 'outdoor classrooms' as extensions of internal classrooms that face out onto this space. Other outdoor play spaces are proposed to be located on roof terraces.

4.5.21 The 1,545m² sports and community centre would be accessed from School Lane and be spread across three levels. The reserved matters application submitted in March 2020 include provision for staff amenities; a café; changing facilities; a fitness studio; accessible changing area; and a lobby with access to a 614m² MUGA, located on the north-eastern corner of the site.

4.5.22 **Sports pitches:** five-a-side football pitches have been delivered on the market site of the NCGM development, on the roof of the car park building. This provides play space requirements for children and young people aged 12-18 as part of the NCGM development.

4.5.23 Because most development has already been approved at least to outline level, open space and play space is largely committed through those permissions. We set out below a table of those key developments and their respective commitments for dedicated open and play space and also communal or public realm, with the following section providing further analysis.

Future analysis of need

- **Public amenity space**: using LBW's policy standards, we estimate there is need for 5.4ha open space.
- **Playspace:** we have used the GLA playspace calculator to identity needs for the different types of playspace. We focus here on facilities for older children including neighbourhood spaces for 5-11 year olds and local spaces and facilities for play (12-16 year olds) in this analysis and that provided at Appendix C, which indicates c. 1 ha of space needs to be provided across the NEB area.
- **Sports:** we have used the Sports England Sports Facility Calculator to identify sports needs. This indicates that there is a single artificial pitch requirement and also a need for two four-court sports halls.

Outstanding requirements

4.5.24 It has already been noted that land ownership of public amenity spaces is to be maintained by developers. Development and maintenance costs are the responsibility of the developers, therefore we assume that no CIL funding is allocated to public amenity spaces or its future maintenance. This may change in the event that any of the open space were to be transferred into public ownership; however, we are not aware of any specific plans to do so or requirements through any legal agreements for this to happen.

4.5.25 Land for the school site will be transferred to LBW in line with agreed Heads of Terms. The funding required for the construction of the school and associated community and sports facilities is currently estimated at £32 million.

4.5.26 The delivery of public amenity spaces and associated play and sports facilities are subject to the development phasing of multiple developments. As landscaping and public spaces generally fall late in the phasing of developments, it can be assumed that the Linear park, as a continuous space at least, will be delivered late in the build-out of the OA.

[32] 2020/1119, submitted Planning Statement (March 2020), p. 18

Risks and uncertainties

4.5.27 As of March 2020, there is much more certainty around what is intended for the sports and play facilities at the school site. This application is currently before LBW to determine.

4.5.28 The space within NEB is finite. LBW have already accepted that there will not be a guidance-compliant level of open space provided. In reviewing most schemes, it appears for the most part, a substantial quantum of open space has been secured.

4.5.29 While LBW have some oversight of the operation of the majority of public open space across NEB, there is a risk in that it is primarily in private control and therefore access to the space could be subject to control by future management operations. In order to ensure that current and future NEB residents have access to sufficient open and play space, it will be important to ensure that this access is not compromised.

4.5.30 LBW has indicated they are considering commissioning an Indoor Leisure Facilities Study to support the development of the Local Plan which may establish different or more refined requirements for the area. However at the time of writing it is apparent that the leisure sector, and local authority facilities in particular, are one of the sectors experiencing an immediate impact from Covid-19 and the longer term impact of the pandemic on an industry that was already facing challenges of changing use patterns is very uncertain at this stage.

4.6 Emergency services

4.6.1 Emergency services considered in the original DIFS were policing, fire brigade and ambulance services. Engagement with the latter two has had limited success; we therefore do not anticipate there is an urgent requirement for them within NEB, so our focus is directed mainly at policing. As noted in the Health chapter, ambulance services for NEB are principally provided by St Thomas' Hospital on Westminster Bridge Road and funding for this health infrastructure is outside the remit of this study as it is derived from different tax sources.

Original projects

4.6.2 According to the original DIFS, the Metropolitan Police Service (MPS) stated a requirement for one Neighbourhood Team Base and one Transport Team Base, partially funded by OA development, with a cost estimated at £1.38m. This assessment used the proposed number of dwellings and commercial floorspace to derive a need, based on the average size of a police base and the standard number of officers required, as well as the overall impact of the increase in population would have on policing and custody requirements in the wider area.

4.6.3 In addition, MPS would require a contribution towards the costs of the proposed Wandsworth Custody Centre extension, located at Wandsworth Police Station at a cost of £0.75m, and potentially a new patrol base (£0.63m) to support the proposed growth. Total contributions from OA would be £2.13m funded by tariff, expected to be required between 2014-17.

4.6.4 Provision was made in Schedule 10 of the original 2011 Section 106 agreement for BPS for a 170m² 'police community office' in RS-4. Subsequent deeds of variation have changed the exact provisions, although the basic premise that a 170m² police office will provided at 'shell and core' standard has remained intact.

4.6.5 The original DIFS assumed upgrades to local fire stations in the form of some new builds and refurbishments on existing sites. This could mean stations at Lambeth, Brixton, Clapham, Battersea, or Wandsworth, and a cost of £8m-£13m. The need for new station was not ruled out. Required by completion of 4,000th dwelling (then assumed to be 2017), with £0.8m attributable to OA development (tariff derived).

4.6.6 We are not aware of further developments on the discussion on fire brigade provision specifically for NEB, however we note a planning application for redevelopment of the London Fire Brigade headquarters at 8 Albert Embankment is currently being considered by LBL. The application is for a major mixed-use development, fire brigade museum, and re-provision of the working fire station on site.[33]

4.6.7 The London Ambulance Service NHS Trust concluded at the time of the original DIFS that it had no specific capital needs arising from the proposed growth in the OA. No further comment has been provided by the NHS.

What's been delivered or is programmed

4.6.8 The key amendments to MPS accommodation were made in the Fourth Deed of Variation to the Section 106 agreement for BPS. These include: an additional 13m² police facility located in RS-1; relocation of the main 170m² facility to RS-2; location of the office would be alongside a nursery.[34] The requirements for the larger accommodation are not substantively changed. No requirements for the smaller accommodation, other than its size, are specified.

4.6.9 We note that the extension to the Wandsworth Custody Centre has been delivered.

Future analysis of need

4.6.10 The approach to police service provision has changed substantially since the time of the original DIFS.[35] Police budgets have been refocused on retaining front-line staff while reducing the number of counter points to one per borough, the nearest to Nine Elms being Lavender Hill Police Station. Borough-level police units have merged into Base Command Units (BCU), responsible for 2-4 boroughs each.

4.6.11 This, in turn, has required a re-evaluation of policing requirements at Nine Elms. MPS staff responsible for the South West BCU have provided some feedback on this, although with the caveat that planning is ongoing, and no definitive position has been arrived at. We have also discussed the need for police services with LBW's Community Safety Team.

4.6.12 MPS is currently determining its exact requirements for policing at NEB. When determining the need for police resources, the analysis takes into account population growth, local crime trends, existing provision, and the future development context, among other inputs. It is estimated that a police presence similar to that at Westfield Stratford, being two sergeants and twelve PCs, would be appropriate, although further analysis is required. At this point in time, MPS unofficially recommends a police community office capable of accommodating 8-10 staff members, fitted out to police requirements [36].

4.6.13 We consulted the British Transport Police (BTP) in preparation of this report. Our contact indicated BTP had not yet engaged in any exercise in predicting what services would be required from them as development comes forward. Engagement between BTP and LBW on this issue is expected to be forthcoming.

Project schedule and funding

4.6.14 MPS is currently determining its exact requirements for policing at NEB, but we assume that the accommodation provided as part of the Section 106 agreement will be required as a minimum. We note, however, that if less than what is provided for is required by MPS, and such changes must be agreed between MPS and BPS, and evidenced to LBW.

4.6.15 Costs for the fit out are not known but it is understood they would be met by mainstream funding from MPS.

Risks and uncertainties

4.6.16 Although it is evident that the discussion is ongoing, it is not clear exactly when decision making around the MPS presence at NEB will occur, when the services will be in place, or how much they will cost.

4.7 Conclusions

Key findings

4.7.1 Because the overall quantum of development is broadly established and in the years since the original DIFS was undertaken, social infrastructure providers have undertaken significant additional work to establish what that means for the delivery of infrastructure, while we have set out a short summary here, we focus primarily on phasing i.e. the trigger points at which the infrastructure might be needed.

4.7.2 **Education:** Since the DIFS, LBW has been able to establish a more accurate idea of the population projection for NEB. Age group projections have been used to estimate need at different school levels, subject to discounts, undertaken in collaboration with LBW's Education, Performance and Planning Division. There is a current requirement for 3.7 FE at primary school level, with a deficit of places beginning around 2023/2024.

The two-FE Nine Elms Primary School would accommodate growth for 420 children when it becomes operational. The outline planning application for the school suggests the soonest this could happen is September 2022, however we have assumed a more conservative start date in 2025/2026. The cost of this school, and co-located community and nursery facilities, would be around £32 million, funded by the VNEB CIL. After this point the FE requirement overall suggests the need for an expansion of up to two FE, however we recommend a flexible approach to timing of this provision, with closer scrutiny of the balance of deficit and surplus places in the years to come.

Two-FE of early years provision (for up to 52 children) is expected to be delivered alongside Nine Elms Primary School, with potential for more as part of the BPS development. It is expected that the majority of early years schooling will be provided by the private sector.

Development is expected to result in a requirement for 2.7 FE secondary and sixth form places. No new provision is required as result, as need is expected to be accommodated in existing and planned growth of secondary schools in the borough.

4.7.3 **Primary healthcare:** Wandsworth and Lambeth CCGs have produced a full business case for the provision of a 1,868m² GIA primary health centre on the BPS site on Sleaford Street by 2023; future phases of provision include the expansion of practices in Lambeth and potentially a new health centre at Nine Elms Square.

The investment for the Sleaford Street Health Facility is valued at £12.99 million to be paid out of Nine Elms CIL.

4.7.4 **Community, library & cultural facilities**: The library facility that was originally envisioned in the BPS Section 106 has emerged from subsequent variations as a 1575m² Community Hub, to be located on the southern end of Prospect Park above the NLE station portal, and developed to shell and core standard. The hub would provide a mix of community, cultural and arts facilities, and a library.

Based on existing requirements, there is a shortfall in provision on a square meter basis. As discussed in the section above it may not be practical to provide this onsite, but it may be appropriate to use the equivalent contributions towards provision to enhance the existing facilities in future.

[33] LBL application reference 19/01304/FUL

[34] Schedule 10, S106 agreement Fourth Deed of Variation dated 3/12/2015, 2015/3555; these amendments remain intact in the most recent Ninth Deed of Variation, signed 4/11/2019.

[35] See Greater London Authority's MOPAC/MPS Public Access Strategy (2017)

[36] Requirements would include changing room and lockers, welfare area, meeting room, interview room.

4.7.5 **Open space, play space, sport & leisure:** The majority of the open space available for future residents of NEB will be in the linear park, a central feature of master planning in the OA from early days, and comprising land contributions from four large development sites. Delivery of each development's section of the park is funded by the developer.

It was acknowledged prior to the original DIFS that the provision of the linear park would not supply residents with the same level of open space afforded in the rest of Wandsworth, however the estimate given around time of the DIFS would be a park of 4.5 ha. The current estimate is slightly less at 4.26 ha.

Key public spaces associated with BPS are Power Station Park, divided between BPS Phases 1 and 2 and located between the north-facing façade of BPS and the Thames, and the smaller Prospect Park in Phase 3.

Play space requirements vary according to population projections of different age groups for each development, which have been subject to ongoing variations as the balance of residential units has shifted within sites. Doorstep and neighbourhood typologies are typically located in communal courtyards and on roof terraces. A larger, publicly accessible Neighbourhood playing space is proposed at the Basin Fields within the linear park. Play space for older children and adults, suitable for organised sports, is located offsite at Battersea Park, in the case of BPS, or MUGAs. MUGAs have already been provided onsite at the RMG site, and are proposed on the Nine Elms School site

4.7.6 **Emergency services:** Commentary on emergency services have been provided by the Metropolitan Police, no updates have been provided for fire, ambulance services, or by British Transport Police.

Provision was made for police services in the Section 106 agreement for BPS, as amended. The space provided for police would comprise a 170m² area in in RS-2, and a 13m² space in RS-1. Policing in London has been substantially restructured in London in the years since the original DIFS. The Metropolitan police are undergoing an evaluation of the precise policing requirements at NEB, which has yet to be formalised. It is understood facilities would be provided to shell and core standard, with fit-out funded by the police.

Risks and uncertainties

4.7.7 As set out in Section 3, we have considered the impact that increased PRS might have on NEB in Appendix D. This has the greatest potential to impact on social infrastructure requirements. However, not only is there uncertainty in terms of how significant PRS might be in NEB going forward but there is also great uncertainty in attempting to quantify this impact because PRS remains a relatively new tenure. We have not identified any research which we could use to underpin a robust alternative scenario at NEB.

4.7.8 Recent work undertaken for LBW on local housing needs indicates that in the borough as a whole, PRS 'houses a disproportionately large number of other household types, cohabiting couples and lone parent families compared to the wider housing stock. Conversely it has a low percentage of family households and one-person households'[37]. However, those statistics relate to the whole borough and we would caution against drawing conclusions from this as the proportion of comparable institutionally-owned BtR stock across the borough as a whole compared to what might be delivered at NEB is likely to be limited.

4.7.9 While we could speculate that the impact may be lower child yields within the NEB area, and therefore lower requirements for education, it is equally possible that PRS could also mean a greater level of occupation within the development i.e. reduced second home ownership which could have the reverse effect. We have therefore taken a broad-brush approach to most social infrastructure, using accepted standards in order to understand needs arising, and while we have adopted local level data on education, we suggest that any risk on this should be mitigated by monitoring and the fact that the delivery of the main primary school is envisaged in two parts is helpful.

[37] Draft Local Housing Needs Assessment (December 2019) para. 9.22

5 Transport infrastructure

5.1 Introduction

5.1.1 In this section we will consider what was originally identified and assumed, explore what has changed and why and set out what we think is now needed, the cost and timing for a similar range of transport infrastructure projects that meet the principles and objectives of the original DIFS

5.1.2 We will also consider what has been spent to date and what funding is now required as well as identifying the likely delivery programme through a project schedule. We conclude by identifying the risks and uncertainties in relation to the provision of transport infrastructure.

Note that we capture urban realm improvements in this chapter, as opposed to another, as infrastructure that encourages modal shift.

5.2 Original projects

5.2.1 The key transport projects identified in the original DIFS were the NLE, which will provide two new stops within NEB (at Nine Elms and Battersea Power Station) on a new branch from Kennington, an upgrade to Battersea Park Station and a holistic corridor improvement scheme on Nine Elms Lane which includes highways and bus improvements, together with pedestrian and cycle improvements. These three schemes were envisaged as being key in opening up the accessibility of the OA from the wider area.

5.2.2 More broadly it was envisaged that substantial costs (£50m) would arise from changes and extensions to bus services, as well as new routes within the OA. Other public transport projects entailed upgrades to a number of the existing stations including Vauxhall, Queenstown Road and Battersea Park station.

5.2.3 The original DIFS identified a range of pedestrian and cycle links and improvements. These new links were primarily aimed at repurposing what were previously industrial or commercial routes, improving connectivity within the OA, particularly focused on overcoming the north/south severance associated with the elevated railway lines, and opening access to the river through projects such as the river walk. Related to this, new river piers were identified to support river boat access to the OA.

Summary of the original DIFS' transport projects (LBW only)	
Combined	Nine Elms Lane highways, pedestrian improvements, public realm and bus
Public transport	Northern Line Extension
	Increase bus capacity and pump priming new services
	Enhanced bus stop/standing at western end of OA
	Minor improvements to Queenstown Road station
	Improvements at Battersea Park station
	New piers for boat service
Pedestrian & cycle links	Improve pedestrian connection between Battersea Park station and OA
	River walk
	Cycle hire
	Signage improvements (Legible London)
	Strategic links
	Pedestrian and cycle bridge to Pimlico
	Road improvements including Thessaly links

5.2.4 The NLE, which is due to open in Autumn 2021, does not form part of this study. Funding for this project was in part secured through Section 106 contributions from developers, with the balance to be funded from the uplift in business rates generated in the area through a TIF (Tax Incremental Financing) arrangement.

5.2.5 While outside the NEB area, there have been extensive improvements to Vauxhall station which were identified in the original DIFS but not funded from the tariff and instead were funded by TfL and Network Rail.

5.3 What's been delivered or is programmed

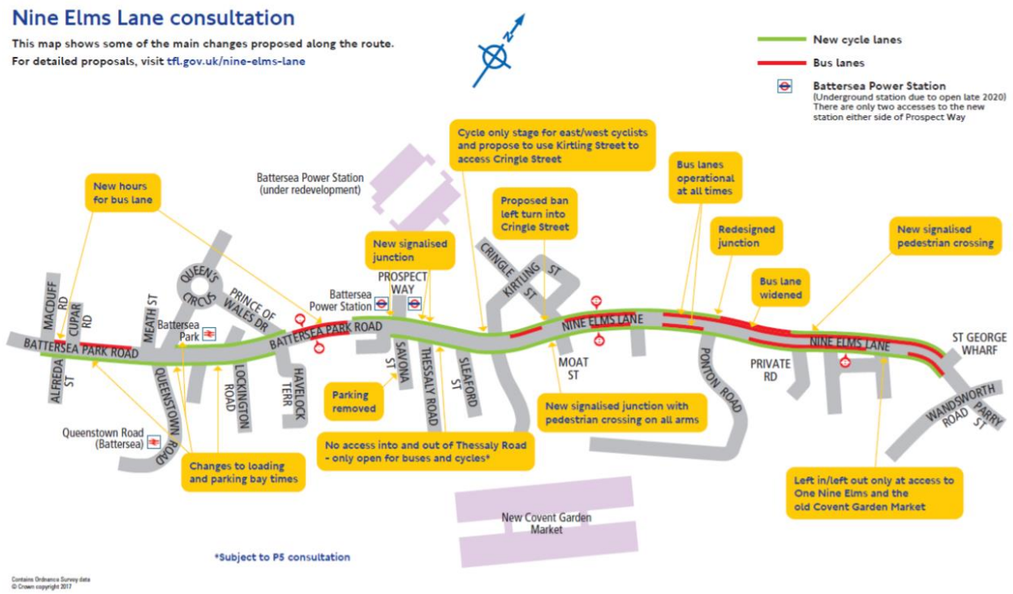
5.3.1 Since the original DIFS was written, a number of transport projects have completed, others are in a development or delivery phases, and others are yet to start. A number of other projects have been identified or further defined through work over the last ten years including the Cycling Strategy and TfL "NESB Designing for Cycling 2013", and the Battersea Design and Technology Quarter study which are aligned with the principles of improving 'Strategic Links' articulated in the original OAPF and DIFS.

5.3.2 **Nine Elms Lane / Battersea Park Road Corridor Scheme:** TfL are committed to a wider programme of improvements to Nine Elms Lane and Battersea Park Road focused on cycle improvements, improved crossings and pedestrian and street scene improvements that provide a holistic scheme for the whole corridor in line with the Healthy Streets agenda. An interim scheme improving walking and cycling infrastructure has already been delivered and good progress has been made with the design stages of the permanent scheme from Vauxhall to MacDuff Drive with Public Consultation held in 2017.

5.3.3 Following this consultation, the western end of the scheme from the Duchess Bridge to MacDuff Drive has returned to the design stage to address issues raised in consultation, but the eastern end has continued through to detailed design and Phase 1 of this scheme outside Battersea Power Station is currently in delivery and expected to be completed in early 2021.

5.3.4 While build out within NEB is on-going, with many key sites including NCGM interfacing directly with Nine Elms Lane, it remains the case that improvements which are primarily focused on cycling, walking and the wider public realm will be carried out in phases. At the western end, Nine Elms Lane connects with Battersea Park Road which forms part of the Queenstown Road corridor.

Figure 5.1 Potential changes to Nine Elms Lane



Source: TfL

5.3.5 **Queenstown Road Corridor Scheme:** Improving this key north south route has emerged as a priority since the DIFS was written. WSP undertook a study on behalf of LBW on the Queenstown Road Corridor (January 2020). As with the Nine Elms Lane improvements, this study was underpinned by the Mayor's Heathy Streets approach and therefore focused on supporting more active modes of travel along the corridor, as well as promoting bus usage, through road space reallocation including around Battersea Park station (but retaining general traffic), integrated local transport hubs again including Battersea Park station as well as corridor-wide public realm enhancements. This report was considered by LBW committee in February 2020; while the timescales for bringing the details of these schemes forward may be lengthened by the pandemic, the principles as they relate to the NEB area are not likely to change.

5.3.6 **Increased Bus Capacity:** There is less certainty about the nature and scale of potential bus network changes. TfL undertook a comprehensive review of future demand in the OA in 2013[38]. Based on the then-phasing of development in the OA, it was expected that route reinforcements would be needed by 2018 when it was forecast that 34% of development would be complete, generating up to 4,000 bus trips per day on Nine Elms Lane. Two main options were identified, both with similar cost implications of c. £4m per annum:

- Extension of routes 417 (then terminating at Clapham Old Town) to Waterloo via Queenstown Road and Nine Elms Lane, and 452 to Vauxhall (from Wandsworth Road Station), together with some frequency increases[39]; or
- New Nine Elms Lane and Queenstown Road route, linking Sloane Square, the OA and onto Waterloo, together with frequency enhancements to route 77.

5.3.7 As part of the review undertaken by TfL in 2018 in advance of work starting on the Nine Elms Lane scheme in 2020, it was confirmed that there were no plans for new bus routes or increased frequency along Nine Elms Lane and Battersea Park Road. As set out above, the scale of contributions that were expected were significant and while there have been some incremental changes to the network in that time, there have been no wholesale changes and these have not required funding via any tariff contributions.

5.3.8 Our discussions with LBW have indicated that although NEB now has a large resident population, there have been several factors which have delayed decision making on bus investment in the OA: namely, whether the Vauxhall Island site which accommodates both the Vauxhall gyratory and bus station will be redeveloped and whether a new pedestrian/cycle bridge will be introduced over the river to Pimlico. The Secretary of State has now approved the Island site planning application and permission is already in place for the new bus station. TfL have now confirmed that, although outside the NEB area but falling into the wider OA, they plan to start work at Vauxhall, including the new transport interchange and bus station within a restored two-way road system, in 2021.

5.3.9 The other question is about wider network changes; the question of whether there is a new river crossing from NEB also plays into this in that introducing an additional pedestrian and cycle crossing may reduce the rationale for cross-river bus route enhancements.

5.3.10 Discussions with LBW in the early part of 2020 indicated that spending on bus services improvements would be incremental rather than wholesale. The previously outstanding decision on the Vauxhall bus station redevelopment combined with the uncertainty surrounding the additional river crossing had been delaying decision making on more comprehensive reviews; however, while the former has since been resolved, the latter remains and is further complicated by the uncertainty generated by the pandemic on bus demand going forward. A pattern of incremental change therefore looks set to remain and we have modified the cost implications accordingly.

5.3.11 **River walk:** Improvements to the river walk are now underway, with Phase 1 of the Thames Path improvements project now complete and Phase 2 in the planning stages. However, the walk itself cannot be completed until all the riverside development sites come forward so that while there remains uncertainty over the future of sites such as Cringle Dock and the Tideway works continue for another five years, the walk will continue to have a number of diversions in place. The proposals for the Nine Elms Pimlico Bridge offer an opportunity for continuing and improving the Thames Path at its landing location on the southern side.

5.3.12 **Improvements at Battersea Park station:** The need for upgrades to Battersea Park station as a result of higher passenger flows from both new residents and workers, together with future potential interchange opportunities when the NLE opens, were identified in the original DIFS. Further feasibility work has now been undertaken to progress the details of this scheme which comprise opening a new entrance to the north away from the existing building on Battersea Park Road together with a new pedestrian walkway on the eastern side of the station linking to Battersea Park Road and Prince of Wales Drive, to GRIP stages 1 and 2.

5.3.13 Costs of between £34.1m and £35.6m, including 40% allowance for risk and contingency, have been identified. However, so too has a potential funding gap; previous estimates for this project had been in order of £20m, and funding was largely secured on this basis, including c.£4m from S106 agreements within the NEB area. We understand that LBW, as part of its developer service agreement with Network Rail whereby it has committed to funding GRIP stages 3-5 (PACE 2) i.e. to detailed design, has sought to limit its capital liability to £16.89m, in expectation that Network Rail will be leading negotiations with the Department for Transport to meet any funding shortfall, currently estimated at £14m.

5.3.14 **Thessaly Road Links**: Implementation of improvements to Thessaly Road along its entire length and in the context of surrounding regeneration. Includes delivery of Yinka Illori Bridge Art Installation in 2019, CPZ implementation in 2020 and implementation of highways improvements scheme along the length of Thessaly Road to improve walking and cycling facilities.

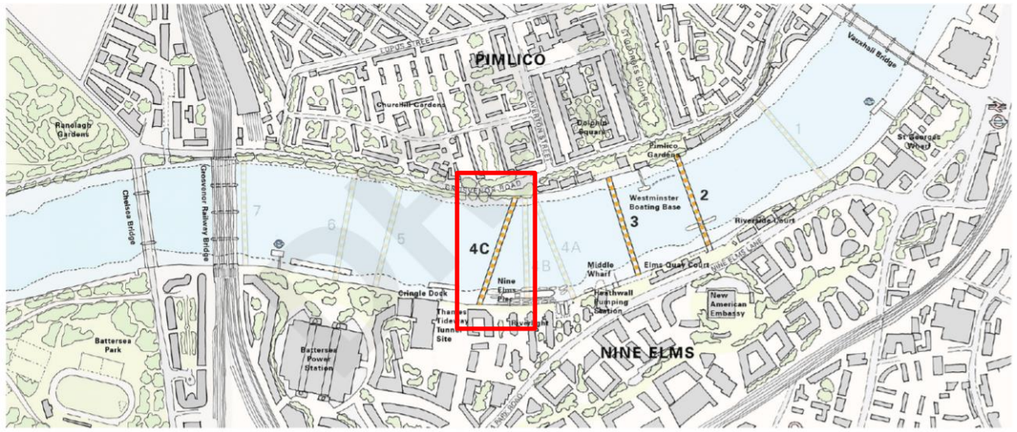
5.3.15 **Nine Elms – Pimlico Pedestrian and cycle bridge:** LBW is currently the promoter of a new pedestrian and cycle bridge over the river. As set out previously, the bridge has gone through several stages of both design and business case and is currently included in the Regulation 18 draft Local Plan. This confirms

[38] http://content.tfl.gov.uk/future-bus-demand-in-the-vauxhall-nine-elms-battersea-opportunity-area.pdf

[39] Note this refers to the 452 extension which happened, but not the 436 extension which was also extended to Prince of Wales Drive from Vauxhall.

the preferred southern landing site as the Kirtling/Cringle Street riverside site which will only become available for development when the Tideway project is complete i.e. post-2024.

Figure 5.2 Preferred location (edged red) for Nine Elms Pimlico bridge



Source: LBW

5.3.16 Unlike many of the other projects identified within this study, the new bridge would serve both NEB residents and workers as well as providing a link for residents and workers in Pimlico and further afield to the new town centre at Battersea Power Station, as well as providing an alternative route for pedestrian and cycle trips over the river currently going over Chelsea or Vauxhall bridges i.e. benefits will accrue outwith the NEB area.

5.3.17 The current cost estimate for the construction of the bridge is £40m in 2013 prices, of which £26m is expected to be drawn from CIL/DIFS tariff contributions. Whilst the project has concluded RIBA Stage 2, and gone through an extensive period of consultation to select a preferred location, the project remains in relatively early stages of design; therefore, this should be viewed as an order of magnitude rather than a precise costing. LBW has commissioned further work on the cost, scope and programme for future phases of work which is expected to report later in the year.

5.3.18 Further, the £26m which has been identified as coming from CIL/DIFS tariff contributions is taken from the original DIFS study and represents the amount allocated to the project in the original DIFS, rather than the 80% of the total costs allocated to the tariff. In this study we have updated the total cost to 2019 prices and retained the allocation of 80% of the cost to the Tariff as there is no reason to revise the rationale for the original methodology.

5.3.19 **New piers for boat service:** On the river itself, two new riverboat piers are now operating within the OA, including one within the NEB area at Battersea Power station. This is served by the RB2 to Tower Hill and RB6 (peak hours, weekdays only) between Putney and Blackfriars. No further stops are expected to be introduced in the future.

5.3.20 **Cycle hire:** There have been other shifts since the original DIFS was undertaken; for example, the study made provision for cycle hire stands. However, while TfL continues to operate a cycle hire network with fixed stands, increasingly it is competing with private non-fixed bicycle provision such as Lime/Jump. Consequently, the rationale for the infrastructure is no longer solely the responsibility of the public sector and instead commercial operators are expected to meet the need.

5.3.21 **Minor improvements to Queenstown Road station:** A scheme to provide direct access from Battersea Exchange to the station has been identified and delivery is secured through the s106 agreement with Taylor Wimpey for the Battersea Exchange scheme.

5.4 Analysis of future need

5.3.22 Since the original DIFS was written the Cycling Strategy and NESB Designing for Cycling 2013 were produced, which identified a number of key projects in line with the principles of the original projects identified in the DIFS.

5.3.23 **Viaduct cycling link:** The NESB Designing for Cycling 2013 identified a continuous cycling link along the viaduct as a key active transport link. This would require a pedestrian and cycle link across the NCGM entrance, linking Ponton Road with Ascalon Street. The study attributes responsibility for this to TfL and the Covent Garden Market Authority as landowner of NCGM. An estimate has been made in the project schedule of the likely costs for the delivery of this route. However, there are other land interests that abut the route, and there is no obligation in the outline permission NCGM which requires the delivery of such a link; therefore, while desirable in order to deliver a cycle link running alongside the railway arches running along the spine of the NEB site, there is currently no delivery mechanism for the project.

5.3.24 In 2019, Wandsworth Council commissioned a study to define the strategic direction for the **Battersea Design and Technology Quarter**, to validate the concept of a creative design and technology cluster to the south west of the Opportunity Area to draw on the strong existing design community in this part of Battersea and leverage the opportunities that will arise from the expansion of the Royal College of Art's Battersea campus and the 'Apple effect'. This study defined the scale of the opportunity together with recommendations on how the council can facilitate and shape the Quarter, which included two major infrastructure proposals – creating a pedestrian connection between Havelock Terrace and Ingate Place, and improvements to Silverthorne & Queenstown Road Junction. The next step for each of these schemes will be for the Council to bring forward feasibility studies that will assess the feasibility and costs for both schemes to inform future programming and funding decisions and allocate these appropriately to future development schemes.

a. **Pedestrian connection between Havelock Terrace and Ingate Place:** Providing a new walking and cycling connection that links the Havelock Terrace industrial area with the Ingate Place industrial area will help to create a more connected walking and cycling network. This is particularly important in an area that suffers from significant severance primarily as a result of the multiple railway lines that cross it.

b. **Silverthorne & Queenstown Road junction:** Due to the current land uses, a high number of HGVs accessing the site throughout the day. The study established it is not appropriate to relocate these uses, however, significant issues remain, not least of which are the conditions along the largely residential Silverthorne Road, which suffers from a lack of positive, active frontage along its eastern edge in addition to the aforementioned HGV movements. The Study identified that one possible solution would be to relocate the access to the Abellio site, such as by creating a new arm to the existing junction of Queenstown Road with Silverthorne Road, would potentially enable HGV's to be re-routed to avoid Silverthorne Road and potentially enable a new, positive frontage to be introduced.

5.3.25 **Ponton Road improvements:** when Ponton Road was diverted to its current location in 2012, it was specifically designed at its northern end to facilitate construction and no changes were made along its east-west axis which follows the viaduct. LBW have identified that as this will be a critical north-south connection that crosses the future Linear Park, and a key east-west pedestrian route, it is necessary for a more holistic public realm to scheme be brought forward that re-prioritises active travel modes in the future state. Improvements to the southern end have already been brought forward through s278 agreements to create streetscapes more in line with pedestrian than construction uses, and funding secured for improvements to the east-west axis. As the road abuts a number of development sites at its northern end that are yet to commence construction there is an opportunity for this approach to be applied to future developments and for the improvements scheme to be brought forward by developers in the first instance.

5.3.26 **Stewarts Road improvements:** This project is for streetscape and highway improvements (Duchess Bridge stairs to Borough Boundary) and excludes the opening of the subway under the Duchess Bridge which is planned to be delivered under a BPS s106 obligation and is not included in cost estimate. This project has not yet started.

5.3.27 **Extension to the Lowline:** an extension of the very successful Lowline in Southwark to the Opportunity Area has been identified by LB Lambeth as a potential project to bring forward in partnership. This is at the earliest stages of discussion and costs and requirements will need to be developed and costs apportioned.

5.3.28 **Arch 42:** Providing Gateways improvements to the new continuous north-south pedestrian and cycle link along Ponton Road and Pascal Street that will be created by opening Arch 42 is currently at the feasibility stage.

5.3.29 **Freight consolidation scheme:** While not a piece of infrastructure, a scheme of this nature has been identified as a possible measure to reduce congestion and improve air quality in the long term. Any scheme of this nature would require coordination of delivery and service plans to identify opportunities for efficiencies and consolidation of deliveries by sector within NEB to reduce congestion and improve air quality. This is at the earliest stages of discussion and costs and requirements will need to be developed and costs apportioned.

5.4 Conclusions

Key findings

5.4.1 The way in which a number of these projects comes forward is uncertain due to their interfaces with multiple other projects, so it is not possible to programme all of them with certainty. In particular, TfL's current expectation is that future bus provision changes are likely to be incremental in response to other projects and changes and it is proposed to modify the cost implications accordingly. The completion of the Thames Path is also dependent on all of the riverside development sites come forward, including the site currently occupied by Tideway, and resolution of the future plans for the Cringle Dock Waste Transfer Station.

Risks and uncertainties

5.4.2 As identified above, the redevelopment of the Vauxhall gyratory will have implications for the NEB area as it is likely to be accompanied by reviews of bus routes travelling through the area. There is an overarching risk to public transport strategy imposed by the current pandemic, with TfL facing unprecedented challenges to its finances following the large reduction in use of public transport. While we would acknowledge that this is likely to be a temporary issue, it does present some longer-term challenges when reviewing the impact of new development on public transport use and therefore the need for any enhancement of bus services.

5.4.3 Extensive changes are planned at Vauxhall Gyratory following the grant of planning permission for the redevelopment of the Vauxhall Island site earlier this year. While this is outside the NEB area, it is a key transport interchange that will have impacts on NEB and specifically on decisions about bus routes, and which will then have wider ramifications for investment on cycle and pedestrian infrastructure.

5.4.4 For the NEB area, the opening of the NLE and associated new tube stations next year complicates this further. While it is likely that bolstering of bus service provision will be needed as the remaining NEB development comes forward, the scale of usage of the new Underground links will play into planning for this. Again, the current pandemic is unhelpful in reliably planning for this, with Underground usage having been subject to a greater drop-off than surface level services.

5.4.5 The question of the additional river crossing has yet to be resolved. The emerging Westminster Local Plan, while it does not preclude a new crossing landing in borough, does not support it either. Some work was done with TfL several years ago to examine the business case for the bridge; however, there is a risk that wider funding issues within TfL and the need to invest in a number of existing river crossings may push the question of another crossing at Battersea further back in the queue of potential projects.

6 Utilities infrastructure

6.1 Introduction

6.1.1 The utilities requirements of VNEB were discussed in Chapter 16 of the original DIFS.

6.1.2 Utilities are normally among the first elements of infrastructure to be delivered in new schemes as they are necessary to enable development. This is the case for NEB and the majority of utilities have been delivered. We comment in this chapter on the main categories of utilities and where there are noteworthy changes to the requirements assumed in the original DIFS.

6.1.3 The utilities projects contained in the project schedule are generally expected to meet the needs of development at NEB under the categories discussed in the original DIFS. Outside the project schedule, we provide some commentary on how utilities usage may change in the future due to legislation, government programmes and new technologies. We conclude with an assessment of the risks and uncertainties in relation to the proposed delivery.

6.1.4 One of the challenges in delivering the utility requirements for a large-scale development, is providing the necessary infrastructure at the right time. Delivery needs to be sufficiently in advance of the development to not impose delays on it, but not so far in advance that the investment cannot be justified or is directed to other users before it can be utilised as intended.

Utility Infrastructure Collaboration Report (2013)

6.1.5 We also note that since the original DIFS, a Utility Infrastructure Collaboration Report was published in 2013 by consultants Hoare Lea. This went on to inform parts of the utilities delivery approach in VNEB.

6.1.6 The purpose of the study was to investigate the opportunities, benefits and disadvantages of a collaborative approach to utility procurement in the Nine Elms area. The report found that there were a varying number of benefits for each service and on this basis made a number of recommendations to support collaboration and implementation, including establishing a special purpose vehicle.

6.2 Original projects

District Heating

6.2.1 Planning for district heating at the time of the original DIFS was at early stages, however it identified two key projects and outlined some general approaches to safeguarding of routes and delivery.

6.2.2 The key project was a district energy scheme across the OA, identified originally in the OAPF prior to the original DIFS. It identified a cost of £15m-£20m. This was assessed in the DIFS to be accurate and the upper limit – £20m – was included in costing of the original tariff.

6.2.3 The DIFS also assumed a Combined Cooling Heating and Power facility at Battersea Power Station at a cost of £16m. All costs associated with the facility are non-tariff costs.

NCGM Anaerobic Digester

6.2.4 The original DIFS contained an anaerobic digester at the New Covent Market Garden Site at a cost of £4m. It was noted the main benefit to NCGM would be to reduce waste costs rather than generate heat and electricity.

Modernisation of Cringle Dock

6.2.5 Western Riverside Waste Authority (WRWA) owns the Cringle Dock waste transfer station that is located within the OA. Options to either modernize or relocate the Cringle Dock waste transfer station were considered in the original DIFS, with costs of £5m or nil respectively.

Gas Utilities

6.2.6 In the original DIFS gas requirements for the development based on traditional loading requirements were calculated to be 440 MWh peak demand and 530 GWh annual demand as a robust indication of need. No allowance had been made here for renewable energy sources or potential reductions in energy demand due to improved building efficiencies.

6.2.7 During consultation for the original DIFS, National Grid confirmed that is has an existing gas main within the OA that is capable of meeting the requirements of the development and that there should not therefore be any off-site reinforcement costs associated with the provision of a new gas supply.

Water (potable, waste water, river flooding and surface drainage)

6.2.8 Supply of potable water and treatment of waste water is the responsibility of Thames Water (TW).

6.2.9 The original DIFS calculated water requirements for the development based on traditional loading requirements to be 9750m^3 per day with a peak demand of 480 litres per second, although it was noted TW was yet to confirm this through renewed modelling. No costs were provided for the utilities to carry this. The report noted that, as with the other utilities, within each development parcel, the on-site potable water network can be laid by TW, thus incurring a charge “up front” or it can be constructed owned and operated by a MUSCO via an inset agreement.

6.2.10 Offsite infrastructure reinforcements for potable water were not anticipated by TW as access was not seen to be constrained.

6.2.11 The foul drainage requirements reported in the original DIFS, based on traditional loading requirements, was calculated to be to be 9,750m^3 daily demand and 729 litres per second peak demand. The report identified, in collaboration with TW and developers, that there would likely be constrained waste water infrastructure capacity due to development and so it was likely that the pumping station and the pumping main in the OA would need to be upgraded so that they can accommodate the additional flows. No costs were identified for this, but it was assumed that TW would fund this and costs would therefore not be part of the tariff.

6.2.12 The original DIFS enters into discussion on river flooding and surface drainage but does not identify specific infrastructure requirements or costs, but suggests that surface water drainage and any associated Sustainable Urban Drainage Systems (SuDS) features would most likely be dealt with on a site by site basis. It noted the OA was at risk of river overtopping but that defences existed in the form of the Thames tidal barrier, which, it noted may require improvements in coming years.

Primary Substation

6.2.13 The original DIFS remarked that a substation may be required due to limited capacity, but that a formal study undertaken by the energy provider (EDF) would be required to confirm this. They did however indicate that for a development of this scale, a new primary sub-station would be required, and that this could be fed from their 33kV network and providing an 11kV network for the development.

6.2.14 An indicative cost of £15m-£20m was provided in the OAPF and EDF supported this range as reasonable. For the purposes of the study, it was assumed the new primary sub-station is required at a cost of £20m. This would include cost of land, sufficient to accommodate a 50m x 50m substation facility.

6.3 What has been delivered or programmed

District heating network

6.3.1 The need for district heating at NEB is now well established and planning and delivery of this utility is advanced. Two district heating networks are planned for NEB, with the potential and aspiration for these to connect to each other to create a single district heating network with multiple energy centres. The two separate networks comprise the following:

- As part of the US Embassy development Engie/Equans has delivered an energy centre with a generating capacity of 3MW, along with a 1.5km district heating network, the first phase of which will serve buildings in Embassy Gardens and The Residence. According to Enige/Equans this will be at a cost of £30m.[40] It is envisaged that eventually over 3,500 homes and 75,000m2 of commercial space in the Nine Elms vicinity will be able to benefit from the new network. This network is anticipated to be delivered by the end of 2021.

- A 73,000 sq ft district heating and cooling centre is planned for delivery by VitalEnergi in the basement of BPS. The operation of the centre and network will be adopted by Engie/Equans. At full build, the energy centre will have a total heating capacity of 42.75MW, cooling capacity of 30MW and electrical capacity of 7.3MW. The total pipe length of the district heating network is 6.4km, and serves the entire BPS site including key residential developments like Circus West Village, and outside the BPS site at Phase 4A. Other surrounding developments in the future will have the option to join the network.

6.3.2 We note that, within the NEB area, it will be important to ensure that through planning obligations, developers are obliged to connect into either of the two new DHNs in the future. It will also be important to safeguard routes and major crossings as far as possible so that the DHN can be extended in the future without undue cost. In major utility corridors linking the key sites across the area, provision for two insulated pipes to be laid horizontally with overall trench dimensions 1,500mm wide 1,500mm deep being typical.

6.3.3 District heat networks are an effective means of reducing energy consumption and potentially lowering carbon emissions. They are not widely adopted but they are becoming more common in London and the UK, with support from BEIS. Further decarbonisation of the district heating networks to improve carbon emissions performance is likely to be priority for the DHNs in the network in the future. There may therefore be opportunities for conversion to new technologies and retrofitting infrastructure as part of this process.

Utility Corridors

6.3.4 In 2014 Arup proposed a utility ducting corridor through the Linear Park, outside of the road network to ensure that future development can connect to and maintain utilities infrastructure with minimal impact on the road network. To this end, a 6m strip of hard landscaping was outlined in each s106 to be safeguarded for the housing of utilities infrastructure. This has enabled LBW to bring forward proposals and incremental delivery of a unified pre-emptive ducting corridor that runs across the multiple development sites and this has been brought forward with individual developers in line with the utilities strategy.

Gas Utilities

6.3.5 There is a current impression across the construction industry that the White Paper that is due to be published by the Government later this year (2020) will include a requirement to use alternative heating systems in new homes, banning gas fired central heating from new build residential by 2025.

6.3.6 The overall need for new gas infrastructure should start to reduce for residential and non-domestic units, as developers look at alternative heating and cooking facilities in the lead up to these anticipated government directives.

6.3.7 It is anticipated that from 2025 there will be very little need for gas infrastructure, other than to serve existing customers who have not yet converted to all electric systems and new non-domestic units.

6.3.8 However, we also understand that gas network suppliers are investigating the potential for ‘green gas’ to continue to form a part of the energy mix. This is at least in part a consequence of their argument that there is little merit in abandoning the asset represented by the gas distribution network.

6.3.9 New non-domestic gas infrastructure will be provided (if required) to the development from the existing low pressure (LP) network and medium pressure (MP) gas via a pressure reducing station. However, it is anticipated that if this is required in NEB, the cost will be borne by providers and the costs recouped through bills from future residents and businesses in the area.

Electric vehicle charging infrastructure

6.3.10 The electric vehicle (EV) market, while expanding quickly, is still in its infancy in the UK. As electric vehicles become more popular, it is commonplace for developers to install 3.6kW EV charging points to new residential units. In general, these can be installed without affecting the existing incoming supply, consumer unit or triggering infrastructure upgrades.

6.3.11 As part of their Industrial Strategy mission, the Government published a consultation document in July 2019 on EV Charging in Residential and Non-Residential Buildings. This consultation proposed that 7kW EV chargers would be installed to all new residential units and also to every 1 in 5 car parking bays for non-residential uses. In addition, existing non-residential buildings would be required to install electric vehicle charge points. It is currently envisaged that this will be reflected in the secondary legislation coming forward in 2021.

6.3.12 One key challenge on the electricity network, is going to be how to respond to the impact this will have on the future electric demand requirements and the available capacity of the new Stewarts Road Primary Substation to reflect these anticipated changes.

Telecommunications - 5G networks

6.3.13 The Government has an ambition for the UK to be a global leader in the next generation of mobile technology. 5G represents a step up in mobile connectivity with potential to boost productivity and grow the economy.

6.3.14 5G has the potential to impact many sectors across the economy, including transport, health and social care, retail and industrial. Next generation 5G fibre technology will be rolled out gradually throughout the UK, with most of the country expected to have a fully functional 5G network by 2022. 5G fibre promises to be up to 100 times faster than 4G and 2,000 times faster than 3G.

6.3.15 The number of networks on offer is currently limited to five major mobile networks, EE, O2, Three, Vodafone and Sky Mobile.

6.4 Project schedule and funding

6.4.1 The utilities projects contained in the project schedule are generally expected to meet the needs of development at NEB under the categories discussed in the original DIR.

[40] https://www.engie.co.uk/about-engie/news/nine-elms-london/

6.4.2 The only residual utilities infrastructure costs anticipated to be met by the Tariff is the potential extension to the pre-emptive ducting corridor from the boundary of Ballymore Embassy Gardens Phase 2 across Ponton Road and along Post Office Way to connect with the infrastructure installed by Royal Mail Group.

6.4.3 There is some potential for 5g infrastructure costs but these are expected to be met by the private sector.

6.4.4 While power demand will increase in the future, we expect that the investments already made in bolstering local supply should be sufficient to support the remaining growth. However, while it is possible to enhance capacity and then 'reserve' it so that it is only taken up by the development that it is intended to serve, the DNO, in this case UKPN, will charge a significant fee for this; there is therefore limited take up of this approach. This does however present the risk that capacity will be taken up by growth elsewhere in the network. In that instance, any future upgrade costs required in relation to the new Stewarts Road primary substation, electricity and network reinforcement works, and gas infrastructure would be met by the relevant developer in the normal way.

6.4.5 Costs for on-site heat network will continue to be phased in line with development programme. Some of the heat infrastructure costs (energy centre, pipework) may be delivered in advance of development built out and connection so timings should be reviewed once further details are known.

6.4.6 The Government is committed to investing in delivering more extensive full 5G fibre networks; this has manifested itself in a recent funding round (Create 5G) which has now closed. The Create 5G fund was however limited and aimed primarily at assisting R&D and innovation rather than in established locations. Instead, the vast majority of the capital investment for 5G will need to come from the private sector but it is not something that infrastructure providers are rolling out as matter of course at present. The Government is of course letting contracts for the rollout of 5G and therefore we expect this to change before the development is complete at the end this decade.

6.4.7 All onsite civils works will typically be undertaken by the developer using free issue ducts and joint box chamber lids provided by the provider (e.g. Openreach / Virgin Media) with the developer providing and constructing the joint box chambers in accordance with the provider's standards. The provider will pull cables through the newly installed ducts as and when required.

6.4.8 The provider will normally undertake to provide telephone and broadband services to all new developments free of charge with the end user ultimately paying for connection costs. For larger residential developers, it is sometimes possible to negotiate for the telecoms provider to pay the developer per dwelling connected and this should be reviewed further. We understand that a combination of the two has happened to date at NEB.

6.5 Conclusions

Key findings

6.5.1 This DIRR has considered the progress and remaining need in relation to District heating, utilities corridor and electricity provision. As development in the Opportunity Area is relatively advanced, the delivery of utilities is by necessity advanced. The delivery of two District Heat Networks is nearing completion, as is the utilities corridor that crosses multiple land parcels and the sub-station at Stewarts Road.

6.5.2 Since the original DIFS study there has been significant change in policy, particularly in relation to de-carbonising the heat and power networks. The impact that the anticipated requirement of banning gas fired central heating from new build residential homes will have on the existing electrical infrastructure, is currently not fully understood. It is reasonable to anticipate that local upgrades will be required to the existing network to meet the increase in demand. This is something that should be monitored going forward. With the completion of the Stewarts Road works to address the need arising from development it is reasonable to expect that after the completion of works this will transition to 'business as usual' within the network planning of UKPN.

6.5.3 New technology such as 5G will create additional infrastructure requirements. At present, these requirements are typically met by the private sector and not through coordinated infrastructure delivery. While to an extent, the market will dictate and deliver on these needs, there may be opportunities to take a more joined-up approach within the NEB.

6.5.4 Taking this forward would require the identification of a digital champion to act as the single point of contact and responsibility for mobile connectivity and data architecture in the NEB area, responsible for liaising with the network of developers and landowners in the NEB area to work through the complex privacy issues associated with building a digital twin but which could result in significant benefits for those parties, as well as LBW as the local authority. This should be considered in the context of wider Borough resources and strategies in relation to digital infrastructure.

6.5.5 Future electricity capacity will need to include suitable provision for 7kW EV chargers to be installed to all new residential units and to every 1 in 5 car parking bays for non-residential uses. The capacity will reflect the requirement to use alternative heating systems in new homes, following the anticipated ban of gas fired heating by 2025.

Risks and uncertainties

Gas to Electric

6.5.6 The impact that the anticipated requirement of banning gas fired central heating from new build residential homes will have on the existing electrical infrastructure, is currently not fully understood. It is anticipated that local upgrades will be required to the existing network to meet the increase in demand. This is something that should be monitored going forward but could reasonably be expected to be brought forward as part of 'business as usual' development.

Substation

6.5.7 Hypothetically, there is a risk that Stewarts Road primary substation may need to be upgraded further as the area is developed, to accommodate the additional load requirements associated with non-gas fired central heating and the future EV charging strategy.

6.5.8 There is currently no evidence to suggest this will be the case. UKPN has indicated previously that there is an overprovision of electricity capacity as a result of the improvements carried out, however this will need to be monitored over time.

Decarbonising heat network

6.5.9 Decarbonisation of the heat network is likely to be a priority for future upgrades to the network in order to meet Net Zero targets in line with industry standards by 2030. Engie will require an appropriate heat source in due course, which could be air source or ground source, unless other technologies emerge in the interim period.

6.5.10 Additionally, the Government has recently consulted on changes to Part L (Conservation of fuel and power) as an extension of the Future Buildings Standard consultation in 2019. Should current proposals for Part L be approved and taken forward, in theory, developers seeking to connect to an energy centre powered by gas combined heat and power plants (CHPs), they would be in breach of building regulations. There may be implications for the delivery of utilities at NEB, depending on timings of these regulations coming into force and the delivery of new development.

5G

6.5.11 We understand early discussions regarding fibre optic infrastructure are underway to identify opportunities to provide 5G network and improve mobile phone coverage across the OA; however, 5G itself remains in relatively early stages of rollout.

7 Infrastructure costs and funding

7.1 Introduction

7.1.1 This section sets out the costs and funding assumptions the three main infrastructure categories: utilities, transport and social infrastructure. Within each of these categories, some infrastructure themes are identified and for each theme we set out what infrastructure is needed, how the infrastructure can be paid for and any notes, issues and recommendations.

7.2 Total infrastructure cost

7.2.1 In identifying the remaining infrastructure requirements, we specifically attributed cost as it relates to development within the site (NEB area). While we do not look specifically at any needs arising from the LBL part of the OA, some infrastructure either extends across both parts, or is serving a much wider catchment altogether. However the principle of funding infrastructure need that arises from development remains consistent and the scale of growth in the NEB area justifies funding from developer contributions.

7.2.2 Some projects have already commenced and have already incurred expenditure. We have therefore subtracted the amount already spent on these from the total estimated costs to identify the remaining funding required.

7.2.3 There are also a number of projects which have been identified as required, but which it is not yet possible to estimate costs for (such as those in the Battersea Design and Technology Quarter), but which are expected to have multi-million pound costs associated with them.

7.2.4 In addition to CIL and BPS tariff, S106 has been a key mechanism for securing mitigation measures. We have looked carefully as these S106 agreements, particularly as part of the research into social infrastructure needs and provision. Where infrastructure has been directly delivered by a developer or group of developers, or another third party such as an infrastructure provider, while we go through the same exercise of attribution, we do not include neither a cost nor a funding input because funding is already provided as a work in kind and it is placing no burden on CIL revenues.

7.2.5 Finally, and as we set out at the beginning of this report, we do not factor in the cost of the NLE. It does not appear in our schedule and to ensure we have not double counted funding, any funding allocated to the NLE does not feature either.

Table 7.1 Remaining Infrastructure costs summary (£M)

	Estimated total cost	Net tariff required
Social infrastructure	£96.6	£90.2
Transport	£153.5	£107.3
Utilities	£1.39	£0.34
Total	£250.1	£197.5

Source: Appendix E

7.2.6 The full schedule of projects and costs is provided at Appendix E. This schedule also includes analysis on funding which we discuss below.

7.2.7 While these costs initially appear lower than those stated in the previous DIFS, they should not be directly compared. This is partly because the previous DIFS included all costs for infrastructure, across the whole Opportunity Area, including those being delivered directly by developers or infrastructure providers, whereas those above are primarily those costs arising which will be paid for out of a tariff or CIL.

7.3 Funding of infrastructure

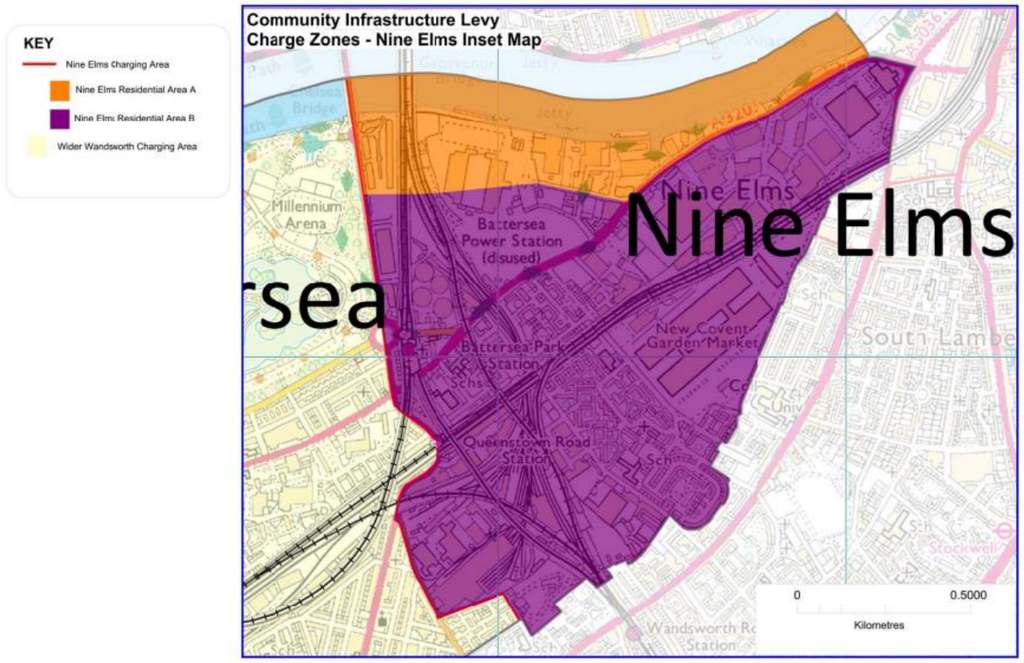
7.3.1 Infrastructure in NEB that is not delivered directly by a developer or infrastructure provider, is funded in one of three ways. All developments are subject to the current CIL tariff structure which has been in place since November 2012 and remains the key mechanism for capturing contributions within NEB.

7.3.2 In addition, most developments, except BPS, are required to make a “DIFS contribution” prioritised towards the funding of the NLE.

7.3.3 Finally, the first key permission for BPS was granted before LBW had the current CIL regime in place and therefore the contributions secured against BPS are a combination of “S106 Infrastructure Contributions” primarily ring-fenced to the NLE, and CIL.

7.3.4 The figure below shows the two CIL charging zones that apply to NEB: the same rate of £100/sqm applies to all B1a and A use classes across the whole site; however, residential development is subject to a higher £575/sqm in the orange shaded area (Residential Area A) compared to £265/sqm in the purple shaded area (Residential Area B)[41].

Figure 7.1 LBW CIL charging zones in Nine Elms



7.3.5 The picture is further complicated by the scale and duration of many of the NEB developments which mean that while an outline permission may have contributions agreed through CIL and/or S106, whether through the reserved matters applications, S73 applications or completely new permissions, these have in some cases been superseded. To avoid any double counting, we are using data provided to us by LBW

[41] 2012 prices, and then indexed to current prices upon grant of planning permission.

from late March 2020 which removes any older permissions (and associated funding) that have been superseded by a new planning chapter.

7.3.6 The table below provides a summary of monies received and due through the various contribution streams, assuming that all the current planning permissions are completed. A further deduction has been made to exclude those monies which have either already or will be set aside for the NLE (£258.7m). Again, this information has been provided by LBW.

Table 7.2 CIL and S106 contribution summary (£M) as of March 2020

	CIL	S106	Total
Received to date[42]	£61.474	£193.157[43]	£254.63
Forecast contributions	£209.55	£120.64	£330.19
Total	£271.02	£313.80	£584.82
Total excluding NLE			£326.12

Source: LBW

7.3.7 Of these contributions, a portion has already been allocated i.e. either spent on projects since 2012 or allocated to budgets in the forthcoming financial years as part of the WBC Budget allocation from 1st April 2020 to the end of March 2023. The table below sets out committed spending by infrastructure type, with separate categories identified for revenue spending, as well as several capital projects which fall outwith the types of infrastructure being assessed in this study.

Table 7.3 CIL and S106 spending summary (£M) to end of March 2020

Infrastructure type	Spent	Committed	Total
Social infrastructure	£0.60	£29.20	£29.80
Transport	£10.41	£58.62	£69.02
Utilities	£1.05	£0.34	£1.39
Revenue expenditure	£5.55	£2.45	£8.00
Total	£17.61	£90.60	£108.21

Source: LBW

7.3.8 This indicates that between 2021 to the completion of development, there is in the order £217.91m available to pay for infrastructure; this exceeds the known outstanding costs of infrastructure identified at £189.9m (Appendix E). Having said this, we anticipate that there may be other draws on expenditure which we have not accounted for in our analysis. For example, the new projects in the BDTQ or the revenue expenditure identified in Table 7.3 includes the costs of the delivery team and the joint employment unit. While we cannot comment on the latter, we anticipate that the delivery team will continue to require resource over the course of the development.

7.3.9 Similarly, we note that the Nine Elms Battersea Cultural Strategy 2017-2020 sets out the vision of establishing the cultural identity of the NEB area. To date, this has included the Cultivate Arts Strategy and leasing costs on the Nine Elms Art Centre, as well as a programme of meanwhile activity. These are not 'infrastructure' in the traditional sense as considered by this study, it is reasonable to assume these objectives, alongside those set out in the Battersea Design Quarter work undertaken for LBW, that arts and cultural projects will continue to draw on available contributions as the development proceeds to completion.

7.3.10 Even taking account of these additional draws on spending, it is likely that there will be surplus contributions which could be made available to augment already agreed funding for some infrastructure projects. The most obvious candidate for this is the new Nine Elms-Pimlico river crossing where we have retained the methodology of the original DIFS and attributed 80% of the anticipated construction costs in 2019 prices to the Tariff, increasing the potential funding from DIFS/CIL to £52.8m. With the residual £15.5m unaccounted for, additional funding will still need to be sought.

7.3.11 Other notable gaps in funding include the balance of the costs for improvements and upgrades to Battersea Park station which is expected to see an uptick in usage not just from the increased residential population in the NEB area but also as a result of interchange with the NLE and also potential additional services associated with forthcoming changes to Overground services.

7.4 Risks and uncertainties

Project related risks

7.4.1 We have in the course of this study flagged uncertainty around both the scope and cost of bus service improvements. As a result of our discussions with LBW, we have reduced the total bus improvement budget substantially from that set out in the original study. However, we note that while previously it might have been expected that TfL might have underwritten some of the costs of investing in bus service changes, the economic uncertainty created by the pandemic on TfL's budget means that it could be prudent to allocate additional funds so that reviews and changes to bus service provision in the NEB are not subject to delay.

7.4.2 We have also identified a number of areas where it has not been possible to accurately forecast infrastructure costs. This includes emergency service provision and the impact of future technology on potential changes to utilities provision and the proposals that relate to the Battersea Design and Technology Quarter.

Wider environment

7.4.3 The forecast of future available funds is based on the current trajectory of development and the assumption that development continues as currently planned. It must be emphasised that even on this trajectory, there are still another 10 years over which development will be built out which can be expected to experience a number of economic cycles. The impact of Covid19 on the wider economy and the development trajectory is also unknown at this time.

7.4.4 Given the scale of change that has happened in the NEB area in the first 10 years of its development i.e. since the original DIFS was completed, it is likely that further shifts in technology and demand will mean that the infrastructure needs, and the associated costs, continue to evolve and will require regular ongoing monitoring at a borough level, balancing the available and committed funds with the emerging needs. .

[42] To end of 31st March 2020; from IFS.

[43] Indexed

8 Conclusions and recommendations

8.1 Introduction

8.1.1 This study was commissioned by LBW in order to understand whether the infrastructure requirements set out in the original DIFS for the NEB part of the wider OA were still relevant, and update them as necessary.

8.2 Summary

8.2.1 A significant quantum of infrastructure has already been delivered both within NEB and in the wider OA, although some of this infrastructure has not been immediately visible with substantial investment being made in the utilities networks serving the area. This study has identified that the next few years of development in NEB will entail significant placemaking infrastructure as the development within the area begins to meet the critical mass required to support (and require) this infrastructure. Because a lot of utilities investment has already taken place, it is social infrastructure in the form of new schools, health provision and other community facilities that accounts for much of the rest of infrastructure needs.

8.2.2 Transport projects make up the majority of infrastructure needs. These projects are focused primarily on enhancing walking and cycling access within and to the NEB area, as well as enhancement to public transport services. While there is a recognition that there is major highway infrastructure which runs through the NEB area, the focus of investment is on changing the balance in favour of other road users.

8.2.3 In relation to social infrastructure, the trigger points for this are intrinsically linked to residential delivery within the NEB. We have identified points at which we expect those facilities to be needed; however, if the development trajectory shifts or the make-up of development changes, this may change the scale and nature of social infrastructure. Notably, it is expected that the primary school will come forward in two phases. This flexibility is helpful in the context of falling pupil rolls across central London which may mean that the child yield within NEB is lower than forecast and therefore overall requirements for education may be lower than currently forecast.

8.2.4 In overall terms, the current analysis suggests that there will be sufficient funding available from development within the NEB to fund infrastructure. In coming to this view, we have identified areas of uncertainty but also opportunities which will require monitoring to ensure that expenditure does not exceed funding sources. This relates to draws on revenue funding for the delivery team but also for the cultural and placemaking strategy initiatives which includes a range of revenue spending.

8.3 Implications

8.3.1 This suggests that, at present, there is no requirement to review the current charging regime within the NEB area. This assumes that both development will come forward as approved, and therefore the infrastructure needs identified realised, but also that developer contributions are received in line with forecasts to pay for that infrastructure and will require ongoing ring-fencing to the Nine Elms area.

8.3.2 While we have based this study on the current view of future development, it must be underlined that even on this trajectory, there are still another 10 years over which development will be built out. Given the scale of change that has happened in the NEB area in the first 10 years of its development i.e. since the original DIFS was completed, it is likely that further shifts in technology and demand will mean that the infrastructure needs continue to evolve.

8.3.3 The potential headroom in funding also creates some opportunities within the NEB area. We have identified in our utilities analysis that new technology such as 5G will create additional infrastructure requirements. At present, these requirements are typically met by the private sector and not through co-ordinated infrastructure delivery.

8.3.4 As we have flagged in our analysis, smart city technology has the potential to deliver economic and environmental benefits by ensuring a more responsive and resilient development. As such, identifying a digital champion to act as the single point of contact and responsibility for mobile connectivity and data architecture in the NEB area presents a key opportunity. This person would be responsible for liaising with the network of developers and landowners in the NEB area to work through the complex privacy issues associated with building a digital twin but which could result in significant benefits for those parties, as well as LBW as the local authority.

8.3.5 As identified above, there are several factors which are combining to create an uncertain environment for investing in public transport in the NEB area. The opening of the NLE in autumn 2021 will result in a step-change in the accessibility of the area and the impact of that should be closely monitored. However, there are a number of other projects which either cannot be fully scoped at present or which do not have full funding available to support their delivery; if these come forward they will also result in shifts in patterns of access across the NEB area.

8.4 Monitoring

8.4.1 With another ten years of development anticipated on the current trajectory it is reasonable to expect that further shifts in technology and demand, as well as changes to the policy environment and the models of service delivery will continue, particularly in relation to social infrastructure. Continuing monitoring of the arising infrastructure need, delivery plans and funding will remain an important priority for all stakeholders.

8.4.2 The shift in focus over the next decade to more social infrastructure will require greater engagement with social infrastructure providers to ensure that the changes in demography that will closely impact demand are carefully monitored. The challenge will be to ensure that infrastructure that isn't yet required is appropriately safeguarded at the same time as ensuring that decisions are made in time to ensure delivery in line with emerging demand. The consequent revenue challenges that may arise from those decisions will need to be managed within the business cases for individual projects.

8.4.3 The Infrastructure Steering Group and the programme oversight of the Borough will continue to have an important role in monitoring and managing these risks, uncertainties and opportunities, although as big schemes, such as the NLE or Tideway, move towards completion the focus is likely to shift more to operational issues and the impact on new communities.

8.4.4 The opening of the Northern Line Extension will significantly alter the accessibility of the area and this may push development and demand, and consequently infrastructure needs in unforeseen directions. Understanding this and responding to any changes will be the objective of monitoring activity..

8.4.5 The conclusions of this study are based on a certain trajectory – if this changes significantly the funding available will come forward differently and the profile of the infrastructure required may change.

Appendix A Abbreviations

BPS	Battersea Power Station
CIL	Community Infrastructure Levy
DfT	Department for Transport
DIFS	Development Infrastructure Funding Study
DIRR	Development Infrastructure Requirements Review
FE	Form of Entry
GIA	Gross Internal Area
GLA	Greater London Authority
LBL	London Borough of Lambeth
LBW	London Borough of Wandsworth
MPS	Metropolitan Police Service
NCGM	New Covent Garden Market
NEB	Nine Elms Battersea
NES	Nine Elms Square
NLE	Northern Line Extension
OA	Opportunity Area
OSA	Open Space Assessment
PRS	Private Rented Sector
RMG	Royal Mail Group
S106	Section 106 agreement
TfL	Transport for London
VNEB	Vauxhall, Nine Elms & Battersea

Appendix B VNEB Development Map March 2019

Source: Adapted from Vauxhall & Nine Elms Development Map, www.nineelsmlondon.com

Complete

- 07 US Embassy
- 14 Embassy Gardens – Phase 1
- 18 New Covent Garden Market – Temporary Flower Market
- 19 New Covent Garden Market – Food Exchange and IDU
- 29 Sky Gardens
- 33 Vista
- 36a Battersea Power Station – Phase 1
- 43 Riverlight
- 47 St George Wharf
- 49 South Lambeth Place
- 56 Urbanest Vauxhall
- 57a Atlas
- 61a Spring Mews – Phase 1
- 61b Spring Mews – Phase 2
- 62 Merano Residences
- 66 10 Albert Embankment
- 67 81 Black Prince Road
- 75 Chelsea Bridge Wharf

Under construction

- 01 One Nine Elms
- 02 Nine Elms Square
- 06 Embassy Gardens – Phase 3
- 09 Embassy Gardens – Phase 2
- 10 The Residence
- 11 Lexington Gardens
- 20 New Covent Garden Market – Market Site
- 24 Battersea Exchange
- 25 New Covent Garden Market – Market Site
- 26 Nine Elms Station
- 27 Nine Elms Point
- 28 Vauxhall Square
- 31 Keybridge
- 34 Prince of Wales Drive
- 36b Battersea Power Station – Phase 2
- 36c Battersea Power Station – Phase 3a
- 38 Thames Tideway Tunnel site *
- 46 Thames Tideway Tunnel site *
- 54 Aykon
- 57b Rudolf Place
- 58 Thames Tideway Tunnel site *
- 63 The Dumont
- 64 The Corniche
- 73 Palace View
- 76 Tintagel House
- 77 Mount Carmel

Application approved

- 05 Embassy Gardens – Phase 3
- 15 Nine Elms Parkside
- 17 Nine Elms Parkside
- 23 Battersea Power Station – Phase 4a
- 30 Grand South (12-20 Wyvil Road)
- 35 Battersea Power Station – Phase 3b
- 36d Battersea Power Station – Phase 6
- 36e Battersea Power Station – Phase 4
- 37 Battersea Power Station – Cringle Dock
- 39 Battersea Power Station – Phase 5
- 41 Battersea Power Station – Phase 7
- 42 Battersea Power Station – Phase 5
- 55 Vauxhall Square
- 60 36-46 Albert Embankment
- 72 Westminster Tower
- 74 Palmerston Court

Pre-development

- 12 Metropolitan Police Warehouse
- 21 BMW Garage
- 22 Booker
- 50 Vauxhall Cross
- 70 London Fire Brigade HQ
- 78 Lambeth College – Vauxhall Centre

Open spaces

Strategic links

Appendix C Social infrastructure requirements

Social infrastructure requirements

Table A - population yield

	Total	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
Population (cumulative)	27,053	1,394	3,650	4,895	6,777	10,890	13,828	16,378	18,689	19,993	21,683	23,805	24,648	26,064	26,805	27,053	27,053

Source: NEV Population Yield Calculator (LBW)

Table B - child yield

	Total	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
Nursery (2-3 years)	193	14	37	50	69	111	141	167	190	204	221	242	251	265	273	276	276
Primary (4-10 years)	914	67	176	236	327	526	668	791	902	965	1047	1149	1190	1258	1294	1306	1306
Secondary (11-15 years)	376	47	73	97	135	216	275	325	371	397	431	473	490	518	533	538	538
Sixth form (16-17 years)	77	6	15	20	27	44	56	66	76	81	88	96	100	105	108	109	109

Source: based on Table A, using GLA Single Year of Age Estimates

Table C - education requirements

Child yield (state pupil places)	Total	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
Nursery (2-3 years)	193	10	26	35	48	78	99	117	133	143	155	170	176	186	191	193	193
Primary (4-10 years)	914	47	123	165	229	368	467	553	632	676	733	804	833	881	906	914	914
Secondary (11-15 years)	376	33	51	68	94	151	192	228	260	278	302	331	343	363	373	376	376
Sixth form (16-17 years)	77	4	10	14	19	31	39	46	53	57	61	67	70	74	76	77	77

Forms of entry	Children	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
Nursery (1 year group)	104	0.1	0.3	0.3	0.5	0.7	0.9	1.1	1.3	1.4	1.5	1.6	1.7	1.8	1.8	1.9	1.9
Primary single FE (30 x 7 yrs)	210	0.2	0.6	0.8	1.1	1.8	2.2	2.6	3.0	3.2	3.5	3.8	4.0	4.2	4.3	4.4	4.4
Secondary single FE (30 x 5 yrs)	150	0.2	0.3	0.5	0.6	1.0	1.3	1.5	1.7	1.9	2.0	2.2	2.3	2.4	2.5	2.5	2.5
Sixth form single FE (assume 6 classes @ 30 x 2 yrs)	360	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2

Primary schools - cumulative delivery & residual	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
Primary (forms of entry)								1.0	1.0	1.0	3.0	3.0	5.0	5.0	5.0	5.0
Residual primary needs (forms of entry)	0.2	0.6	0.8	1.1	1.8	2.2	2.6	2.0	2.2	2.5	0.8	1.0	-0.8	-0.7	-0.6	-0.6

Notes
Levels of private provision has been based roughly on those presented in Nine Elms and Vauxhall Opportunity Area Household Research (BMG Research, 2017), pages 29-30
For all levels, we have included a 30% discount for students attending private schools, and account for the 70% attending state schools
Sixth form continuance rate of 62.5%
Costs not included here - instead actual costs adopted from work already undertaken in NEB
Delivery of primary schools as follows: 2022/23 - St Georges (1FE), 2025/26 - Nine Elms Primary School (2FE), 2027/28 - NEPS expansion (2FE)

Table D - community facilities & library provision

	Total	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
Cumulative community space need (sqm)	5,411	279	730	979	1,355	2,178	2,766	3,276	3,738	3,999	4,337	4,761	4,930	5,213	5,361	5,411	5,411
Community centres (300 sqm)	18	0	2	3	4	7	9	10	12	13	14	15	16	17	17	18	18
Community centre delivery (sqm)												1,575	1,575	1,575	1,575	1,575	1,575
Residual community centre requirement (sqm)		279	730	979	1,355	2,178	2,766	3,276	3,738	3,999	4,337	3,186	3,355	3,638	3,786	3,836	3,836
Cumulative costs (£m)			£2.80	£4.21	£5.61	£9.81	£12.62	£14.02	£16.82	£18.22	£19.63	£21.03	£22.43	£23.83	£23.83	£25.23	£25.23
Cumulative library needs (sqm)	812	42	109	147	203	327	415	491	561	600	650	714	739	782	804	812	812
Libraries (750 sqm)	1	0.1	0.1	0.2	0.3	0.4	0.6	0.7	0.7	0.8	0.9	1.0	1.0	1.0	1.1	1.1	1.1
Cumulative costs (£m)	£3.75											£3.75	£3.75	£3.75	£3.75	£3.75	£3.75

Notes
LBW Planning Obligations SPD: Provision will be assessed on a pro rata basis e.g. **a development generating 1,500 residents could be required to provide 300 sq ms of community space i.e.** 0.2 sqm/new resident
Average community centre assumed to be 300 sqm. Sqm cost assumed of £4,673 based on experience elsewhere in London
Public Libraries and Museum Act 1964 requires local authorities in England and Wales to "provide comprehensive and efficient library service". Comprehensive and efficient are not defined. It is the responsibility of each library authority to determine how to deliver public library services in the context of local need. Library provision is changing rapidly and it is not possible to predict how these facilities will be used in 10 to 20 years time. the term 'library' may be effectively redundant by then.
While the provision of public libraries is statutorily required of local authorities, there is no national minimum standard for facilities to be provided in response to growth. However the figure of 30sqm of library floorspace per 1000 head of opoulation has been commomly adopted by local authorities across the country (ref Museum Libraries and Archives Council Report 'Public Libraries, Archives and New Development: a Standard Charge Approach' 2008).
Our work elsewhere has found that a typical library is around 750sqm, development would need to have a population of 25,000 people before it could support its own library facility. Typical costs suggest in the order of £3.75m per library

Social infrastructure requirements

Table E - arts and cultural space needs

	Total	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
Cumulative arts space requirement (sqm)	1,217	63	164	220	305	490	622	737	841	900	976	1,071	1,109	1,173	1,206	1,217	1,217
Costs by type (£m)																	
Type 1	£4.14	£0.21	£0.56	£0.75	£1.04	£1.67	£2.12	£2.51	£2.86	£3.06	£3.32	£3.64	£3.77	£3.99	£4.10	£4.14	£4.14
Type 2	£4.50	£0.23	£0.61	£0.81	£1.13	£1.81	£2.30	£2.73	£3.11	£3.33	£3.61	£3.96	£4.10	£4.34	£4.46	£4.50	£4.50
Type 3	£2.78	£0.14	£0.37	£0.50	£0.70	£1.12	£1.42	£1.68	£1.92	£2.05	£2.22	£2.44	£2.53	£2.67	£2.75	£2.78	£2.78
Blended cost (£m)	£3.81	£0.20	£0.51	£0.69	£0.95	£1.53	£1.95	£2.30	£2.63	£2.81	£3.05	£3.35	£3.47	£3.67	£3.77	£3.81	£3.81

Notes
Arts Council England (2009) recommends a benchmark for arts space, which can come in various forms, of 45m² per 1,000 population.
Living Places guidance on 'arts provision and sustainable communities' indicates a construction and fit-out cost estimate for cultural centres as follows:
Type 1: galleries, housing permanent and temporary exhibitions: £3,400 per m²
Type 2: multi-use arts venues and theatres; £3,700 per m²
Type 3: production, rehearsal and education space for arts; £2,280 per m².

Table F - open space needs

	Total	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
Cumulative need (sqm)	54,106	2,789	7,300	9,789	13,553	21,781	27,655	32,756	37,377	39,985	43,366	47,610	49,296	52,128	53,609	54,106	54,106
Cumulative need (ha)	5.4	0.3	0.7	1.0	1.4	2.2	2.8	3.3	3.7	4.0	4.3	4.8	4.9	5.2	5.4	5.4	5.4
Committed space (ha)	4.3																
Shortfall (ha)	1.1																

Notes
LBW Planning Obligations SPD (2015) sets out a requirement of 2sqm open space per resident
Open space delivery figures provided by LBW

Table G - play space needs

Child yield by age group	Total	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
0-4	1,455	75	196	263	364	586	744	881	1,005	1,075	1,166	1,280	1,325	1,401	1,441	1,455	1,455
5-11	1,167	60	157	211	292	470	596	706	806	862	935	1,027	1,063	1,124	1,156	1,167	1,167
12-16	584	30	79	106	146	235	298	353	403	431	468	514	532	562	578	584	584

Cumulative playspace requirement (ha), by type	Total	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
A - doorstep spaces and facilities (0-4)		0.07	0.20	0.26	0.36	0.59	0.74	0.88	1.00	1.08	1.17	1.28	1.33	1.40	1.44	1.45	1.45
B - neighbourhood spaces and facilities (5-11)		0.02	0.04	0.05	0.07	0.12	0.15	0.18	0.20	0.22	0.23	0.26	0.27	0.28	0.29	0.29	0.29
C - local spaces and facilities for play (12-16)		0.03	0.08	0.11	0.15	0.23	0.30	0.35	0.40	0.43	0.47	0.51	0.53	0.56	0.58	0.58	0.58

Notes
Age groups yields identified using GLA Single Year Age Estimates calculator
GLA playspace recommendation: 10 sqm per child
Type A - expected to be provided as part of any planning application of sufficient size (and would be included within a developer's secondary allowances)
Type C - LB Wandsworth considers that this could satisfactorily be addressed by community access being provided to the outdoor area of the school for play/recreation

Table H - sports facilities

	Total	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
Cumulative artificial grass pitches requirement	1.0	0.1	0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.7	0.8	0.9	0.9	1.0	1.0	1.0	1.0
Artificial grass pitches costs (£m)	£1.14															£1.14	
Cumulative sports hall requirements	2.0	0.1	0.3	0.4	0.5	0.8	1.0	1.2	1.4	1.5	1.6	1.8	1.8	1.9	2.0	2.0	2.0
Sports hall costs (£m)	£12.78						£6.39									£12.78	

Notes
Sports provision has been calculated with the help of the Sports England Sports Facility Calculator - indicates total needs of 0.91 artificial grass pitches and 2.03 sports halls. The trajectory has been applied to rounded total requirements to generate phasing
3G stands for a Third Generation synthetic surface which consists of three elements; synthetic turf, sand infill and rubber infill.
Sports England costs of £1.14m (pitches, assuming 3G) and £6.39m adopted

Social infrastructure requirements

Table I - emergency services

	Total	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21	2021/22	2022/23	2023/24	2024/25	2025/26	2026/27	2027/28	2028/29	2029/30	2030/31
Fire stations required	0.25	0.01	0.03	0.04	0.06	0.10	0.13	0.15	0.17	0.18	0.20	0.22	0.23	0.24	0.25	0.25	0.25
Fire stations (sqm)	621	32	84	112	156	250	318	376	429	459	498	547	566	599	616	621	621
Potential contributions (£m)	£3.13	£0.16	£0.42	£0.57	£0.78	£1.26	£1.60	£1.89	£2.16	£2.31	£2.51	£2.75	£2.85	£3.01	£3.10	£3.13	£3.13
Ambulance stations required	0.17	0.01	0.02	0.03	0.04	0.07	0.08	0.10	0.11	0.12	0.13	0.15	0.15	0.16	0.16	0.17	0.17
Ambulance stations (sqm)	414	21	56	75	104	167	212	251	286	306	332	365	377	399	411	414	414
Potential contributions (£m)	£2.01	£0.10	£0.27	£0.36	£0.50	£0.81	£1.03	£1.22	£1.39	£1.49	£1.61	£1.77	£1.83	£1.94	£1.99	£2.01	£2.01

Notes

People per fire station calculated based on three existing stations serving Wandsworth for total population of 326,500

Experience of typical costs indicate £12.59m for a 2,500 sqm fire station - cost/sqm applied to generate potential contribution level on the basis that overall need is not likely to generate a new facility

People per ambulance station calculated based on two existing stations serving Wandsworth for total population of 326,500

Experience of typical costs indicate £12.14m for a 2,500 sqm ambulance station - cost/sqm applied to generate potential contribution level

Appendix D Impact of PRS on infrastructure requirements

D.1 Scope

D.1.1 This note has been commissioned by the London Borough of Wandsworth (the Council) to assess the potential impact of Build to Rent (BTR) developments on achieving balanced communities in VNEB.

D.1.2 BTR is a distinct asset class within the Private Rented Sector (PRS) defined by the Mayor as 'Purpose-built private rented homes, held in the longer term for private renting'[44] but has the same planning Use Class as traditional build for sale homes.

D.1.3 Since 2010 the Council has received multiple planning applications for residential BTR schemes on sites in the VNEB OA with extant planning permission for residential Build for Sale (BFS) schemes. This note considers how the development of BTR schemes, in place of traditional BFS schemes, could impact on affordable housing provision and social infrastructure requirements in VNEB.

D.1.4 This appendix seeks to answer the following questions:

- How has the policy context for PRS and BTR evolved since 2010?
- How does the demographic and socio-economic profile of the PRS and BTR sub-sector compare to other housing tenures?
- What are the main drivers of demand and sources of supply in the BTR sector? What might this tell us about the demographic profile of BTR schemes?
- What are the potential implications of BTR schemes on achieving balanced communities in VNEB?

D.2 Planning policy context

D.2.1 The planning policy context for the BTR sector has evolved since the VNEB DIFS was published in 2010. Planning policy and guidance now seeks to encourage BTR developments in recognition of the contribution they can make to increasing the supply of high quality private rented homes and meeting overall housing needs.

D.2.2 The revised National Planning Policy Framework published February 2019 (NPPF 2019) glossary requires BTR developments to provide a proportion of homes for Affordable Rent[45].

D.2.3 New Government guidance contained in the Planning Practice Guidance (PPG) published September 2018 requires local authorities to assess the need for BTR homes as part of their plan making process and prepare policies which accommodate identified needs including identifying suitable locations for development[46].

D.2.4 The PPG states that subject to viability, BTR schemes should aim to deliver 20% affordable rent units maintained in perpetuity and managed collectively with private rent units in the same block. Local authorities have an opportunity to set a different affordable housing threshold where this is justified local housing needs evidence[47]. The Government defines affordable private rent levels as being at least 20% less than the private market rent, inclusive of service charges, for an equivalent property[48]. Eligibility criteria for affordable private rented homes should be agreed between the local authority and BTR operator having regard to local income and private rental levels and included in the S106[49].

D.2.5 The London Plan published March 2016 promotes the development of BTR homes at the local and strategic level. Policy 3.8 (B a1) recognises that the BTR sector has potential to accelerate housing delivery rates and contribute towards meeting housing targets.

D.2.6 The Mayor's Affordable Housing and Viability SPG published August 2017 (Mayor's SPG 2017) sets out a new affordable housing pathway for BTR developments. The SPG allows the affordable housing offer in qualifying BTR developments to be entirely Discounted Market Rent (DMR) products if they will be secured in perpetuity and managed collectively with private rent units. For BTR developments to qualify, they must meet the following criteria[50]:

- a single block, phase or development of at least 50 units
- BTR homes held under a covenant for at least 15 years
- homes all self-contained and let separately
- operate under unified ownership and management
- offer tenancies of three years or more with break clauses after the first six months
- offer rent certainty for the period of the tenancy
- provide on-site management systems and daily on-site presence
- operators must be a member of an ombudsman scheme and have a complaints procedure
- not charge up-front fees to tenants other than deposits and rent-in-advance

D.2.7 The Mayor's preference is for DMR units to be rented out at the London Living Rent, alternatively local authorities must ensure that DMR rents are affordable to households eligible for intermediate rented housing. The SPG does not set an affordable housing threshold for BTR rather it aims to maximise the supply of affordable home taking account of the viability of individual BTR schemes and provides guidance on preparing viability assessments for the BTR sector.

D.2.8 The draft London Plan Intend to Publish version December 2019 (draft London Plan) aligns affordable housing requirements for BTR with mainstream BFS developments. Policy H11 requires BTR schemes to provide at least 35% affordable housing (or 50% on public sector land) to qualify for the Fast Track Route which obviates the requirement for applicants to submit a detailed viability assessment at application stage. BTR schemes which do not meet the 35% affordable threshold will be assessed through the viability route outlined in the SPG.

D.2.9 At the local level, the Wandsworth Local Plan Core Strategy adopted 2016 identifies that the PRS has potential to meet the needs of low- to middle-income households and supports 'more structured development' of the sector. Policy IS 5, part g states that:

'The Council supports the development of private rented sector housing and schemes offering a mixture of private and intermediate rented housing aimed at working households. Where developers are willing to enter into legal agreements securing such housing for local needs or lower to middle income households

[44] Mayor of London, Affordable Housing and Viability SPG, August 2017, paragraph 4.3
[45] MHCLG, NPPF, 2019, Annex 2
[46] MHCLG, PPG, 2018, Paragraph: 001 Reference ID: 60-001-20180913
[47] MHCLG, PPG, 2018, Paragraph: 002 Reference ID: 60-002-20180913
[48] MHCLG, PPG, 2018, Paragraph: 003 Reference ID: 60-003-20180913
[49] MHCLG, PPG, 2018, Paragraph: 009 Reference ID: 60-009-20180913
[50] Mayor of London, Affordable Housing and Viability SPG, August 2017, paragraph 4.9

with security of tenure, any impacts on the market value of such developments will be taken into account in viability assessments'.

D.2.10 The key findings from this policy review are set out below:

- Local authorities are now required to assess and provide for BTR housing needs in their local plans
- Emerging strategic policy for BTR development requiring 35% of units to be affordable is far more stringent than VNEB OAPF policies requiring residential schemes to provide 15% affordable housing in most of the OA.
- Different affordable housing tenure mix requirements apply to BTR and mainstream BFS developments. At the strategic level, planning guidance and emerging planning policy allow qualifying BTR developments to provide 100% intermediate affordable housing (as DMR). The VNEB OAPF policies require BFS developments to provide a split of 60% for social rent or affordable rent and the remaining 40% for intermediate rent or sale.

D.3 London housing market update

D.3.1 Housing tenure mix in London has changed notably over the past 30 years. The PRS has experienced rapid growth since the early 1990's while social renting and home ownership levels have both declined in London reflecting national trends[51].

D.3.2 Table 1 at Schedule A shows annual trends in household tenure in London from 1990-2018. Between 1990 and 2018 housing tenure mix in London has shifted as summarised below:

- Social rented: decrease from 30.5% to 21.9%
- Private rented: increase from 11% to 25.8%
- Owned: decrease from 58% to 52%

D.3.3 The proportion of households in PRS accommodation in Wandsworth is line with the London average at 26% in 2018 however the proportion of owner occupiers is slightly higher at 54% owing to a lower proportion of households in social rented accommodation (14.5%)[52].

D.3.4 Declining home ownership levels in London have been most pronounced amongst younger households. Table 2 at Schedule A shows changes in home ownership rates by age group in London between 1990 and 2017. Over this period home ownership rates declined amongst all age groups except for the 55-64 and 65+ categories as summarised below:

- 16-24 age group: 25% to 8%
- 25-34 age group: 57% to 28%
- 35-44 age group: 69% to 49%
- 45-54 age group: 71% to 52%

D.3.5 The data shows that the 16-24 and 25-34 age group categories experienced the greatest levels of relative decline in homeownership.

D.3.6 If home ownership levels continue to decline at current rates it is forecast that the PRS could accommodate 40% of total London households by 2040 with an equivalent proportion owning their home (40%) and 20% social renting[53].

D.3.7 Private renters in London are younger than those in other tenures and younger renters are more common in Wandsworth than inner London boroughs on average. Figure 1 (Schedule B) compares the age distribution of the PRS and all tenures in inner London and Wandsworth in 2011. The 2011 census data shows that private renters are more likely to have a household reference person (HRP) under age 35 and less likely to have an HRP over age 65 than all tenures combined:

D.3.8 Inner London: 57% of HRPs in privately rented households were under 35 years, compared with 31% for all tenures. 46% of PRS household HRPs were aged 25-34. 4% of HRPs in privately rented households were over 64 years, compared with 15% for all tenures.

D.3.9 Wandsworth: 60.8% of HRPs in privately rented households were under 35 years, compared with 33.7% for all tenures. Over half of PRS household HRPs were aged 25-34. 4.1% of HRPs in privately rented households were over 64 years, compared with 14.2% for all tenures.

D.3.10 While younger renters are still more common in the PRS, the proportion of older HRPs has increased over the past decade nationally; between 2007 and 2017/2018 the proportion of HRPs aged 55-64 privately renting increased from 8.5% to 9%[54].

D.3.11 At the time of writing this report there was no available data on the age distribution of BTR households in London. Based on our research, this is likely to be because there are issues around different definitions of BTR being applied in the industry and BTR is a relatively new sector. Significant numbers of BTR homes have only come forward in London since 2010.

D.3.12 Figure 2 (Schedule B) shows the proportion of households in London with dependent children by tenure from 2004 to 2018. In London 35% of total households included dependent children under age 19 in 2018 and this figure hasn't changed significantly since 2004. However, there has been notable growth in the proportion of PRS households with children, rising from 20% in 2004 to 34% in 2018. Comparatively, the proportion of households buying with a mortgage increased only slightly from 44% to 49% over this period.

D.3.13 In London the PRS accommodates households on a wide range of incomes. Figure 3 (Schedule B) shows the national household income quintile by tenure in London for 2017/2018. PRS households in London are quite evenly represented across the five income quintiles albeit slightly under-represented in the lower fifth. By comparison, low income households are concentrated in social rented housing and high-income households (top quintile) are primarily owner-occupiers.

D.3.14 In terms of housing supply, 256,344 new build homes were completed in London between 2010 and 2018 of which it is estimated that 17,460 (or 6.8%) were BTR homes.

D.3.15 The importance of the BTR sector as a component of PRS housing supply is growing. Figure 4 (Schedule B) shows total annual new housing completions and BTR completions in London between 2010 and 2018. The number of BTR homes completed annually has risen rapidly year on year from 226 in 2010 to 4,987 in 2018. Over this period BTR completions increased from 0.9% to 15.5% of total new build completions.

D.3.16 At 2018, 29,550 BTR homes have started construction and 17,490 have been completed since January[55]. Figure 5 (Schedule B) shows annual total new housing starts and BTR starts in London between 2010 and 2018. Over this period BTR starts increased from 0.6% to 8.4% of the total.

[51] GLA, London Housing Strategy, May 2018
[52] ONS, Housing tenure of households in 2018, London Boroughs, November 2019
[53] GLA, Housing in London: 2017, February 2017,
[54] MHCLG, English Housing Survey Private Rented Sector 2017-18, July 2019)
[55] GLA, Housing in London 2019, September 2019

D.3.17 It is estimated that in 2018, sales of BTR homes accounted for 32% of total new build homes sales in London[56] compared to just 8% in 2013[57] according to a BPF research paper on new build home sales in London[58]. The report found that in 2013 investors accounted for 61% of new home purchases while owner occupiers accounted for the remaining 39%. The reports headline findings are summarised below:

- Buy to Let investors: 48%
- Buy to Sell investors: 5% (most units end up as Buy to Let properties)
- Build to Rent investors: 8%
- Owner occupiers: 32%
- The final 7% are homes that were originally permitted as market sale units but end up as affordable shared ownership homes.

D.3.18 The findings show that approximately 61% of BFS units sold in 2013 were transferred into the PRS, either by BTR management companies purchasing property from developers (8%) or buy to let landlords purchasing properties to rent out privately (approximately 53%). Furthermore, the report found that investors dominated new home sales in the upper price bands between £700-£2,000 per sqft peaking at over 70% in the £1,000-£1,500 sqft price band.

D.3.19 It is notable that Wandsworth contained the second-highest number of new build units sold in 2013, after Tower Hamlets. 2,490 (or 12%) of the 21,285 sales recorded in the report were in Wandsworth.

D.3.20 It is recognised that this data does not provide a complete review of all new home sales in London. However, in the absence of a comprehensive new homes sales database it provides a useful snapshot. The research indicates that new BFS homes will contribute to the supply of PRS homes in London in future as units are transferred to the PRS by investors.

D.3.21 The headline findings from this Section are set out below:

- The PRS has experienced rapid growth in London since 1990/1 while levels of home ownership and social renting have both declined
- Home ownership rates have declined amongst all those aged under 54 in London since 1990 with the 16-24 and 25-34 age groups experiencing the greatest level of decline
- Private renters are younger than those in other tenures, the dominant age group in Wandsworth and across inner London is the 25-34 age group. However, there is no available data on age distribution in BTR households in London.
- The proportion of PRS households with children in London has increased notably since 2004
- The PRS accommodates households on a wide range of incomes in London; PRS households are quite evenly spread across all income quintiles
- The contribution of the BTR sector to the supply of PRS housing in London has grown significantly over the past decade and is expected to increase; BTR completions increased from 0.9% to 15.5% of total new build completions between 2008 and 2018
- New BFS homes will also contribute to the supply of PRS homes in London in future as BFS units are transferred into the PRS through buy-to-let landlords and BTR operators

[56] GLA, Housing in London 2019, September 2019
[57] Moloir for BPF, Who Buys New Homes in London and Why? 2018
[58] Moloir for BPF, Who Buys New Homes in London and Why? 2018

D.3.22 There is currently no available demographic data for the BTR sector in London since existing datasets do not distinguish between different PRS sub-markets. In the next section we consider the components of supply and demand in the BTR sector and the format of BTR developments in London in order to make an informed judgment about the potential demand for BTR in Wandsworth.

D.4 BTR sector

D.4.1 This Section considers the main components of supply and demand in the BTR sector and reviews the uptake of BTR across London and in Wandsworth.

Background

D.4.2 Increased BTR development activity in the past decade, as noted above, has been underpinned by a renewed interest in the sector from institutional investors either actively seeking development / management partners or developing their own BTR products. Between 2013 and 2017 the volume of invested residential stock grew rapidly from £18bn to £49bn while institutional investors share of PRS stock grew from 1.4% to 2.8%[59].

D.4.3 Although the supply of BTR accommodation has increased rapidly it still accounts for a small proportion of PRS supply. The PRS was estimated to be worth £1.15 trillion by 2017 of which just 2.8% was held by institutional investors (excluding student housing). The PRS remains dominated by private (buy-to-let) landlords of which the majority own less than 10 properties[60].

D.4.4 Increased private investment in BTR has been facilitated by a combination of factors including:

- Cross-party political support from central Government
- Favourable performance relative to other assets
- Increasingly favourable planning context (explained in Section D.2)
- Flexibility in finance and delivery models
- Forecasts showing growing demand for rental property up to the late 2030's driven by the increasing the unaffordability of home ownership, particularly for younger households
- The belief that private renting is increasingly a tenure of choice for households in higher income brackets

D.4.5 Since 2010 central Government has introduced a range of policies to incentivise institutional investment in PRS housing, including but not limited to[61]:

- Change in Stamp Duty Land Tax for bulk purchases (2011): the changes resulted in bulk purchasers of rental units paying lower taxes.
- HCA BTR Fund (2012): £200m of finance made available to developers for large scale BTR schemes (100 units or more) with the objective of increasing investor confidence.
- HCA BTR Fund 2 (2013): original funding increased to £1bn.
- PRS Debt Guarantee Fund (2014): £3.5bn in Debt Guarantee made available to reduce the cost of borrowing for BTR investors.

[59] IPF Research (2018) The Size and Structure of the UK Property Market: End-2017 update, London: IPF
[60] IPF Research (2018) The Size and Structure of the UK Property Market: End-2017 update, London: IPF
[61] LSE, Savills, Barclays for BPF, Unlocking the Benefits and Potential of Build to Rent, February 2017

D.4.6 Housing has outperformed other property assets in recent years making it an increasingly attractive investment proposition. Figure 6 (Schedule B) shows the growth in the value of the UK residential market has increasingly outstripped the commercial market since 2007 with the property market valued at £5,375bn in 2018 compared to the commercial market at £870bn.

D.4.7 The range of finance and delivery models for BTR schemes include bespoke designed schemes developed directly by investors (e.g. Greystar); shemes delivered by developers/housebuilders/investors, forward funded by investors; and schemes acquired as a going concern (stabilised assets) by investors.

Supply

D.4.8 As the BTR sector has grown so too has the range of organisations involved in the sector. There is now a diverse range of BTR providers in London including:

- Specialist BTR companies: private companies which fund, develop and operate schemes. Includes established North American companies (Greystar) expanding into the UK market and new UK companies (Essential Living). Focused on delivering units predominantly for private rent which reflects the US 'Multi-Family' model with on-site facilities and amenities and long-term secure tenancies. Provides a high-quality alternative to traditional PRS housing for those in higher income brackets.

- Housing Associations: since the mid-2010's HAs have become involved in BTR in order to raise income in the face of declining Government funding for social housing. L&Q (L&Q PRS) and Thames Valley (Fizzy Living) have both created subsidiary companies to develop BTR homes with institutional investment partners. Schemes tend to provide a mix of private and affordable rent units which provide the benefit of secure long-term tenures with limited on-site amenities and communal facilities to keep operating costs down.

- Local Authorities: The Localism Act 2011 gave Councils the right to establish housing development companies. Multiple London boroughs have delivered BTR units through Council-owned companies (including Newham, Ealing and Barking & Dagenham) with most providing a mix of market and affordable units albeit with a higher proportion of affordable units than private sector BTR schemes and with limited on-site amenities and communal facilities.

- Public-private partnerships: another model is for a private BTR operator to go into partnership with a local authority or HA. There are advantages for both parties. The developer benefits from access to land without having to bid against BFS house builders thereby improving development viability. The landowner secures an equity stake in the development and a long-term revenue stream as well as a greater control over the tenure mix.

D.4.9 By 2017 developers had delivered 47% of BTR completions nationally with housing associations (21%), contractors (19%) and housebuilders (13%) accounting for the remainder. Most of the schemes delivered by developers comprised of units originally planned for sale which were subsequently purchased by BTR operators[62].

D.4.10 According to the BPF property database there are currently four BTR schemes at various stages of development in Wandsworth totalling 1,245 BTR units. Table A.5.1 below provides details for each scheme.

D.4.11 Except for the Peabody Estate, all approved BTR schemes are in the VNEB OA. Three out of four approved BTR schemes are resubmissions of approved BFS schemes. Two schemes are mixed tenure, incorporating private BFS and BTR units in separate blocks/phases of development. The two wholly BTR schemes both provide an affordable housing contribution of 18% of units as affordable DMR. All approved BTR schemes provide low levels of family housing, between 6% and 10% of total units.

Table D.1 BTR development pipeline in Wandsworth 2020

Stage	Scheme	Developer / Operator	BTR units (no.)	% of BTR units as affordable DMR (%)	Studio, 1 & 2 bed BTR units (%)	BTR rent (£pcm)
Planning permission	Shell Savoy Filling Station* (LPA ref. 2016/5239)	Angle Property (private developer)	89 BTR	18% (DMR)	94%	n/a
	Peabody Estate, St John's* Hill (Phase 3) (LPA Ref. 2017/5837)	Peabody (housing association)	Mixed tenure: 148 private rent (BTR) 136 private sale 301 affordable (243 social rent / 58 intermediate)	n/a mixed tenure scheme	90%	n/a
	Nine Elms Parkside, South London Mail Centre - plots B & D only* (LPA Ref. 2017/6762 &2017/6764)	Henderson Park (investor) and Greystar (developer)	894 BTR	18% (DMR)	90%	n/a
Construction	The Residence (Christie's Warehouse) Nine Elms (LPA Ref. 2016/4720	L&Q (housing association)	Mixed tenure: 114 private rent (BTR) 324 private sale 76 affordable (44 affordable rent / 32 intermediate)	n/a mixed tenure scheme	94%	From £2,995[63]

*Re-submission of an extant residential BFS scheme

Demand

D.4.12 Demand for secure high-quality rented housing from a broadening demographic including single parents, young families and downsizers (mortgage-free) has grown over the past few decades as the number of households living in the PRS has grown.

D.4.13 Some London boroughs (including Barking & Dagenham, Tower Hamlets and Ealing) have taken on a leading role in delivering BTR schemes in order to secure a more diverse mix of units including a greater proportion of family home and DMR units than typically delivered by the private sector. Schedule C contains a case study of LB Barking & Dagenham's BTR scheme 'William Street Quarter' which provides 100% affordable housing for DMR.

D.4.14 Some private BTR providers are now also looking to capitalise on this demand by providing schemes aimed at attracting families and an older demographic. Schedule C contains a case study of Essential Living's Creekside Wharf BTR scheme in Greenwich which was specifically designed to attract families. Due to viability constraints BTR schemes with a more diverse unit mix will most likely come forward in outer London boroughs.

D.4.15 However, most BTR schemes delivered by the private sector are aimed at satisfying demand for high quality private rented homes from households on high incomes that are unable to access home ownership[64].

[62] LSE, Savills, Barclays for BPF, Unlocking the Benefits and Potential of Build to Rent, February 2017

[63] L&Q, https://www.lqgroup.org.uk/find-a-property/details/249 22.01.20.20 (including service charges)

[64] LSE, Future of London, Making the Most of Build to Rent, January 2017

D.4.16 BTR providers in London are generally focused on the top half of the rental market. In London, 7% of BTR supply was aimed at the top decile (£2500 plus per month) in 2017 with 21% in the upper quartile, 39% between the upper quartile and the median with the remaining 40% aimed at households in the two lower quartiles[65]. It should also be noted that a proportion of this 40% includes affordable housing. Research carried out in 2018 demonstrates that market BTR rents in five inner London boroughs notably exceeded mean borough rents for Q3 2017. A copy of the data is provided in Table 2 at Schedule A.

D.4.17 Available data for Wandsworth also shows that advertised market BTR rents (£2,995 pcm) far exceed the 2018/2019 borough average rent at £1,650 pcm (see Table B.1). However, caution must be applied when drawing conclusions from this data as there is currently limited data on achieved BTR rents at the borough level.

D.4.18 Further, it should be noted that BTR and existing PRS rental levels cannot be compared on a like for like basis. Existing PRS stock is dominated by small Buy to Let landlords whereas most BTR rents include amenities, facilities, professional management and service charges which arguably provide better value to tenants. The data does indicate that households in the upper quartiles will be able to afford market BTR rent in Wandsworth and across London.

D.4.19 Private BTR providers have predominantly focused on young professional singles and couples between the age of 16-44. A standard design typology for BTR has emerged in the last 10 years which is aimed at sharers, units often have two equal sized bedrooms with en-suite bathrooms and an open-plan kitchen and living space[66]. Most BTR developments in London provide a mix of 1 and 2 bed units with very few family-sized homes which is reflected in the data for Wandsworth. Table B.1 shows that between 6% and 10% of total units in all BTR schemes contain 3 beds or more.

D.4.20 It is widely recognised that BTR offers tenants higher quality housing than existing PRS stock with a range of benefits, including:

- Professional on-site management and clear accountability for reporting issues
- A single upfront rental fee including all service charge and some utilities in some cases (WiFi)
- Shared access to high quality facilities and amenities within the same building (cinema room, entertainment space, gym, outdoor space)
- More secure and longer tenures with the flexibility to end tenure at short notice (typically 1-month)

D.4.21 BTR schemes are also recognised as being beneficial for developers and regeneration objectives:

- Higher absorption rates of BTR can benefit large multi-phase regeneration sites by accelerating occupation of sites which has benefits in term of fostering a sense of community, contributing to placemaking and supporting demand for new commercial and community uses and transport infrastructure (see Emerald Gardens case study at Schedule C)
- Related to higher absorption rates, the BTR development model can unlock development sites which would otherwise be unviable for BFS development
- BTR households are less likely to own cars therefore freeing up more space for homes / employment
- Co-living BTR schemes are more capable of achieving higher residential densities and take better advantage of the high public transport accessibility

D.4.22 The headline findings from this Section are set out below:

- There is growing demand for BTR homes from a broad demographic including low income households, families and older households (downsizers).
- Over the past decade different providers have emerged in the BTR sector catering to different demographic groups in the PRS and the BTR sector now provides purpose-built accommodation for a broad demographic across London.
- Some BTR companies have sought to capitalise on this trend (such as Essential Living's Creekside Wharf, Greenwich) but most BTR developments in London are aimed at young professionals 16-45 (singles, sharers and couples) with higher household incomes in the upper three quartiles.

D.4.23 The demographic profile of individual BTR schemes in VNEB will depend upon the format of proposed development which will largely be determined by the type of developer bringing the scheme forward. Key factors influencing the types of households that developments will attract include unit size mix, availability of rents at different price points including DMR and the types of facilities/amenities.

D.5 Conclusions

D.5.1 Drawing together our findings from the previous sections we present the following high-level conclusions:

- The BTR sector provides purpose-built accommodation for a broad demographic across London. There is growing demand for BTR from a broad demographic including low income households, families and older households (downsizers). While some providers have responded to this need, most private sector BTR developments in London are aimed at young professionals 16-45 (singles, sharers and couples) with higher household incomes in the upper three quartiles.
- The demographic profile of new BTR schemes in VNEB will depend upon the format of proposed development which will largely be determined by the type of developer / operator. Key factors influencing the types of households that developments will attract include unit size mix, availability of rents at different price points including DMR and the types of facilities/amenities.
- The emerging strategic policy context presents an opportunity to increase the overall proportion of affordable units on site subject to BTR applications (DMR). However, the policy context also presents a risk that intermediate housing provision could increase at the cost of declining affordable/social rent.
- Sites coming forward as BTR in the VNEB OA may be delivered earlier than originally forecasted in 2010 DIFS due the higher absorption rates.
- Sites coming forward for BTR may achieve higher development densities and housing numbers than originally forecasted in the 2010 DIFS due to the focus on smaller units.

D.5.2 Based on these findings, we set out the following recommendations to the LBW:

- Require the timing of infrastructure delivery and/or contributions from developers to reflect the absorption rates of BTR
- Seek to retain existing levels of family homes on sites with extant residential planning permission in VNEB

Schedule A – data tables

Table D.2 Annual trend in household tenure, London, 1981-2018

Year	Social rented	Open market rented	Owned
1981	35.0	16.9	48

[65] University of York, Centre for Housing Policy, The Evolving Private Rented Sector, 2018

[66] LSE, Future of London, Making the Most of Build to Rent, January 2017

1984	33.7	14.8	51
1988	31.9	12.7	55
1990	30.5	11.0	58
1991	28.8	12.6	59
1992	28.9	12.5	59
1993	27.9	14.4	58
1994	28.3	14.6	57
1995	27.4	14.9	58
1996	26.6	15.3	58
1997	26.5	15.8	58
1998	27.0	15.6	57
1999	26.7	15.1	58
2000	25.2	15.2	60
2001	25.7	15.3	59
2002	25.9	16.0	58
2003	25.2	16.6	58
2004	25.6	16.7	58
2005	24.9	17.6	57
2006	24.2	19.7	56
2007	24.3	19.9	56
2008	23.8	21.2	55
2009	24.3	23.0	53
2010	23.8	24.8	51
2011	23.8	25.1	51
2012	22.5	26.0	52
2013	23.2	26.2	51
2014	22.0	26.9	51
2015	23.8	26.1	50
2016	22.9	28.0	49
2017	21.3	27.4	51
2018	21.9	25.8	52

Source: Compiled by GLA from: Housing Trailers to the Labour Force Survey (1981, 1984, 1988 and 1991, with intervening years interpolated) - Labour Force Survey data (1990, 1992 to 1996 and 2009 to 2016) DCLG analysis of the LFS (1997 to 2008)

Table D.3 Home ownership rate by age group of household head, London, 1981-2018

Year	16-24	25-34	35-44	45-54	55-64	65+
1990	25%	57%	69%	71%	62%	49%
1991	26%	54%	68%	71%	63%	51%
1992	27%	52%	67%	71%	65%	53%
1993	20%	51%	66%	71%	63%	54%
1994	21%	50%	65%	68%	65%	53%
1995	17%	48%	66%	71%	67%	56%
1996	17%	48%	64%	69%	66%	58%
1997	13%	46%	62%	71%	68%	58%
1998	11%	47%	62%	70%	67%	57%
1999	11%	46%	61%	72%	70%	58%
2000	13%	47%	63%	71%	68%	64%
2001	11%	49%	61%	68%	71%	62%
2002	16%	43%	60%	70%	72%	62%
2003	14%	45%	59%	69%	71%	62%
2004	12%	41%	60%	70%	69%	64%
2005	13%	43%	58%	68%	69%	64%
2006	7%	39%	55%	65%	72%	64%
2007	9%	40%	56%	64%	70%	67%
2008	6%	38%	57%	60%	71%	66%
2009	5%	30%	53%	59%	67%	65%
2010	9%	29%	51%	61%	67%	64%
2011	7%	32%	47%	60%	63%	66%
2012	7%	32%	47%	61%	66%	65%
2013	8%	28%	48%	54%	65%	66%
2014	5%	27%	48%	58%	65%	69%
2015	2%	28%	49%	53%	61%	69%
2016	3%	27%	46%	54%	64%	67%
2017	8%	28%	49%	52%	63%	72%

Source: Labour Force Survey household datasets, 1990 to 2017

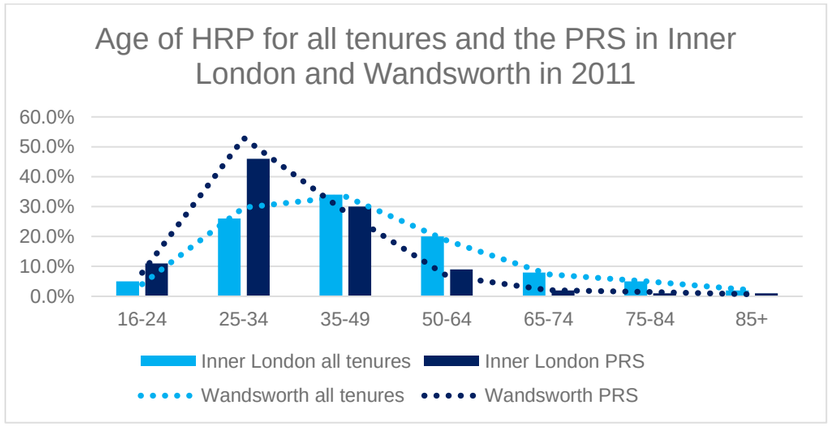
Table D.4 Inner London boroughs selected BTR schemes advertised rents and borough median rents 2018

Scheme	Operator	Borough	1-bed rent (£/pm)	2-bed rent (£/pm)	Median local rent (£/pm)
Thurston Point	L&Q	Lewisham	From 1,275	From 1,450	1,275
Fizzy Lewisham	Fizzy Living	Lewisham	1,450 – 1,515	1,650 – 2025	1,275
Stratford Halo	Genesis	Newham	1,350 – 1,525	1,750 – 3,200	1,365
Dressage Court	Essential Living	Tower Hamlets	1,820	From 2,492	1,647
The Gatefold Building	be:here	Hillingdon	1,300	-	1,200
UNCLE Elephant & Castle	UNCLE	Southwark	1,950	From 2,382	1,495

Sources: BTR schemes from web search May 2018. NB advertised rents may not encompass all ancillary services Local rents are borough median figures from Valuation Office Agency Private Rental Market Statistics, 3Q2017

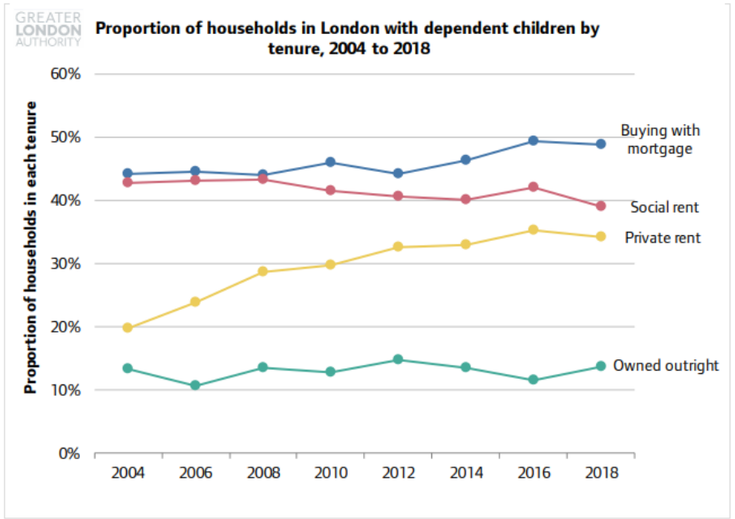
Schedule B – figures

Figure D.1 Age of HRP for all tenures and the PRS in Inner London and Wandsworth in 2011



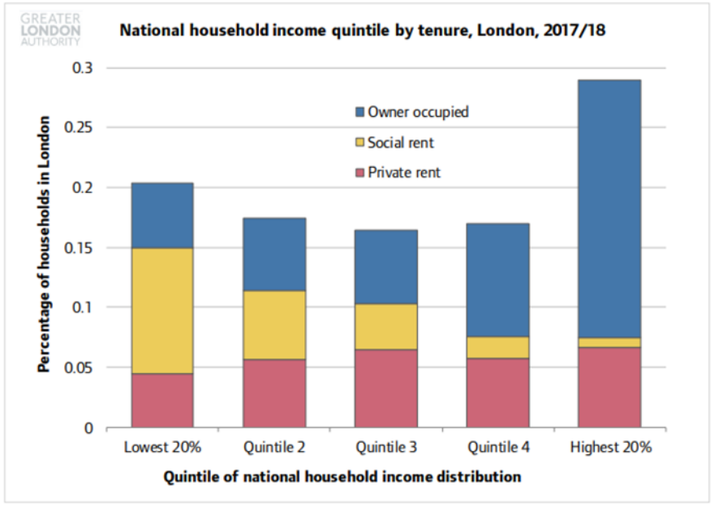
Source: NOMIS (DC4201), 2011

Figure D.2 Proportion of households in London with dependent children by tenure, 2004 to 2018



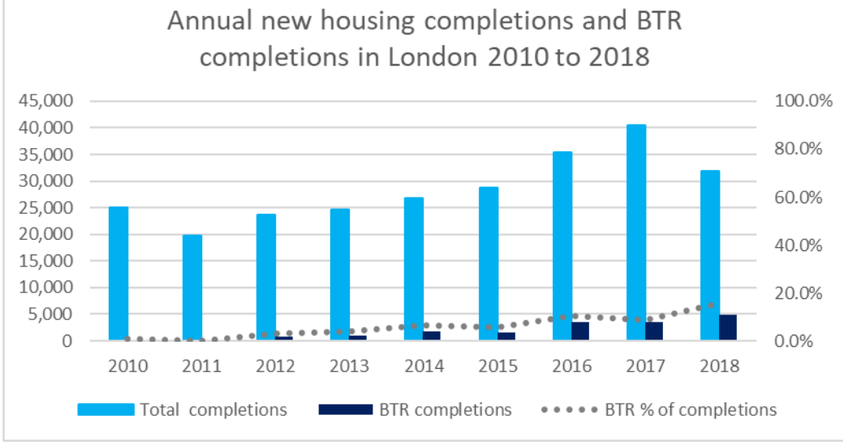
Source: GLA, Housing in London 2019, p32. Includes dependent children under the age of 19

Figure D.3 National household income quintile by tenure, London, 2017/2018



Source: GLA, Housing in London 2019, p34

Figure D.4 Annual new housing completions and BTR completions in London 2010 to 2018



Source: London Development Database and Molior quarterly PRS starts and completions

Figure D.5 Annual new housing starts and BTR starts in London 2010 to 2018

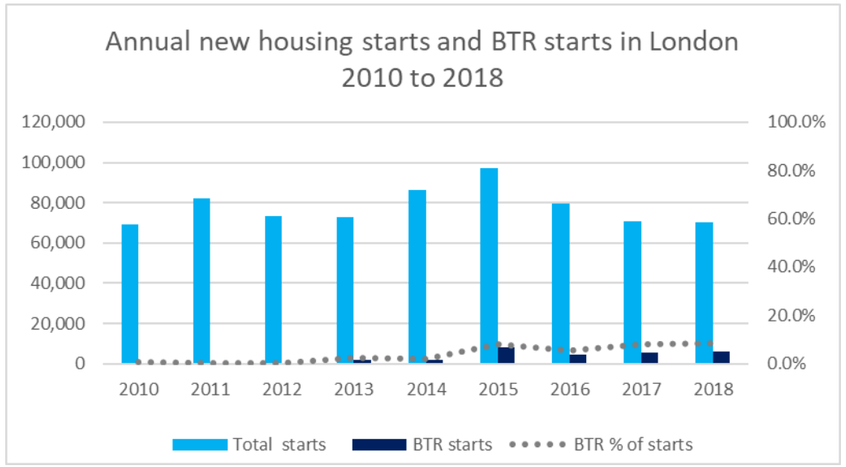
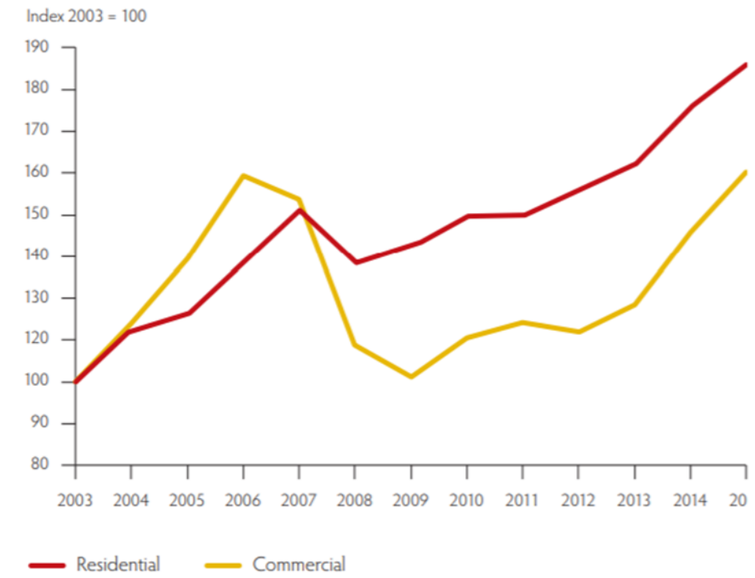
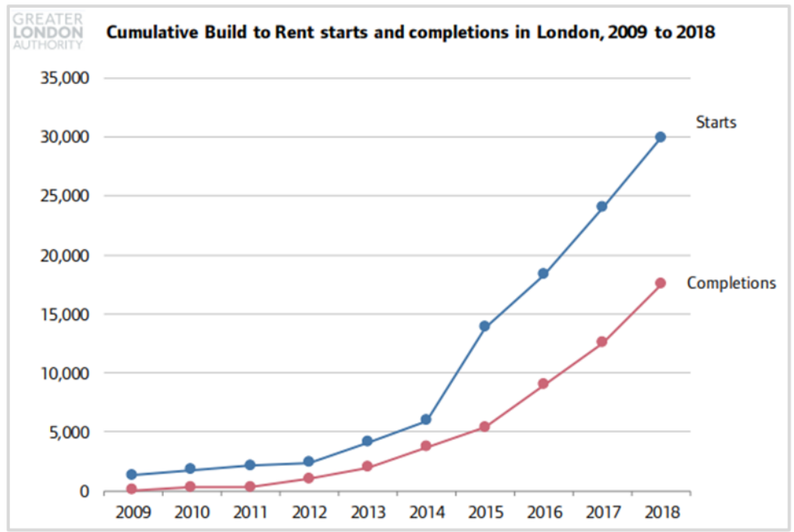


Figure D.6 Growth in value of the UK residential and commercial property markets since 2003



Source: The Size and Structure of the UK Property Market: End 2015 Update, IPF Research Programme July 2016

Figure D.7 Cumulative BTR starts and completions in London between 2009 and 2018



Source: GLA, Housing in London 2019, p55, Cumulative BTR starts and completions in London 2009 – 2018 graph

Schedule C – case studies

Creekside Wharf, Greenwich, Essential Living

Essential Living's Creekside Wharf development, close to the town centre in RB Greenwich, received planning approval in July 2015. Designed by Assael Architecture, this scheme is the first in London to provide a purpose-built rental block designed specifically for families, with features such as an on-site nursery, additional acoustic insulation and balconies to enhance child safety. It was one of the first bespoke rental developments to adopt modular construction.

Of the 249 new homes, a quarter will be Discount Market Rents, which will be fully integrated ('pepper-potted') throughout the scheme, meaning DMR tenants will have access to the same amenities as residents paying full market rent and live in apartments of a similar specification. RB Greenwich will select the DMR tenants.

Source: LSE, Future of London, Making the Most of Build to Rent, January 2017, p20

The Collective, Old Oak

The Collective's new 'co-living' scheme in Old Oak is mostly made up of 'twodios' two bed units with private rooms of around 12sqm with bathroom and shared kitchenette. Average rents are £250 per room per week, inclusive of service charge, on-site management, fortnightly cleaning and an array of high specification communal facilities, such as shared kitchens and dining rooms, games room, library and cinema. Contracts are generally nine-months.

Source: LSE, Future of London, Making the Most of Build to Rent, January 2017, p20

Emerald Gardens, Wembley, Quintain

Quintain manages the redevelopment of Wembley Park in north London. Emerald Gardens was the first of many residential phases, comprising 473 homes, of which 141 were built for private rent. Quintain sold 332 homes in two years, but leased 141 in six months, so roughly twice as fast.

Quintain's experience suggests leasing 415 units in 18 months and selling the same number within three years. The company's view is that rental demand is much more constant than buy-to-let investor demand, and much less affected by market conditions. Building for the rental market is considered less risky than delivering into the sales market.

Source: BPF, LSE, Savills, Barclays, Unlocking the Benefits and Potential of Build to Rent, February 2017)

William Street Quarter, Barking, BD Reside

LB Barking and Dagenham established council-owned company BD Reside to develop and operate affordable BTR homes. William Street Quarter was funded by institutional investment from Long Harbour and completed in 2014. The scheme delivered 100% affordable housing, a mix of 201 DMR homes with 1-,2-,3- bedroom apartments and 4-bedroom houses. Rent levels were set at between 65%-80% of market rents.

LB Barking & Dagenham has delivered DMR units at a proportion not seen in other London boroughs made possible by its relatively low land values. Whether this approach is replicable elsewhere depends upon borough's attitudes to risk and commerciality.

Source: BPF, LSE, Savills, Barclays, Unlocking the Benefits and Potential of Build to Rent, February 2017)

Appendix E Project schedule

Category	Project name	Description	Status	Delivery organisation	Gross Cost	Funding sources				Tariff Funding			Phasing	
						Tariff	Developer	Infrastructure provider	Other	Tariff Required	Spent	Residual	Start	End
					£000s	%	%	%	%	£000s	£000s	£000s		
Social infrastructure	Education - early years	52-place nursery being provided as part of the proposed Nine Elms primary school on RMG site	Planning	LBW	n/a	100%				n/a	£0	£0	2021	2022
Social infrastructure	Nine Elms Primary School	Land and construction costs for proposed 2FE Primary School and community facilities	Planning	LBW	£45,000	100%				£45,000	£10	£44,990	2021	2022
Social infrastructure	Two FE extension of primary school places	Additional 2FE of primary school places in Nine Elms, depending on eventual population yield and demand for school places	Feasibility	LBW	£1,300	100%				£1,300	£0	£1,300	2026	2027
Social infrastructure	Sleaford Street Health Centre	Provision of approx 1,800 sqm NHS health facility with capacity for up to 12 GPs in order to meet the service demand from new and existing population growth, in response to NHS Healthcare assessment for Nine Elms.	Planning	Wandsworth CCG	£12,990	100%				£12,990	£0	£12,990	2021	2023
Social infrastructure	Nine Elms Square Health Centre	Potential for 2nd health centre identified in NHS Healthcare assessment for Nine Elms; will only be brought forward if long-term need dictates requirement	Planning	Wandsworth CCG	£10,626	75%			25%	£7,970	£0	£7,970	2025	2027
Social infrastructure	Arts and cultural facilities	Fit out of any required arts and cultural space	New project	LBW	£3,810	100%				£3,810	£0	£3,810	2024	2031
Social infrastructure	Community Facilities	Additional facilities to meet residual identified need	New project	LBW	£14,000	100%				£14,000	£0	£14,000		
Social infrastructure	Library	Library to be provided within BPS Phase 4 in line with S106 obligation	Planning	BPS	£3,750		100%			£0	£0	£0		
Social infrastructure	Contribution to fire station expansion	Pro rata contribution towards expansion of Fire Stations	No progress	LFB	£3,130	100%				£3,130	£0	£3,130	2030	2031
Social infrastructure	Contribution to Ambulance service expansion	Pro rata contribution towards expansion of Ambulance Stations	No progress	London Ambulance Service	£2,010	100%				£2,010	£0	£2,010	2030	2031
Transport	Nine Elms Lane / Battersea Park Road Corridor Scheme	Creation of a corridor that provides benefits which support the Healthy Streets Approach to promote active travel, public transport and essential traffic	Under construction	TfL Developer (Battersea Power Station)	£24,000	71%	29%			£17,000	£2,410	£14,590	2020	2024

Transport	Thessaly Road links	Streetscape and highway improvement proposals that enhance the look and feel of the area, improving safety and connection for all street users where possible (Nine Elms Lane to Borough Boundary)	Under construction	LBW	£2,575	100%				£2,575	£485	£2,090	2020	2021
Transport	Key Gateways	Improving key gateways into the OA, inlcuding Arch 42 once opened	Various depending on project	LBW	£1,500	100%					£0	£1,500	2021	2021
Transport	Queenstown Road corridor scheme	Chelsea Bridge to Queen's Circus carriageway narrowing and Queen's Circus to Battersea Park Road (bus/cycle only)	Feasibility	LBW	£6,000	100%				£6,000	£0	£6,000	2022	2025
Transport	Improvements to bus services and capacity	Longer-term revisions to bus network to reflect new neighbourhood, as well as impact of changes outside including redevelopment of Vauxhall Cross and potential for additional river crossing.	No progress	TfL	£3,500	100%				£3,500	£0	£3,500	2022	2023
Transport	River walk	Upgrading the two sections of Thames Path within LBW identified in OAPF as missing links not improved by development	Under construction	LBW	£4,200	100%				£4,200	£2,910	£1,290	2013	2020
Transport	Nine Elms-Pimlico pedestrian/cycle bridge - Remaining Design and Construction	New river crossing - revised costs to reflect current prices and scope	Feasibility	LBW	£66,000	80%		20%		£52,800	£2,290	£50,510	2024	2026
Transport	Queenstown Road station minor improvements	New entrance	Planning	Developer (Taylor Wimpey)	£700		100%			£0	£0	£0	2021	2022
Transport	Viaduct Cycling Route	Continuous cycling route along the viaduct Ponton Road to Sleaford St, including raised link across NCGM Entrance Site to enable continuous cycle access	New project	DevelopersLBW	£2,000	33%	67%			£660	£0	£660	2022	2024
Transport	Pedestrian connection between Havelock Terrace and Ingate Place	Costs and phasing to be established by feasibility study for new pedestrian connection within BDTQ	New project	LBW	TBC	TBC	TBC	TBC	TBC	TBC	£0	TBC	TBC	TBC
Transport	Silverthorne & Queenstown Road junction:	Costs and phasing to be established by feasibility study for improved junction gateway to BDTQ	New project	LBW	TBC	TBC	TBC	TBC	TBC	TBC	£0	TBC	TBC	TBC
Transport	Ponton Road improvements	Streetscape and highway improvements which can only be delivered after construction traffic leaves the area.	New project	Adjacent Developers	£3,500	20%		80%		£700	£0	£700	2028	2030
Transport	Stewarts Road improvements	Streetscape and highway improvements (Duchess Bridge stairs to Borough Boundary). Excludes subway - being delivered under a BPS s106 obligation and not included in cost estimate.	Not started	LBW	£2,500	100%				£2,500	£0	£2,500	2022	2025

Transport	Lowline Extension	Scope, costs and phasing of range of individual projects to be establised by a feasibility study	New project	LBW / LBL	TBC	TBC	TBC	TBC	TBC	TBC	£0	TBC	TBC	TBC
Transport	Battersea Park station improvements	Upgrades to station to accommodate increased services and improve access including new entrance	Feasibility	Network Rail	£35,600	47%	11%	41%		£16,890	£860	£16,030	2021	2024
Transport	Queenstown Road station minor improvements	Match funding for potential AfA/ DfT funding of reinstatement of Platform 1	No Progress		£700	50%		50%		£350	£0	£350	TBC	TBC
Transport	Legible London	Wayfinding improvements to be funded from specific s106 contributions and delivered within Nine Elms Lane Scheme and other specific interventions identified by strategy	No progress	LBW	£750	10%	90%			£75	£0	£75	2021	2022
Utilities	District heating infrastructure	DHN's at Embassy Quarter network (serving Embassy Gardens, RMG, R&F and Bellway sites) and at BPS, both with potential for future extension.	Under construction	MUSCO/ESCO				100%		£0	£0	£0	2019	2021
Utilities	Primary substation	New substation on Stewarts Road	Under construction	UKPN				100%		£0		£0	2018	2020
Utilities	Future network upgrades	Potential requirement to upgrade network capacity (electricity) to cope with banning of gas boilers in new build flats post-2025 and increased requirement for EV charging points. Cost cannot be quantified at present and may not be required.	New project	UKPN						£0	TBC	TBC	2025	2030
Utilities	Utililty Corridor - pre-emptive ducting	Co-ordination of delivery and potential onward future connection past RMG site on Post Office Way	Not started	LBW	£1.39	100%				£1.39	£1	£0.34	2018	2020
Utilities	5G infrastructure	Upgrading the network to support 5G	New project	Private sector					100%	£0				
Total					**£250,142**					**£197,461**	**£8,966**	**£189,995**		