Living in a denser London

How residents see their homes

Fanny Blanc, Kath Scanlon & Tim White

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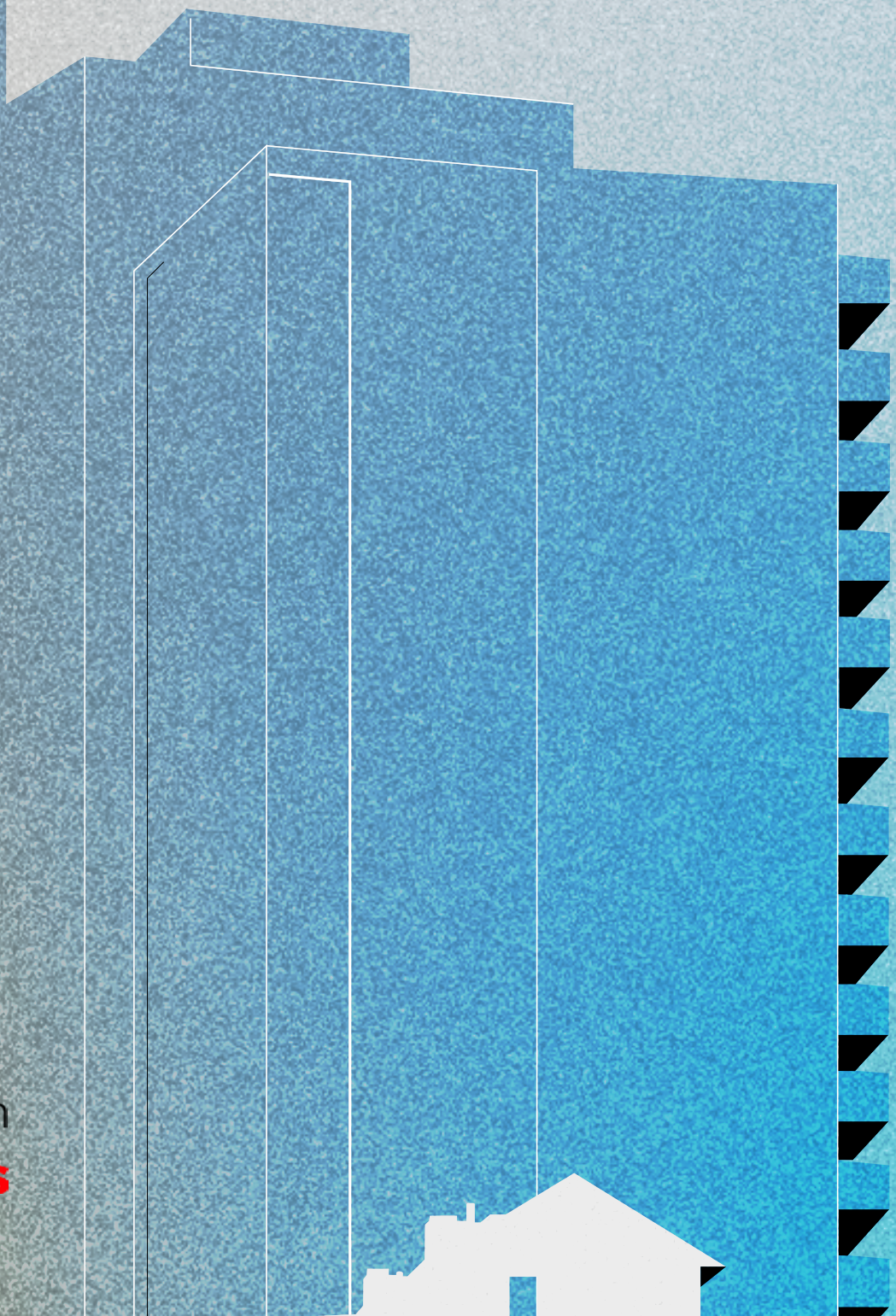

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Foreword

There is no doubt that London is facing a housing crisis, but is dense/r living suitable for our needs? To a resident of London for 25 years and an urbanist this is a most pertinent question. When Jane Jacobs took the side of high-density living in the 1960s, her stance was seen as provocative. This is no longer the case, for urban planning has experienced a 'density turn'.

The concept of density has a long history. It referred first to physical phenomena, where Newton defined it as the mass per unit of volume of a material, and later was applied to the human world when in the C19th reference was made to the social conditions of population density. Now urban planners talk of dense/r living as environmentally sustainable and even as contributing to social sustainability.

The politics around dense living are multiple, including the simple fact that developers can make more money from building more densely. High-density development has knock-on effects on local areas (creating pressures on utilities, public transport, schools, and so on), and densifying council estates, as Savills has promoted, causes displacement of longstanding low-income communities. Create Streets claims we have densification all wrong and promote a complete streets model rather than a block-based one.

London has experienced a proliferation of high-rise, block-based densification. There has, however, been limited research into the everyday experience of living in dense developments, so this report from LSE London is most welcome. Policy makers and planners should heed their findings, especially those around integration – into the local area, socially within buildings – where design and high turnover of residents plays a role. As I found in a similar ODPM-funded project on the everyday experience of high-rise living in London, management is key to successful buildings and dense/r developments. Heating and noise are common issues that could be resolved with better design. In the vein of Pearl Jephcott's 'Homes in High Flats' Fanny Blanc, Kath Scanlon and Tim White have considered the human experience of living in dense developments, and they have identified some challenges which must be met if dense/r developments are to be successful homes and communities.

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Executive Summary

The face of London is changing. Most of its residential neighbourhoods are low-density streets lined with houses, but new homes are more likely to be in high-density blocks of flats. This report looks at what it is it like to live in such homes, so very different from London's typical Victorian terraces.

Urbanists have long extolled the dense city as more environmentally and socially sustainable. Current national planning policy effectively requires minimum densities in well-connected areas of cities, and the London Plan embraces density as a core principle, saying it is required to address the city's growing need for housing. Densification will arguably improve our capital, but while building dense housing may make sense for the city as a whole, many Londoners do not aspire to living in such homes.

In our research, which took place from 2016 to 2019, we looked at 14 high-density schemes in London. We had five broad questions:

- Who lives in these homes?
- How did residents come to live in these schemes, and why did they choose them?
- What is day-to-day life like, and what are the pros and cons of high-density living?
- Do residents feel a sense of community in their developments and belonging to the surrounding neighbourhoods?
- What are residents' housing aspirations? Do they consider their flats to be long-term homes?

We used a range of research techniques including an online survey, focus groups and site visits. We also made a short film with residents.

We chose schemes that were dense (more than 100 units/hectare); large (more than 250 units) and represented a range of building typologies. We looked at 11 new schemes—all completed in the preceding 2-10 years—and 3 historic schemes for comparison. We aimed for a broad geographical spread but the new case studies are all in the eastern half of London, where the most rapid densification has taken place. The case studies broadly represent the range of what was built in London over the last decade or so–we did not look for examples of good or bad practice. Our three historic comparators were all in a single area (Pimlico), to control for local factors.

The final list was:

Towers: Stratford Halo (E15) and Strata SE1
Master-planned schemes: Woodberry Down (N4), Hale Village (N17) and East Village (E20)
Urban insertions: Lanterns Court (E14), Greenwich Creekside (SE8), Thurston Point (SE13) and Pembury Circus (E8)
Town centre interventions: Woolwich Central (SE18) and Barking Central (IG11)
Historic Pimlico estates (all SW1): Millbank Estate, Tachbrook Estate and Lillington and Longmoore Gardens

Who lives in high-density housing?

Based on 517 survey responses (a response rate of 8%), we found that in the new schemes there was a preponderance of small households without children. Overall, 78% of respondents lived in households with one or two persons (vs 61% in London). In all of the new schemes, most residents were under 40, while the historic schemes house an older demographic. Some 13% of households responding to our survey had children living at home. By comparison, 31% of all London households include children.

The range of household incomes was very wide: 8% reported incomes of less than £10,000 per annum while 6% said they earned over £150,000. Many spent more than 1/3 of their income on housing. About 50% of our survey respondents reported owning their homes (including shared ownership), but this may overstate the true figure. Except for the Tachbrook Estate, all our case-study sites had at least some tenure mix.

Community and neighbourhood

Most of the recent schemes we studied were built on brownfield sites, and when complete the new blocks of flats were occupied by hundreds or thousands of households over the space of a few months. In a physical sense, entire new communities were created, but not all are yet functioning as communities in a social sense. The schemes varied markedly: residents of some developments said they had a good sense of community, while those from others said they did not.

It was clear that the physical proximity engendered by high-density built form did little in itself to encourage community. This appeared to be driven by other factors, some of which can be engineered and some of which are serendipitous. A number of respondents in the new schemes (mostly childless, younger people) said emphatically that they had no interest in being part of a community based on where they lived—their social networks were located elsewhere in London (or indeed elsewhere in the world).

A critical mass of long-term residents seems to contribute to a sense of community and security in a development. Length of stay is inextricably linked to tenure. Social tenants and owner-occupiers are more likely to see their flats as long-term homes, while private tenants are more transient (although this may change when the government fulfils its pledge to end Section 21 no-fault evictions). Some developers have begun actively to take responsibility for promoting community, by for example sponsoring events, creating online platforms and providing social spaces.

With a few exceptions, the residents of new schemes seemed to have a rather utilitarian relationship with their surrounding neighbourhoods, focusing on the proximity to services and transport. Implicitly they were prepared to trade off other things, and social considerations such as being close to family and friends were well down their list of criteria for choosing a home. Residents of some schemes said they felt a sense of separation from their wider neighbourhoods: some because of their own perceived role as gentrifiers, others because they were concerned about local problems such as crime and antisocial behaviour.

Infrastructure

Residential development should proceed hand-in-hand with infrastructure improvements, but there is often a lag. Many respondents said their local infrastructure and services were under strain, with long queues at tube stations, difficulty getting a GP appointment, and schools at full capacity. While planners may welcome a 'density bonus' of developer contributions to infrastructure and amenities, residents are more likely to perceive a 'density penalty' because the new infrastructure does not arrive in tandem with the new buildings and ongoing construction can be disturbing.

Family living

Those living in the market homes in new schemes were, largely speaking, young adults without children. This is due to a preference for bringing up children in houses with gardens, but also affordability: some respondents said they could not afford to trade up to a family-sized unit in the same scheme. Across all tenures, parents of small children said their schemes were good places for families to live—but also that their flats had insufficient storage and play space. And while families' needs evolve over time, the physical features of most schemes were not notably flexible.

Management

Many residents said their schemes were well managed, but were more inclined to go into detail about failures than about successes. Especially in new schemes, these failures were a source of disappointment and eventually anger, which was often directed at management. Residents said they valued efficient management but also wanted a sense of personal connection with those responsible. Concierges were highly valued in those schemes that had them. Residents in some schemes were concerned by the rate of increase of service charges, which they saw as unpredictable and unrelated to the services they received.

Amenities and outdoor space

Master-planned, relatively self-contained schemes seemed to be more successful for residents than one-off insertions into the existing urban fabric. Residents valued a mix of uses at ground-floor level including independent businesses and essentials such as supermarkets –though some schemes struggled to attract ground-floor tenants, at least initially. Some schemes had lively, well-populated outdoor spaces while in others the communal areas were windswept and deserted. Attractive outdoor spaces with comfortable seating and convenient pedestrian routes were better used than hard-surfaced, dead-end, heavily overlooked places.

Built form

Several of our case study schemes received damning reviews from architectural critics, and two won the Carbuncle Cup, but perceived aesthetic quality did not relate strongly to the everyday experience of residents.
The closer people live to one another, the more important are physical factors like noise insulation, heating design and lifts. Besides lack of storage, the other major physical issues in new case studies were noise and overheating.

Learning from residents

There was a wide range of lived experience across the different schemes and even within individual schemes, from strongly positive responses to strongly negative ones, but on the whole most residents were satisfied with their high-density homes. This in itself is remarkable, given how alien some of these blocks would be to most people in the UK. We found no clear relationship between resident satisfaction and the absolute density of the developments. Density alone does not determine whether these environments are successful homes or not. Rather, it is the interaction between density, design, build quality, location and people that creates a sense of place, and the greater the density, the more important it is to get the other factors right.

Londoners are in the midst of a city-wide experiment in built form, yet there is no system for gathering information about the physical and social performance of new residential developments. Post-occupancy evaluations are all too rarely undertaken, and even when they are the information may not be shared. To ensure that our new homes work well for Londoners and for the city, we should routinely assess the physical and social qualities of recent schemes—and when judging their performance we should listen to the voice of residents.

1 Introduction

The face of London is changing. Most of its residential neighbourhoods are low-density streets lined with houses, but new homes are more likely to be in high-density blocks of flats. Look for example at medium-rise but high-density East Village, the former athletes' village for the 2012 Olympic Games; at the residential towers that line the south bank of the Thames from Battersea to central London; at the tight clusters of high-rise blocks at Millharbour on the Isle of Dogs, the single most densely populated ward in the United Kingdom. What is it like to live in such homes, so very different from the 'typical' Victorian terrace? This report tries to answer that question.

Our study was partly inspired by an LSE Cities investigation carried out more than 15 years ago into residential density in the capital. *Density and Urban Neighbourhoods* in London looked in detail at five densely populated wards outside central London, made up mostly of ladders of parallel streets with small Victorian terraced houses, sometimes mixed with social housing estates. Based on observations, mapping, surveys and interviews with local residents, the authors concluded that 'London, with a relatively young population make-up, with more than one third of its population born outside the UK, and with its dense network of public transport, would be likely to support relatively high residential densities' (Burdett et al 2004). Nearly 20 years later this prediction has been more than borne out.

Why has this densification come about? Simply put, we are squeezing more homes into a constrained area. Over much of the 20th century, the population of London was shrinking. The number of inhabitants fell steadily from 8 million in 1931 to 6.6 million in 1981 (a decline of nearly 20%), making any discussion of densification seem perverse. In the last 40 years, though, London's population has increased significantly. This growth is due to international in-migration but also to natural increase and the revived popularity of an 'urban' lifestyle. London's population now stands at 8.825 million (its highest ever) and is forecast to reach 10 million by 2030. This, among other factors, has generated strong demand for new homes, but the Metropolitan Green Belt constrains the lateral expansion of the city. Increasing the number of homes within the same footprint implies higher densities.

Densification will arguably improve London. Urbanists from Jane Jacobs to Richard Rogers have extolled the virtues of the dense city. In contemporary terms, dense cities are more environmentally and socially sustainable: walking, cycling and use of public transport become more attractive than driving; living in proximity means residents have more regular social interaction; the city's physical footprint is smaller. Such benefits are, however, contingent on the provision of adequate infrastructure, on the location of dense neighbourhoods in relation to employment and retail centres and to open space, and on the quality and design of the public and circulation spaces within and around the new neighbourhoods. Social sustainability also depends on the composition of the neighbourhood population and the degree of stability and continuity.

Building dense housing may make sense for the city as a whole, but some Londoners reject such homes. In the UK, high density housing (and high-rise blocks in particular) has been associated with deprivation and crime, even though London has many affluent and safe high-density neighbourhoods. Modern new high-density residential developments are indeed very different from the houses with gardens to which Londoners historically aspired. But patterns of aspiration appear to be changing: many of the city's immigrant households bring with them housing expectations formed in countries where high-density living is the norm. The same may be true of young people, who increasingly remain in the capital instead of moving to the suburbs when children are born. Perhaps these children, when they become adults, will actively prefer modern high-density homes.

The proliferation of high-rise and high-density developments in London is changing not only the appearance of the city but also the way it works on the ground—the routes taken by pedestrians, the shape of public spaces, the views. What is built now will almost certainly be standing in 40 years and may still be there in 100. These properties represent a radical departure from London's traditional housing stock, but until now there has been little evidence about what they are like as homes. Our two-year research project, jointly led by LSE London and LSE Cities and with support from the Greater London Authority, sought to address this gap. Today's choices will have long-term implications for both future residents and the wider public, and based on our findings we make some suggestions about how to ensure the legacy is a good one.

No report about tower-block living in London can ignore the tragic Grenfell Tower fire of June 2017, which raised issues of design, risk management, funding allocation, resident voice and building management, among others. The fire continues to have a huge impact on perceptions of tower living and on discussions about the future of high-rise blocks. This report contributes little direct evidence to that discussion because the research approach was designed in 2016 and most of the fieldwork was completed before the fire occurred.

2 Drivers and challenges of density

Economists and urbanists say that density strengthens cities. One influential report summarised the benefits as follows:

> 'in social terms [density encourages] mixed communities, enhancing social capital and reducing social isolation; in economic terms… it brings economies of scale in services and markets and in environmental terms [it makes for] a reduced carbon footprint'. (Design for Homes et al 2007)

This view is now orthodox but would have seemed bizarre 100 years ago. Charles Booth's 19th-century poverty maps of London vividly demonstrated the association between residential density and poverty, and for generations high-density housing was considered synonymous with sub-standard living conditions and slums. Even 30 or 40 years ago, the contemporary developments we studied, all of which contain at least some high-cost homes for affluent residents, would not have been built in London. In New York City, high rises have long been associated with penthouse living for the wealthy, but in the twentieth century most new high-density and/or high-rise housing in London was for social rent, not owner occupation.

Successive waves of redevelopment in the capital, from Victorian social reform to post-war reconstruction, aimed to create a less crowded urban environment and to disperse families from inner-city areas to healthier suburbs and new towns. In the 1950s and 1960s, urban slum clearance programmes focused on the elimination of over-crowded high-density housing, and local authorities cited excessive density and over-development as reasons for refusing planning permission. But not everyone was rehoused outside the cities: local authorities, responsible for the bulk of new residential construction in England from the 1950s to the 1970s, built hundreds of new urban estates comprised of high-density system-built blocks. These homes represented real improvements for most of the families who first moved in (Boughton 2018). Living in a large modern block of flats was acceptable, even aspirational, for many lower-income households in the 1950s and 60s, but those who could afford to choose generally preferred living in houses—ideally detached houses with gardens—rather than flats, even in cities.

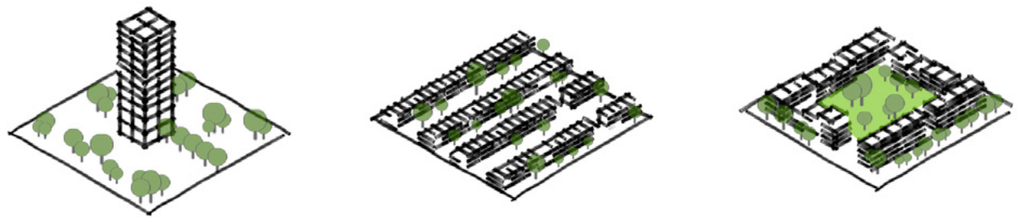


Figure 2.1: Density is a measure: it does not imply urban form or design
(Interpreted from Urban Task Force, 1999)

Since the 1970s, though, there has been a paradigm shift around high-rise and high-density housing. Richard Rogers' Urban Task Force report was influential in changing the direction of the debate. *Towards an Urban Renaissance* advocated a planning presumption against excessively low-density urban development and argued for more densely-populated towns and cities rather than less—what came to be known as the compact city model (UTF, 1999). A well-known illustration from that report (reinterpreted above in Figure 2.1) shows that up to a certain level, high-density housing need not be synonymous with high-rise.

How planning boosts density

Over the last decades, national planning policy has required local authorities to adhere to progressively higher standards of density. The National Planning Policy Framework (NPPF) is the current statement of national policy for planning and development, and local-authority plans must be consistent with its principles. Chapter 11 of the 2018 version of the NPPF, entitled *Making efficient use of land*, requires local authorities to apply minimum density standards for housing, particularly in areas that are well-connected by public transport. It encourages authorities to adopt a flexible approach to daylight and sunlight to increase densities without adversely affecting living conditions for residents. Planning authorities are advised to develop a range of acceptable densities based on infrastructure and public transport capacity, rather than using one common benchmark of density across their jurisdiction. Councils must ensure the housing needs of their communities are met, and the NPPF recommends design codes to guide built density, scale, heights, etc.

In London, the Mayor's London Plan serves as the city's statutory spatial development strategy. It provides an overall framework for urban development, but individual boroughs are the local planning authorities with responsibility for granting planning permission. The first London Plan was published in 2004, with successive versions appearing every three or four years since. Increasing housing density was a key objective of the 2004 Plan, which set an annual target of 30,000 new homes (very ambitious, given that there were only 13,900 completions in 2001/02). It said the increase was required to help curb out-migration due to a lack of affordable housing.

The current version of the London Plan was published in 2016 and will be superseded by a new document in early 2020 (Mayor of London 2019). This new plan embraces density as a core principle, saying higher densities are required to address the city's growing need for housing. The Mayor's 2019 draft set out a housing target of 66,000 homes per annum, but the number has been scaled back to 52,000 on the recommendation of planning inspectors.

The 2004 Plan incorporated a residential density matrix, whose most recent iteration appears in Annex B. The matrix categorised development sites based on their distance from town centres and transport services, and by the type of housing they would contain. Indicative density ranges (in terms of both habitable rooms per hectare and units per hectare) were specified for each subcategory identified in the matrix, ranging from 30 units/hectare in remote sites where houses would be built, to 435 units/hectare in town-centre sites with flats. Controversially the new London Plan eliminated the density matrix based on LSE research that found it was often or even usually ignored in practice, with many developments exceeding maximum matrix levels (Whitehead & Gordon 2017).

The principles of the London Plan are explained and expanded in non-statutory Supplementary Planning Guidance documents, including two that focus on housing. The current version of the Housing SPG (Mayor of London 2016) was published under previous Mayor Boris Johnson, and later revised as some parts were superseded by the 2017 Housing and Viability SPG (Mayor of London 2017b). The schemes we studied were all designed *before* these SPGs came into effect. Even so, the documents are interesting to consider as they reflect the direction of policy travel, and many of their provisions codified what was already considered best practice.

The broadly titled Housing SPG in fact focuses mainly on one topic: how to increase (or 'optimise') density, which it defines as 'developing land to the fullest amount consistent with all relevant planning objectives' (p. 41). The document is careful to note that 'higher densities do not always have to necessitate tall buildings, particularly where a well-considered, design-led approach is taken making the most efficient use of land' (p.20). Detailed guidance was given on how to use the now-abolished density matrix.

The aim of the 2017 Affordable Housing and Viability SPG was to accelerate planning decisions by giving more certainty about how much affordable housing must be included in new schemes. It explicitly links density and affordable housing, saying that where a scheme meets the threshold of 35% affordable housing

> 'it may also be appropriate to explore the potential to increase densities…to enable the delivery of additional affordable homes where this meets exemplary design standards.' (p. 24)

Another key document is the London Housing Design Guide (Design for London 2010). This was originally written by Mae Architects as an internal document for Transport for London and was published in 2010 by Design for London, an organisation set up under Ken Livingstone to look at issues related to the built environment. Inspired by recent experience in the Netherlands and Scandinavia, the guide tried to offer alternatives to the cramped, unhygienic and poorly ventilated residential spaces that were seen by some as the inevitable result of increasing density and high land prices. Under six main headings including *Shaping Good Places* and *Street to Front Door*, the guide makes recommendations for both external features (open space, entrances to buildings, car parking, etc.) and internal spaces (including ceiling heights, storage, aspect and daylight). Although the document was advisory only, its recommendations were highly influential. The Mayor recently commissioned an update, which is expected to be published as a formal SPG on Housing Design.

Financial drivers of higher density

The logic of development finance and the planning-gain system create incentives to push residential density up. The key factor is the price of land. Land value is a residual, calculated by estimating the value of the final completed scheme and subtracting the cost of construction and required developer profit. The remainder is the amount a developer can afford to pay for land. The value of a plot of land depends fundamentally on what can be built on it, so a developer who expects to build a denser and therefore more valuable scheme will be able to outbid one who plans a lower-density project. This creates an incentive for developers to plan schemes at the top of permissible densities—and then to try to increase density after the land is secured.

The system of providing affordable housing or other public benefits through planning gain is another driver of density. Historically central government supported the construction of social and affordable housing with grant funding, but the amount of grant available has shrunk dramatically in recent decades. Most new 'affordable housing' is now funded by market development. In London, all residential developments with 10 units or more are required to include a proportion of affordable housing.[1] Affordable rental units are normally sold at cost to housing associations, while affordable owner-occupation units are sold at up to 80% of market price to qualifying households. The developer foregoes (most) profit on affordable housing so seeks a higher return on market-price units to compensate. Building at higher densities allows developers to build a greater number of profitable market-price units—which in turn means planners can demand more affordable units and/or contributions to infrastructure or local amenities. The logic of this 'density bonus' holds not only in London but across the world.

The politics of density

Development proposals are often opposed on the grounds of 'excessive density', but in many cases the real objection is not to density but to new market-led development per se. The debate is most bitter and polarised when it comes to densification of London's 20th-century council estates, many of which now need major investment or replacement. They are often on large, well-located sites, with mid-to high-rise blocks surrounded by expanses of open space. Densities can sometimes be tripled by inserting new structures between the existing ones or, more commonly, by demolishing existing blocks (which were originally single-tenure) and building new mixed-tenure schemes. Local authorities often work in partnership with private developers on these regeneration projects. Because councils own the land, they can exercise substantial control over what is built, and contributing low-cost land can be a powerful way of enabling 'affordable' housing (although this is a contested term, as much of what is officially defined as 'affordable' is out of reach for low-income households).

Estate-regeneration proposals often generate strong local opposition. The new schemes are structured to meet financial 'viability' criteria—that is, to ensure the development partners make a target return. This, plus the prevailing ethos of mixed-tenure development, means that older estates housing that accommodate many low-income people are replaced by schemes with fewer units of low-cost housing alongside many expensive market-price homes. Existing residents may fear (with justification) that they will not be rehoused in the new schemes, or that their communities will be changed out of all recognition. In response to these concerns, the Mayor in 2018 decreed that estate regeneration projects involving demolition of any social homes and the construction of 150 or more new homes must be supported by residents in a ballot to be eligible for GLA funding.

Of our 11 contemporary case studies, two are on sites in Hackney that were formerly occupied by social housing. Woodberry Down is a major regeneration project on a Hackney council estate, and Pembury Circus was built on a vacant corner site in an existing Peabody estate, most of which was unaffected.

Tenure mix is an important (and controversial) feature of discussions about new development, and we had hoped to include detailed tenure breakdowns by unit for each of the case-study schemes. However there is no single reliable source of such information, and there is no way to determine the split between owner occupation and private rental within any scheme. The analyses in our findings are therefore based on the tenures of survey respondents.

Investors and private renting

One important difference between London's new high-density developments and older high-density areas is that flats in recent schemes are often predominantly privately rented. The private rented sector (PRS) has grown rapidly in London over the last decades, fuelled by changes in tenancy laws, by the introduction of buy-to-let mortgages and, in recent years, by the increasing difficulty of gaining access to owner-occupation due in large part to soaring property prices. Most PRS dwellings are owned unit-by-unit by individual investor landlords although there is a small but growing number of 'build to rent' blocks owned and managed by single organisations. These include three of our case-study schemes: at least half the units at East Village, Stratford Halo and Thurston Point are owned and managed by a single private landlord.

Many of the investors in high-density new-build blocks are overseas buyers, whose involvement in the London market has been controversial in recent years. The high proportion of overseas investors is partly a result of the distinctive financing requirements for dense blocks (Scanlon et al 2017). A speculative development scheme consisting entirely of houses can be accelerated or slowed down depending on market conditions but a block of flats cannot be left part-finished, so the developer needs to raise enough finance to cover the cost of constructing the entire building.In the UK, banks generally will not provide development finance for blocks of flats unless about half the units are pre-sold. As high-density development in London has accelerated, foreign investors have been key to achieving these presales. Buyers from the Far East are particularly accustomed to buying off-plan, and many purchase in bulk. By contrast British buyers are less likely to commit in advance: they prefer to look at completed units, and off-plan buyers take on financial risk because UK mortgage offers last only six months.

1. The GLA's threshold rate is currently 35%, but targets were lower when our case study schemes received planning permission, and most them provide less.

Critiques of density

The tension between the advocates and opponents of densification has been at the heart of English planning debates for decades. Critics of the current trend toward greater density argue that it is based on market fundamentalism and reductive supply-oriented arguments, ignores the rights of existing communities, and risks permanent eradication of London's industrial infrastructure and its fecund urban messiness. They observe that densification often goes hand in hand with reduction in unit size: the logic of development finance means many new residential blocks are dominated by small one- and two-bed flats, and at the limit co-living communities offer private spaces as small as 10m^2. Developers of these micro units can afford to pay high land prices, but critics worry that we are building substandard housing that will end up occupied by those with no choice.

How residents perceive density

Much of what we know about the user experience in high-density schemes in London comes from research carried out to inform planning and architectural practice. In 2016 consultancy Three Dragons looked at residents' experience of living in buildings whose design exceeded the maximum densities in the London Plan matrix. *Lessons from Higher Density Development* focused mainly on the *physical* experience of living in these buildings and identified five main problems: overheating (especially in single-aspect flats), lack of privacy, insufficient storage, lack of suitable private and public amenity space, and excessive noise. They found that both family units and affordable housing (including shared ownership) tended to be located on lower floors, with higher-priced (and higher-profit) units in the upper floors. On-site management was the norm on schemes with 500 units or more.

Quantitative measures of density may not align with residents' own perceptions, which are referred to variously as social density, soft density and subjective density. The luxurious Manhattan skyscraper is structurally much the same as the council-built tower block in Hackney but perceptions of good density are culturally specific, so context is critical for understanding the experience of life in high-density homes. It is normal and unremarkable in many cities of the Far East for families to live in apartment blocks at extremely high densities, and surveys of residents of high-rise housing in Singapore, where 80% of homes are in towers, have shown high levels of satisfaction with their flats (Yuen, 2005). In Glasgow, by contrast, residents of high-rise housing were found to be widely dissatisfied and said living in such buildings affected their physical and mental wellbeing (Kearns et al, 2012). Our observations about what makes good density inevitably reflect our own time and place.

3 Our research questions

Our overall aim was to understand what it's like to live in London's new high-density homes. We explored this through case studies of 14 high-density schemes in London (11 recent developments and 3 historic ones). We started our research in late 2016 and finished the fieldwork in 2018.

We broke the research topic down into several sub-questions:

- Who lives in these homes? (resident demographics);
- How did residents come to live in these schemes, and why did they choose them?
- What is day-to-day life like, and what are the pros and cons of high-density living?
- Do residents feel a sense of belonging to their developments and the neighbourhoods where they are located?
- Looking ahead, what are residents' housing aspirations? Do they consider their flats to be long-term homes?

To answer the research questions, we used a range of techniques. We conducted an online survey, convened focus groups for discussion, and visited each case-study site, often in the company of residents. We also carried out structured observations in the public areas of several schemes and made a short film with residents. **Annex C** describes the project methodology in more detail.

4 Which schemes? Choosing the cases to study

Over the last 20 years London has densified rapidly, and clusters of cranes herald the appearance of new-build blocks of flats across the city. Deciding which high-density developments to study for this project was therefore a key part of the research process. We studied 14 sites in all (11 modern, 3 historic), and chose them using the following criteria:

• **100+ dwellings per hectare:** Though we recognised the challenges with measuring density, particularly in larger developments, we needed to use a benchmark of some sort. Even over the duration of the project, however, 100dph has come to sound rather low density, as several London schemes have reached over 1,000dph. We based our measurement on the 'net residential site area' definition in the London Plan, which is the site boundary 'red line' in the planning application for each scheme (see illustration). **Annex A** contains a discussion of the various ways of measuring density.

Figure 4.1: 'Red line' planning application site boundary for Strata SE1

• **Minimum 200 units:** We were interested in large developments so set a minimum of 200 units—though in the end most were much bigger.

• **Mix of building typologies**: We sought to capture the range of built form found in high-density housing schemes in the capital, from tower blocks to lower-rise courtyard developments – and combinations of these. The schemes we chose contrast strongly with London's typical streets of Victorian terraces and semis, which were the focus of the 2004 LSE Cities report.

• **Completed within the past 2-10 years:** Super-dense development is a relatively new phenomenon in London, and only within the last ten or so years so have developments with over 100 dwellings per hectare become the norm. We looked at schemes that had been completed for at least two years, as these were more likely to be fully occupied, and residents would have had more time to experience living there. Case studies included some buildings completed in the early phases of major ongoing, multi-stage developments.

• **Geographic spread:** We aimed for a broad geographical spread but in fact the case studies are mainly in the eastern half of London, where much of London's new housing has been constructed and the most rapid densification has taken place in recent years. Many of these boroughs have seen the redevelopment of formerly industrial areas into housing, which has allowed for densification at scale.

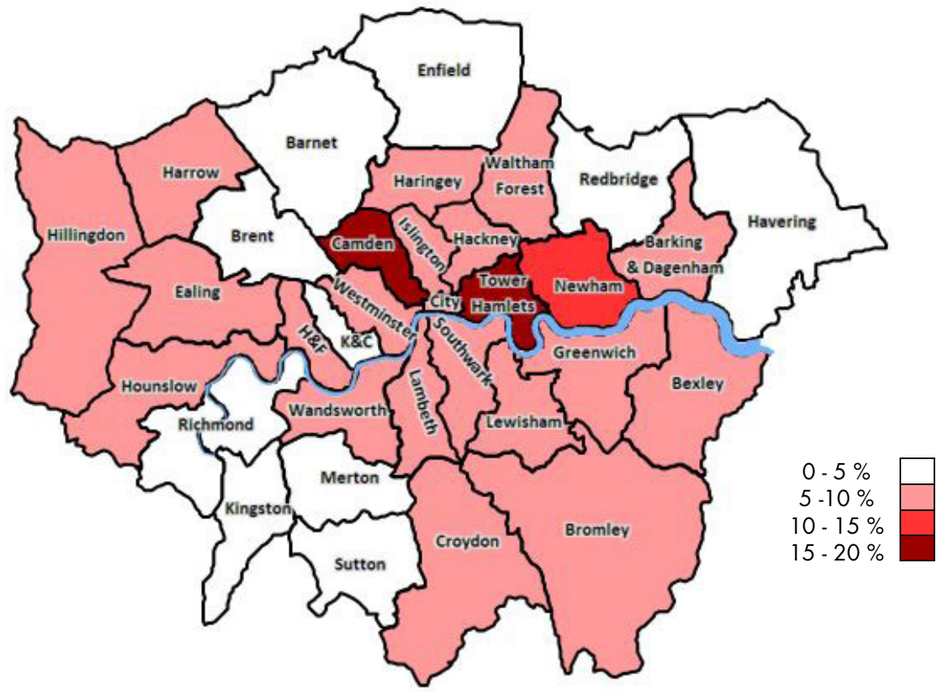
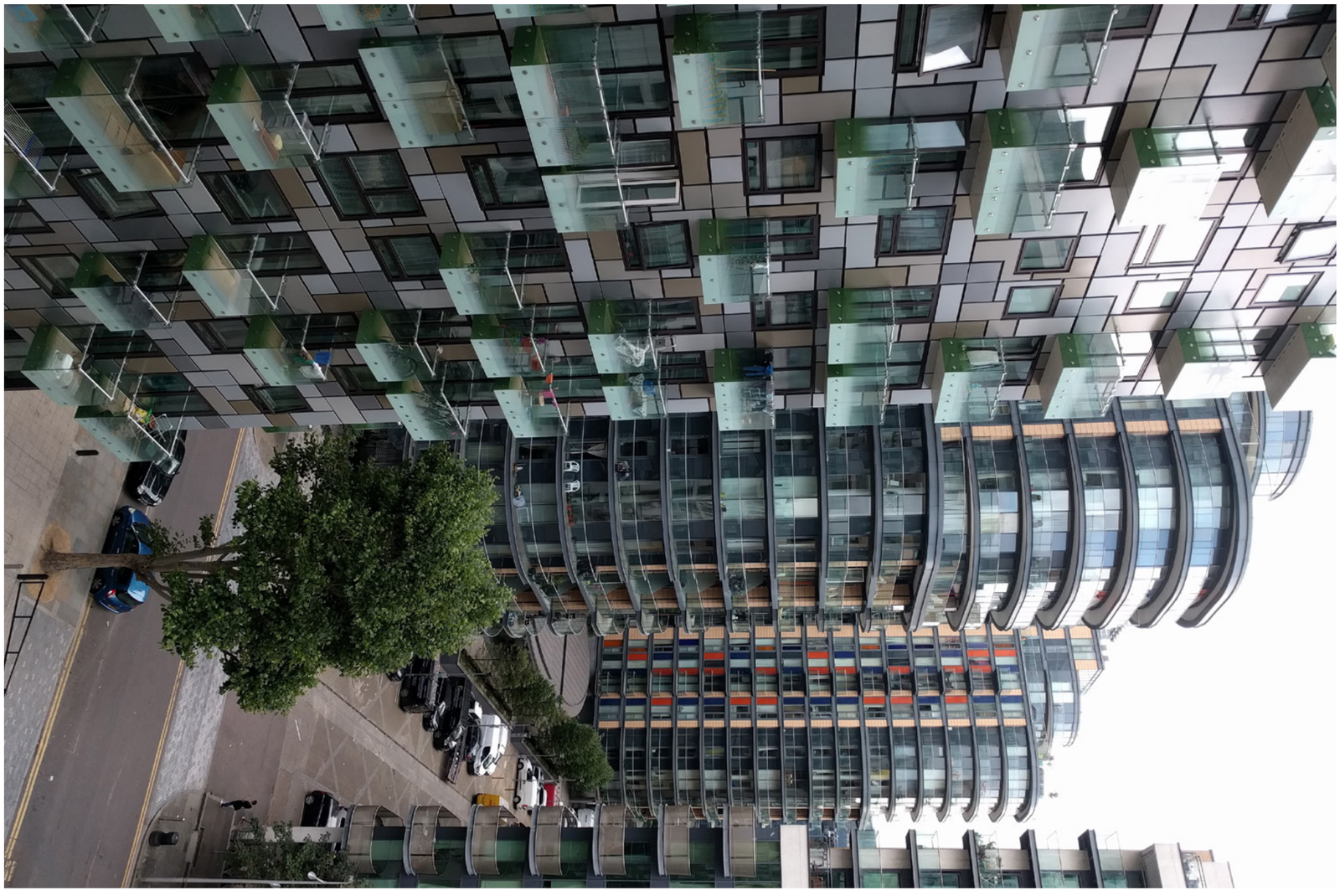


Figure 4.2: Percentage increases in density (residential dwellings/hectare) by borough 2001 - 2018
Source: DCLG Live Table 125: Dwelling stock estimates by local authority district

At the request of the GLA, who funded the second phase of the research, we looked for a Build to Rent scheme, a development that incorporated retail use, and one that was part of a big masterplan. In the end, our 14 case studies included more than one example of each of these.

From an initial list of 55 potential sites, we narrowed our choice to 14. We tried to select new developments that broadly represented the range of what had been built in London over the last decade or so. We did not look specifically for examples of good or bad practice, and indeed knew very little about most of the case study developments initially. For the historic estates, we wanted to choose three schemes built during different periods within the same area, in order to control for local factors. The historic examples are therefore all in Pimlico. We did not set out to choose iconic examples, though Millbank Estate and Lillington and Longmoore Gardens are well known to architectural historians and students of public policy.

We later classified the schemes into five groups based on their typologies: towers, master-planned schemes, urban insertions, town centre interventions and the historic Pimlico estates. Inevitably there are some overlaps between these groups, but categorising them in this way helped us to identify the issues shared by each group. Table 4.1 presents our final selection of case-study schemes.



An emerging neighbourhood of high-density schemes on the Isle of Dogs, south of Canary Wharf. Floor-to-ceiling windows or entire glass walls are common as they admit more light to deep rooms.

Table 4.1: The case studies

Groups		Name	Number of units	Number of buildings	Storeys	Density (dph)	Year of completion	Borough
The towers	**1**	Strata	408	1	43	1,295	2010	Southwark
	2	Stratford Halo[B]	704	3	2 of 7 – 10 storeys + 43-storey tower	670	2013	Newham
The big master planned schemes	**3**	East Village[B]	2,818	63	8 – 12	147	2013	Newham
	4	Hale Village	1,200	12	3 – 11	243	2013	Haringey
	5	Woodberry Down	835	9	5 - 30 (Kick Start Sites 1 & 2)	243	2011	Hackney
The urban insertions	**6**	Lanterns Court	656	3	4 – 18	532	2011	Tower Hamlets
	7	Greenwich Creekside	371	4	8 – 17	334	2012	Lewisham
	8	Pembury Circus	268	5	5 – 12	202	2014	Hackney
	9	Thurston Point[B, RU]	406	2	15-storey tower, 8-9 storey courtyard block	390	2015	Lewisham
The town centre interventions	**10**	Barking Central	516	7	6 and 17	403	2010	Barking & Dagenham
	11	Woolwich Central [RU]	304	6 blocks	up to 17 storeys above large Tesco (phases 1 & 2 of 4)	420	2014	Greenwich
The historic Pimlico estates	**12**	Millbank Estate	562	17	4 – 5	141	1902	Westminster
	13	Tachbrook Estate	427	14	2 – 7	225	1947	Westminster
	14	Lillington and Longmoore Gardens	777	13	3 and 8 storey courtyard blocks	194	1980	Westminster

[B]*Build to Rent*
[RU]*Incorporates large retail use*

The towers

High rises are the most divisive of London's high-density typologies. Many of the capital's post-war social housing estates were towers. Originally celebrated as an innovative solution to the housing crisis, they were often later maligned as a symbol of social decay. In recent years, perceptions of high-rise blocks have changed. Vertical living is increasingly associated with luxury private developments, where the higher the floor, the higher the price. At the same time, though, there is a continuing undercurrent of public opposition to new high-rise buildings, both because of safety concerns (especially in the wake of the Grenfell Tower fire) and the view that they risk irrevocably changing London's character.

The Mayor's Housing SPG notes that 'higher densities do not always have to necessitate tall buildings, particularly where a well-considered, design-led approach is taken making the most efficient use of land', but on constrained sites, towers are the only way to achieve very high densities. New London Architecture's Tall Buildings Survey reports that there are over 500 buildings of 20 floors or more in the pipeline or under construction in the capital.

Towers are completely different environments from lower-rise high-density developments. In a tower, the view may be a key attraction and a lift is essential. Residents of towers often have limited access to outdoor space. Existing studies suggest, unsurprisingly, that high-rises are less family-friendly than other types of housing. We therefore wondered whether we would find differences between the types of people living in tower blocks and lower-rise high-density schemes (e.g. courtyard blocks), and whether these residents would feel differently about their homes.

Looking up at Stratford Halo which, like many residential towers, has no balconies.

Strata SE1

Borough: Southwark
Number of units: 408
Density: 1,295dph
Number of buildings and heights:
Single 43-storey tower (148m)
Occupied: 2010
Developer: Brookfield Europe

Strata SE1 stands on a busy bus-choked junction opposite south London's Elephant and Castle shopping centre, a 1960s structure now controversially scheduled for redevelopment. It was built on the site of Castle House, a council-owned, mixed-use building also from the 1960s. The developer was Brookfield Europe and the Aviva real estate fund now owns the building's freehold.

With 408 flats across 43 storeys, the balcony-less building, nicknamed the 'Electric Razor' or the 'Lipstick', peaks at 148 metres, making it one of London's tallest residential buildings. It won the Carbuncle Cup in 2010. The three wind turbines atop the block were meant to provide enough green energy to meet 8% of its requirements, but never operated as intended because they caused noise and vibration on the upper floors. The building has basement car parking and a few retail units at ground-floor level. The affordable units (all shared ownership) are operated by Family Mosaic housing association.

Elephant and Castle, historically a working-class neighbourhood, is highly accessible: the Zone 1 stations directly opposite the tower are served by the Northern and Bakerloo tube lines and by trains. Under Southwark Council's masterplan for the area, two large 1960s council estates to the east and south of the station are being replaced by mixed-use, mix-tenure schemes at much higher densities. Strata was one of the first elements of this long-term area-regeneration scheme. When built it was criticised for its lack of social housing and poor public realm but was not as bitterly contentious as the plan to replace the shopping centre or the estate-regeneration schemes.

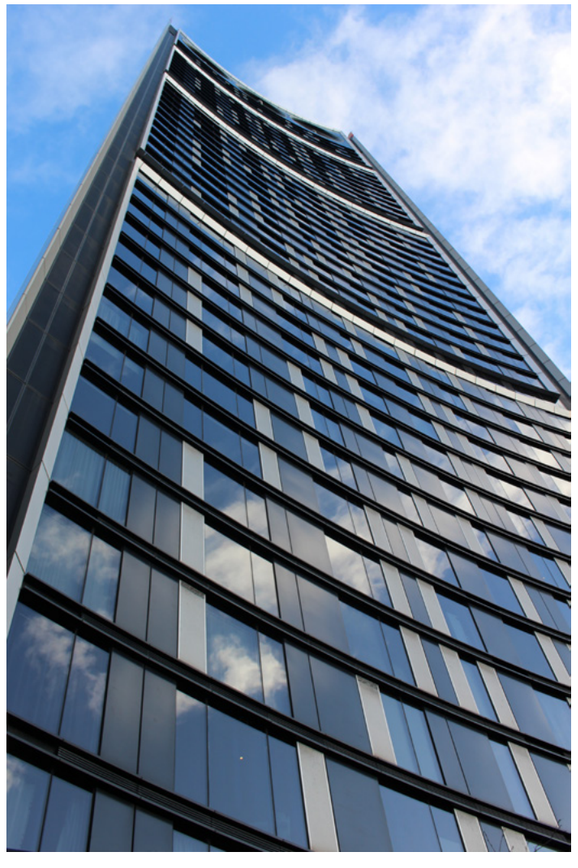
*It's cheaper to live here than Central London. It's a modern new building, the only building where I don't have to lock my door. The development is serious about who lives here.**

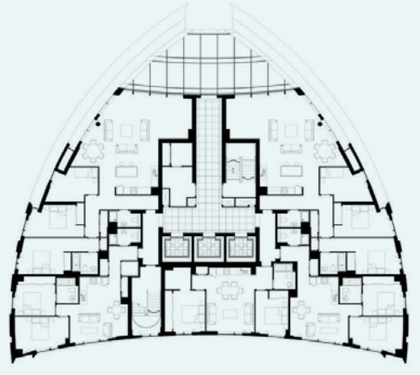
There isn't much interaction although there are a lot of people- so it's secure in a way but also gives me my space.

It's a good community of people. It's close to my job and to my church. I can get anywhere from here easily.

I like that it is gentrifying, better people moving in is a good thing.

**All resident quotes in this report were taken verbatim from survey responses, interviews or focus groups.*





Stratford Halo

Borough: Newham
Number of units: 704
Density: 670dph
Number of buildings and heights: 3 buildings: 2 medium rise (7/10 storeys) and one high-rise tower of 43 storeys (133.10m)
Occupied: 2013
Developer: Genesis Housing Association

Stratford Halo comprises seven blocks and is best known for its 42-storey blue-and-purple clad tower. It sits at the corner of Stratford High Street (a major traffic artery) and the WaterWorks River, an industrial arm of the River Lea, on the site of a 1930s soap-box factory. The scheme was an early element of the 2012 Olympic redevelopment of Stratford and enjoys views to the north over the Queen Elizabeth Olympic Park.

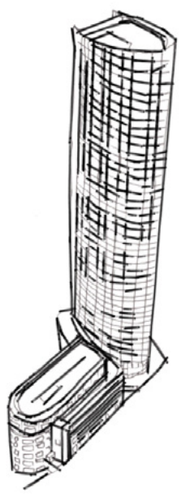
The lower blocks are fairly conventional (grey clad with colourful projecting balconies) but at 443 ft, the tower is one of the tallest structures in London. The building is uninviting from the high street: its base is only a few feet from the roadway and its shop units have long been empty. From the riverside walk at the back the view is more pleasant; the scheme's blocks enclose a gated residents-only garden, and there is an inventive but underused children's playground next to what will eventually be a landscaped footpath to the park.

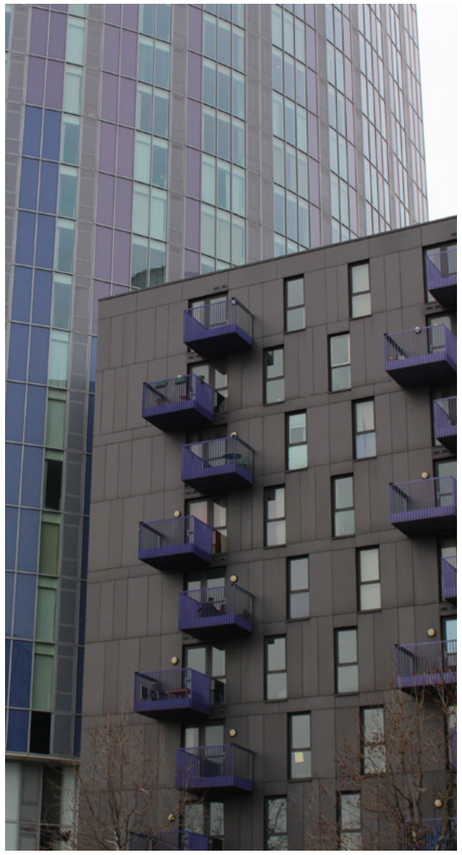
The entire scheme is operated by Notting Hill Genesis, a social landlord. The tower is the largest housing-association-owned block in the country. It was originally designed for market sale but became one of London's first build-to-rent blocks after a sale-and-leaseback deal between the developer and asset-management firm M&G. Its 410 units are rented privately at market rents, while the lower blocks that surround it contain affordable homes, including an extra-care facility for older people. The basement houses a car park and there is an onsite car club. The tower was home to a group of active YouTubers and features three enclosed multi-storey sky gardens.

I think it's better for younger people. There's a lack of space, storage and privacy for long term living, especially if long term involves starting a family. I never felt like I should get to know the neighbours because I didn't expect to be here beyond 3 years. I am still here though because it's a nice and very convenient place to live.

[About the downsides of living there] It's like a glass house. The lifts break down all the time. There has been constant drilling for the past year because they've been changing the window panels.

It has actually exceeded my expectations. The concierge service is one of the best things about it, along with good management and maintenance services. Transport links are great and it's much quicker to access central London than initially thought.





The big master-planned schemes

Most of our case study schemes were built in accordance with some kind of master plan, but three of them–Hale Village, East Village and Woodberry Down—stood out for the extent and detail of these plans. All three are major regeneration projects: the first two on former industrial land, the last an estate-regeneration scheme. Masterplans are meant to provide a holistic approach to residential development, as they usually include social and transport infrastructure and public open space as well as residential buildings. When major development sites have fragmented ownership there can be arguments about whose land should be used for public facilities or amenity space, but importantly the land for each of these schemes was in single ownership.

Master plans can take years or even decades to be completed, leaving the area in a constant state of renewal. Early residents can experience improvements (new café opening next door) and disappointments (construction of a new tower, generating noise and blocking the view) within months. It is not uncommon for master plans to be revised, often more than once, during the course of development to reflect changing market conditions, political priorities or construction challenges.

Looking across the reservoir and wetlands at some of the buildings of Woodberry Down, whose master plan weaves in green space.

East Village

Borough: Newham
Number of units: 2,818
Density: 147dph
Number of buildings and heights: 63 buildings between 8 and 12 storeys
Occupied: 2013
Developer: Olympic Delivery Authority (for the buildings studied)

East Village was constructed in the run-up to the London 2012 Olympics as accommodation for the athletes. Working to an unmoveable deadline, the Olympic Delivery Authority quickly created an entirely new neighbourhood based on a masterplan by a consortium of top UK architects and engineers. After the Games the 3000 units were reconfigured (they originally had no kitchens) and ownership passed to two big landlords: Triathlon Homes, a consortium of three housing associations, and Get Living London, a corporate private landlord, which markets mainly to young professionals.

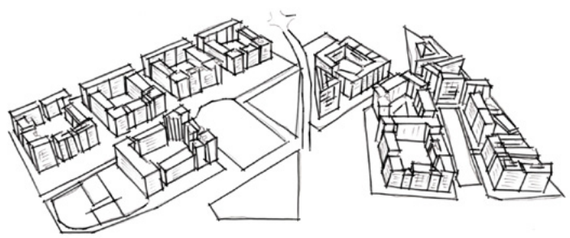
Although broadly similar in size, shape and finish, the buildings—mostly courtyard blocks—were designed by 18 different architects. Between them are a number of landscaped pocket parks featuring children's play areas and a reed-lined stream. The first post-Olympics residents moved in in 2013 and over the next few years the commercial and retail spaces at ground level were let to a curated range of small businesses. The neighbourhood is being further densified with the insertion of several high-rise residential blocks, and new hotels, offices and student accommodation around the perimeter.

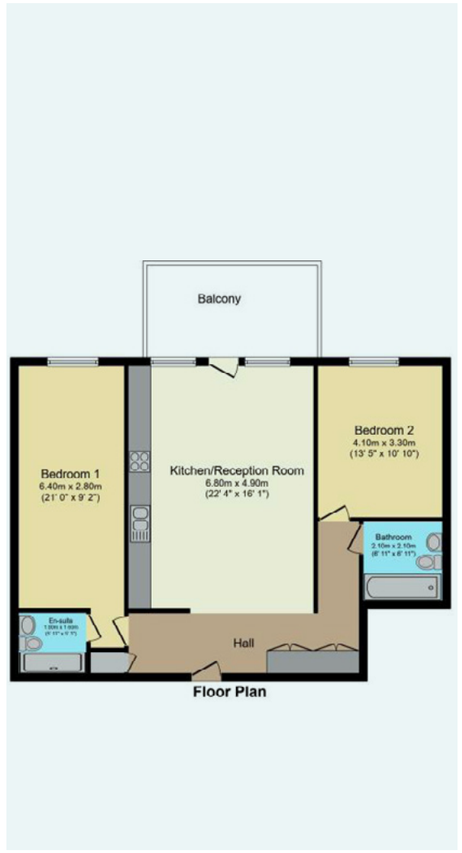
The scheme is on the eastern border of the Queen Elizabeth Park, created for the 2012 Games, which houses West Ham stadium. It is next to Westfield Stratford, which claims to be 'the largest urban shopping and leisure destination in Europe' and has excellent transport links including the Central Line, the DLR and the fast Javelin train, which speeds to St Pancras Station in 7 minutes.

[I wouldn't stay here] for more than 5 years. It's high quality but if you were here for longer you would really want to make the place your own and that's not something I think the East Village flats are made for.

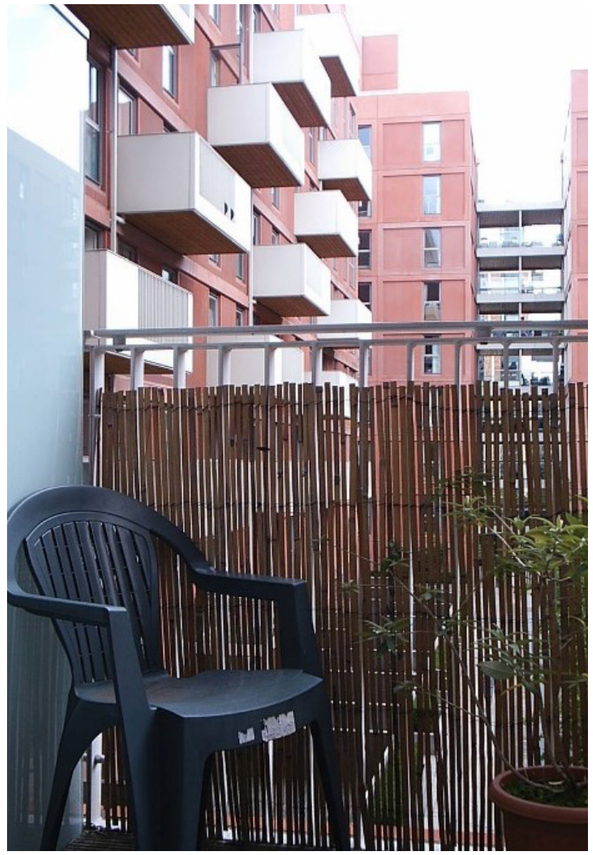
[The highlights are] Transport links!!! Location is fabulous. - The facilities available around me. The green spaces, the Queen Elizabeth Olympic Park, the canal provides excellent opportunities to walk, cycle, explore. Westfield : Don't even have to go to Central now to shop.

There is a large amount of noisy students. West Ham game days are a bit of a nightmare. The energy supplier has a monopoly, it's very expensive, and they can't seem to provide reasons for residents' bills to be so very different, even though you may be like for like.





Floor Plan



Hale Village

Borough: Haringey
Number of units: 1,200
Density: 243dph
Number of buildings and heights:
12 buildings between 3 and 11 storeys
Occupied: 2013
Developer: Lee Valley Estates

Hale Village is a large 'urban village' with over 1,200 residential units, situated immediately to the east of Tottenham Hale station and next to the River Lea Navigation. This was historically an industrial area, with factories along the river. Local housing was low-rise: a mixture of council estates and small Edwardian and Victorian terraced houses. Given its transport accessibility (the station is on the Victoria Line and the train link to Stansted Airport) and stock of former industrial land, the neighbourhood was an obvious target for densification.

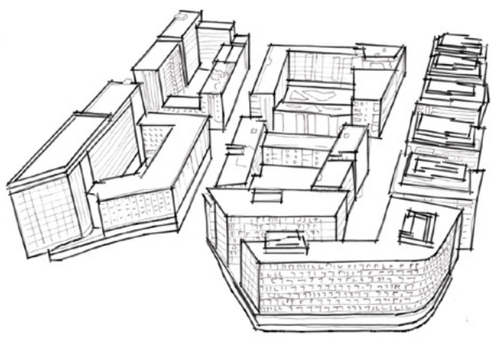
Hale Village is the first of what will be six privately developed regeneration sites, which together will make up a new, high-density district centre. The mixed-use scheme, on a 4.9-acre site once occupied by a GLC depot, received planning permission in 2007. A design code by BDP governs the entire scheme but the various blocks, each of which is single-tenure, were designed by different architects (as at East Village). Local master developer Lee Valley Estates worked with partners including Bellway Homes and Unite student accommodation.

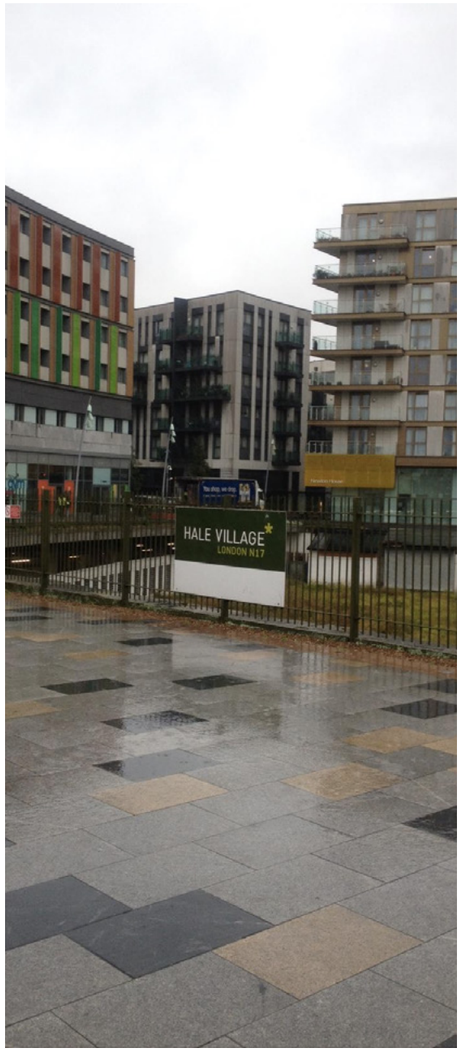
With its 'green' features, including a biomass energy system and green roofs, Hale Village claims to represent a 'new generation of eco-district'. The scheme managers arrange a variety of activities and services for residents including a green gym, community gardening, sewing workshops, hairstyling and dance clubs.

I know more than 10 people in my building - a rarity in London, as I didn't know any of my neighbours when I moved to other parts of London.

There's a lot of focus on people with families for events etc. when there are a significant number of people living here without children.

There is a community here, but I'm not part of it [referring to a separation between private tenants and affordable housing residents].





Woodberry Down

Borough: Hackney
Number of units: 835 in the phases studied
Density: 243dph
Number of buildings and heights: 9 buildings between 5 and 30 storeys (Kick Start Sites 1 & 2)
Occupied: 2011
Developer: Berkeley Homes

Berkeley Homes' Woodberry Down development, on the northern border of LB Hackney, is gradually replacing the 1890-unit Woodberry Down estate, which was built by the London County Council (LCC) between 1946 and 1951 and taken over by Hackney Council in 1965.

An engineering evaluation in 2002 found most of the blocks had structural problems due to the original materials used. Hackney Council designated the estate for mixed-tenure regeneration that would provide more homes, and in 2005 chose Berkeley Homes as development partner and Notting Hill Genesis as affordable-housing partner. Construction began in 2009 and is expected to continue until 2035. The project comprises eight phases, of which we studied two (known as Kick Start Sites 1 & 2).

The attractive 64-acre site adjoins two large reservoirs built in 1833 to store water from the manmade New River for London. When Thames Water completed the London Ring Main in 1992 the reservoirs became redundant. Thames Water planned to drain them and develop housing, but a vigorous campaign by residents saved them for leisure and wildlife use.

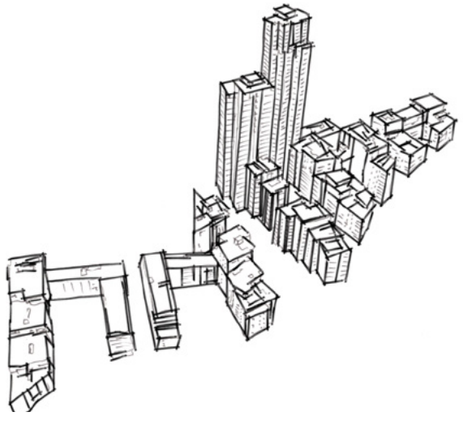
There have been two masterplans so far for the site. The first, commissioned by Hackney Council, was approved in 2009. It provided for 4,500 homes, as well as retail and commercial space, car parking and highways improvements. In 2014 a revised masterplan was approved which allowed for 5,584 homes and provided additional green space in the form of four linear parks extending from the reservoirs to Seven Sisters Road.

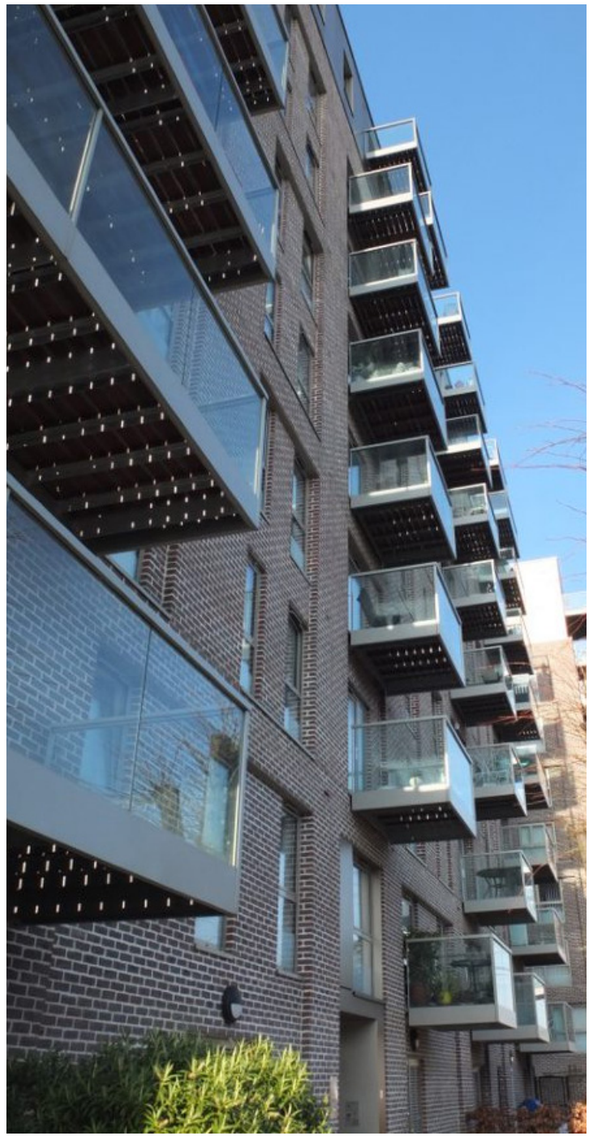
Unusually for an estate regeneration scheme, council tenants with secure tenancies have not been decanted; they only move once into their new homes. This has dictated the phased delivery of Woodberry Down and meant affordable homes were built first. However, local advocacy groups remain concerned about the potential long-term displacement effects of this regeneration project.

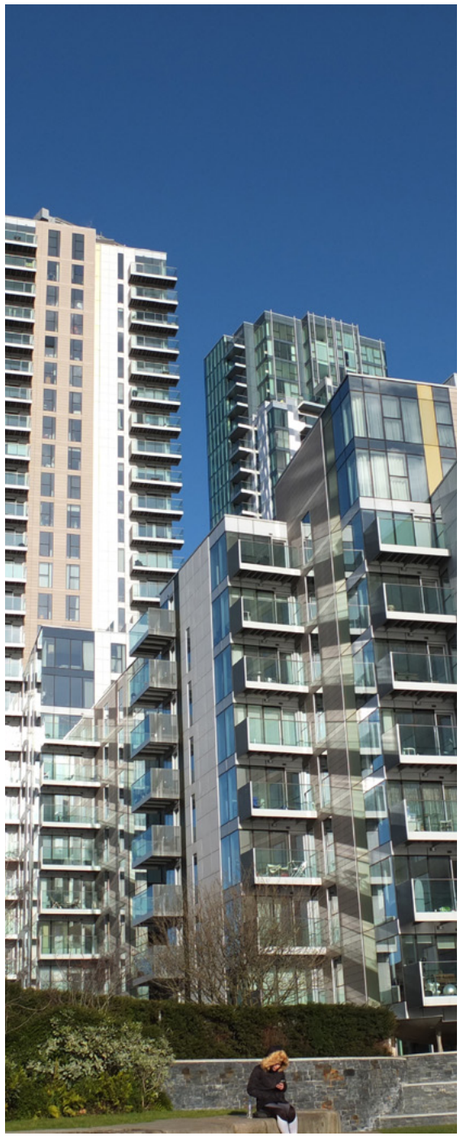
I didn't know that the local community were going to be so brilliant. Reservoirs are brilliant. Children's Centre and schools are v good

I don't know many people and as a young person without a family it's hard to join in with some of the community events (they are normally children related).

I like anonymity so the lack of community feel is a positive to me, I have no desire to know my neighbours.







The urban insertions

In London, where street patterns are asymmetrical and the urban form has been created over centuries, development plots are often small and irregular. Creating high-density residential on a very small plot can only be done by building towers (discussed earlier); slightly larger plots can accommodate what we have called urban insertions. Four of our case studies (Greenwich Creekside, Lanterns Court, Pembury Circus and Thurston Point) occupy relatively small plots in already built-up urban neighbourhoods. Thurston Point is a single courtyard block; the others are sets of blocks linked by the same architectural identity.

Reflecting the pattern of land availability, urban insertions are more numerous than large master-planned schemes. These new high-density schemes can introduce hundreds of new residents to an established neighbourhood, putting strains on existing infrastructure. Residents in our case-study schemes typically complained about overcrowding of GP surgeries or schools, as well as congestion on public transport.

The white tower of Lantern's Court rises behind the Victorian terraces of Mellish Street. Such juxtapositions are typical of urban insertions.

Greenwich Creekside

Borough: Greenwich
Number of units: 371
Density: 334dph
Number of buildings and heights:
4 buildings between 8 and 17 storeys
Occupied: 2012
Developer: Telford Homes

Greenwich Creekside was one of the earliest sites to be developed in the opportunity area along Deptford Creek, formerly home to the local tip and various historic industrial uses. Despite its name the scheme is well west of central Greenwich, on a busy A-road that runs parallel to the Thames.

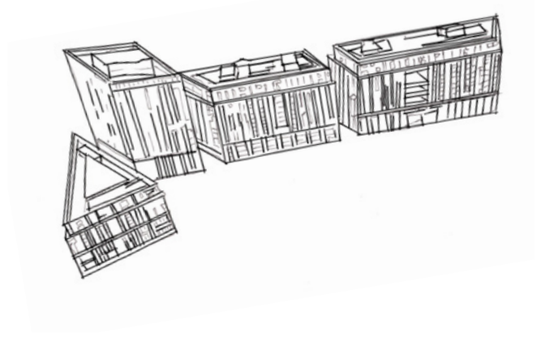
The scheme comprises four angular steel-and-glass buildings with 371 residential units. The ground floor is given over to double-height retail and commercial space, some of which has never been occupied. Externally the buildings look like offices, although the original marketing material said the architecture was inspired by dance (the Laban Centre for contemporary dance is next door, its striking modern building now obscured from most angles by Greenwich Creekside). The original S106 agreement required the developers to provide affordable cultural space; the expectation was that it would house an extension of the dance centre but this never came about. There were also abortive plans for a capsule-style hotel. The hard-edged public realm offers little to tempt the pedestrian, and the buildings create a strong wind-tunnel effect. The development features a 24-hour concierge service and several roof gardens.

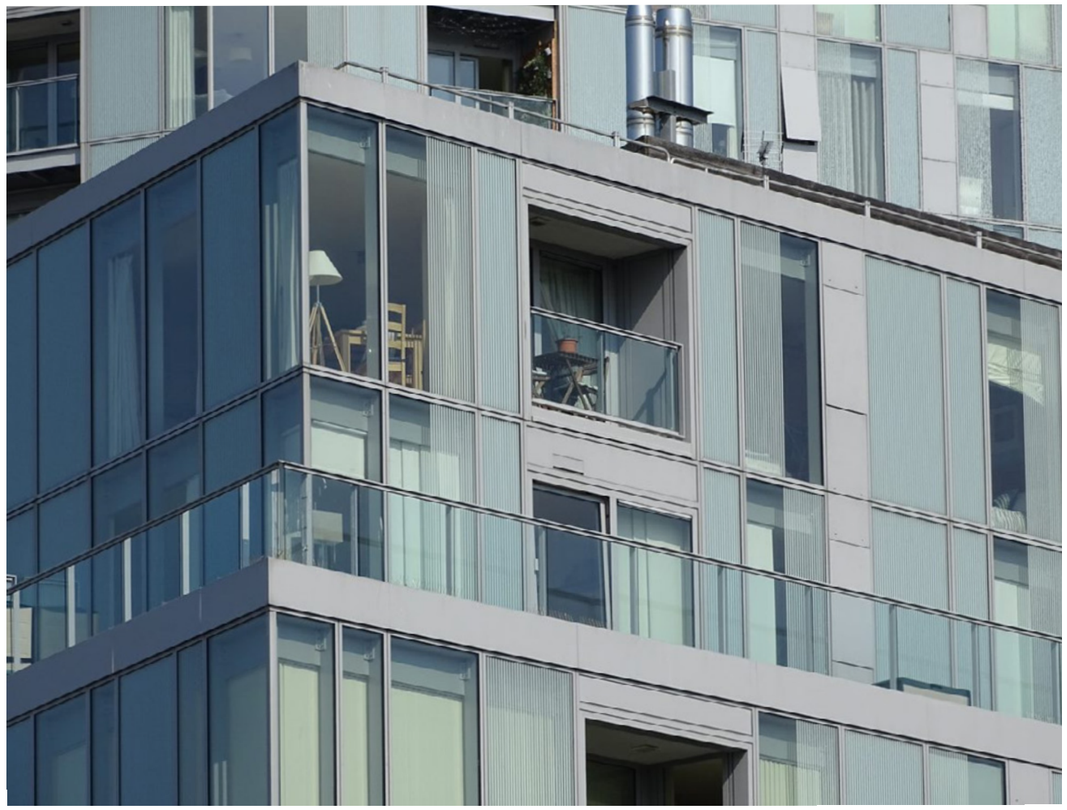
Originally the development was to be twice as large but the later phases were not completed and the land was sold on. The area is currently experiencing a second, stronger wave of development, and several tall mixed-use schemes are going up to its south and east. The Greenwich/Lewisham borough boundary runs just behind the scheme. Because planning authority is split between the two boroughs and the land ownership is fragmented, the various Creekside developments have not been planned as a single entity.

It's becoming crowded with the new building and it's losing its character. Development in infrastructure hasn't followed the growth in number of inhabitants. It's become a much less pleasant place to live in the past 5 years.

[I like the] Safe, village-like feel [in Greenwich], whilst still being within the centre of London (for work, social life, etc.)

[I like the] feeling of community (we have a Facebook group which is very active, where residents discuss various goings on around the development etc). Very well located. For a one-bedroom flat we have a lot of space. There is an exciting feeling that there are also new things to do and see as the area is always developing and changing.





Lanterns Court

Borough: Tower Hamlets
Number of units: 656
Density: 532dph
Number of buildings and heights: 3 buildings between 4 and 18 storeys, plus a street of terraced houses
Occupied: 2011
Developer: City & Docklands

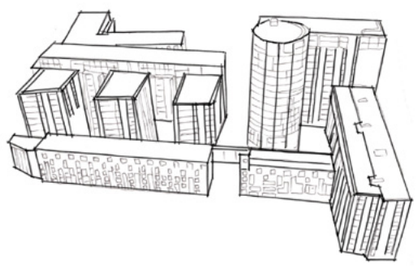
Lanterns Court occupies a 1.2-hectare site to the west of Millwall Dock on the Isle of Dogs, in London's most densely-populated ward. In the 19th and early 20th centuries the site was occupied by an enormous grain store, which gave way to low-rise commercial and warehouse space in the days of the LDDC. In 2000, Tower Hamlets published its Millennium Quarter Masterplan containing urban design guidance for this opportunity area south of Canary Wharf, which is just eight minutes' walk away. The borough expected the zone to be developed largely as office space, but because of changes in the office market and fragmented land ownership, developers instead brought forward a series of high-density residential schemes.

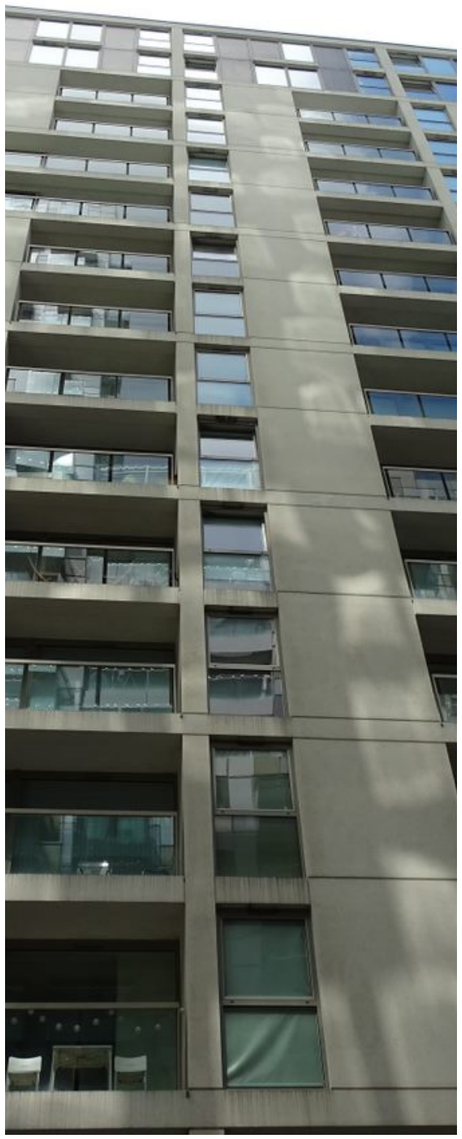
Lanterns Court was one of the first of these and comprises three white-clad blocks featuring a circular tower. Since its construction, similar developments have appeared to the east and north; this wave of modern 'luxury flats' contrasts with the modest Victorian terraces of adjacent Mellish Street. The development caters to the local financial-district work force; many of the units are operated by commercial firms as furnished short-term lettings. There is an underground car park, gym and concierge. The social rented units are operated by Spitalfields Housing Association.

Unfortunately as our family grew we have to move due to lack of space, however I love living here and if we could afford it we would remain.

Modern and nice building and flat, convenient gym, convenient for laundry and groceries, tranquil area, good landlord.

Disappointed by the sub-par maintenance of communal areas and poor quality of carpeting and paint in corridors etc





Pembury Circus

Borough: Hackney
Number of units: 268
Density: 202dph
Number of buildings and heights: 5 buildings between 5 and 12 storeys
Occupied: 2014
Developer: Peabody Housing Association and Bellway Homes

Pembury Circus dominates one corner of a busy five-road junction in north Hackney, close to Hackney Downs Overground station. The new scheme is tucked into the much larger Pembury Estates, formerly owned by Hackney Council but transferred to Peabody Housing Association in 2000. Old Pembury Estate consists 24 walk-up mansion blocks, while New Pembury comprises 4-storey 1960s blocks. The 1-hectare Pembury Circus site originally housed a small block of bedsits, which became run-down. The building was demolished in 2004 and the empty corner became associated with crime and antisocial behaviour.

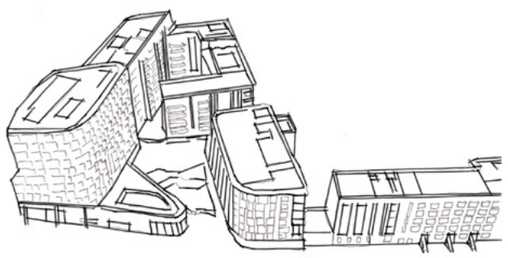
In 2010 the developers submitted two simultaneous planning applications: one for a scheme that included parking and one without. Hackney Council preferred the car-free scheme given the site's excellent accessibility, although the surrounding estate does have garages (many now disused).

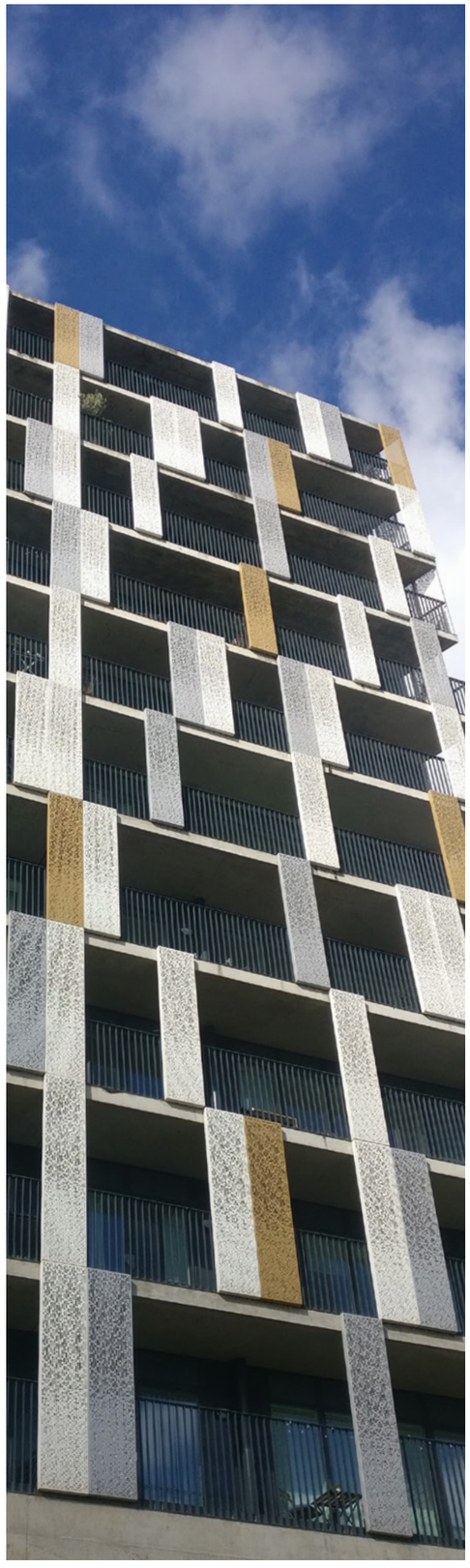
The scheme features five mid-rise blocks around a landscaped central piazza, which opens up pedestrian and cycle access from the busy junction into the rest of the estate. The well-used public space is flanked by a Co-Op supermarket, cafes and a Peabody-run community centre. Access to the residential blocks and internal courtyards is fob-controlled. There are 268 flats, about half of which are affordable (either rented or shared ownership). The scheme has won several design awards.

We could never start a family in this flat, the standard of living for our children would be poor and we could never have a car.

I really enjoy living here, despite some niggles. I love the design and layout of my flat, it feels really spacious. I love not having mould like all my previous flats! I feel quite safe here too.

I don't like the fact that the social housing has been separated out into another block, which seems to have lower specs than our blocks. Everyone in my block is exactly the same, the same age, the same race, the same professions. I had to leave the online Facebook group as it was full of people who complained about the most ridiculous things [...]. It just felt so privileged.





Thurston Point

Borough: Lewisham
Number of units: 406
Density: 390dph
Number of buildings and heights:
2 buildings: 15 storey tower, 8/9 storey courtyard block
Occupied: 2015
Developer: L&Q

Thurston Point is sandwiched between two busy train lines and an A-road at the northernmost end of the Lewisham Gateway redevelopment around Lewisham Station. Although the station is only a few hundred metres from the retail centre in Lewisham High Street, an intervening roundabout made pedestrian access difficult and unpleasant.

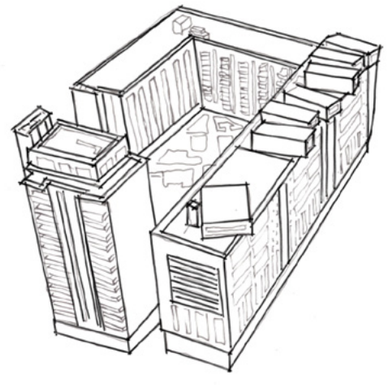
In 2009, outline planning permission was granted for a comprehensive mixed-use redevelopment with 700+ homes, retail and office uses and a hotel. There were also major public realm improvements including a new road layout, open space and access to the rivers that run through the neighbourhood. The overall redevelopment comprises a cluster of high-rise buildings including six 15- to 25-storey towers. Several, including Thurston Point, are build-to-rent blocks. The land was contributed by Lewisham Council, Transport for London and the Mayor of London.

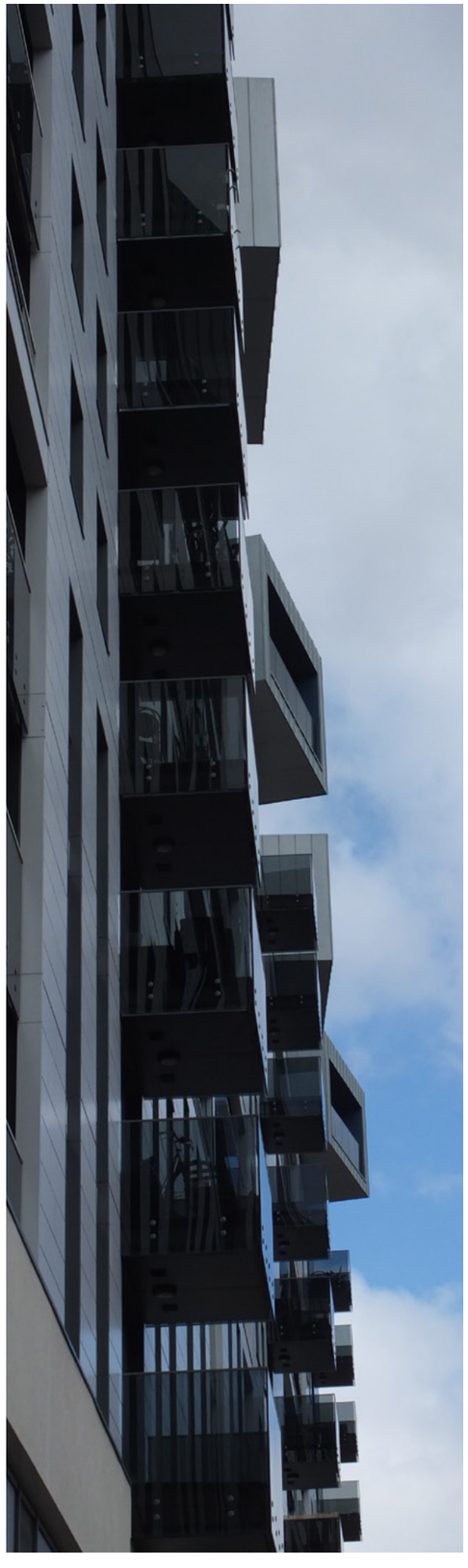
Thurston Point is owned and operated by social landlord L&Q but most of the units are rented at market rents. The block has black-and-white cladding and features several irregularly placed rooftop units that look like shipping containers, each containing a single flat. Like most of Thurston Road, the site was formerly occupied by low-rise warehousing and light-industrial units; continuing development has changed the character of the area dramatically even in the few years since Thurston Point was opened. There is an ASDA on the ground floor and residents have access to a rather bleak courtyard at podium level, but the scheme makes little contribution to the streetscape, offering only an uninviting plaza on the A20.

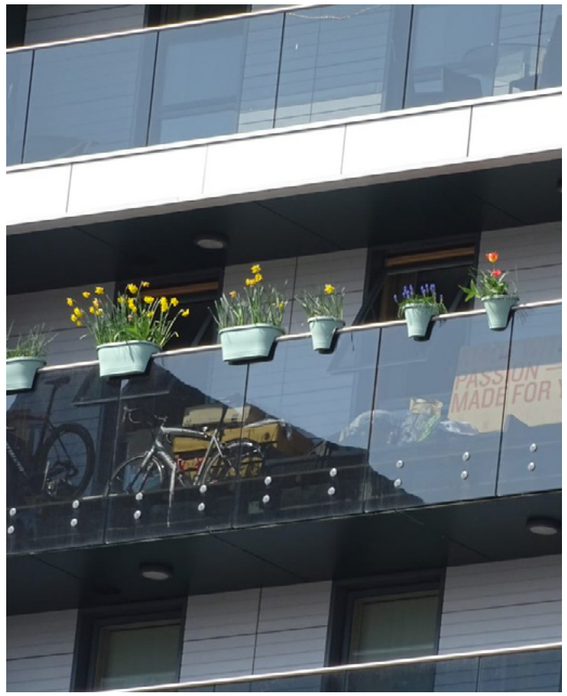
It suits my purposes at this point in my life where I want somewhere convenient until I am able to buy my own home.

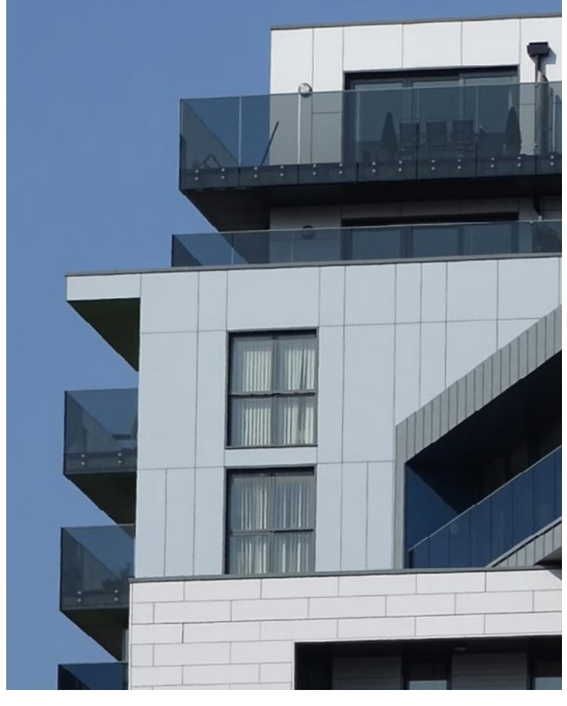
I really like living in a home that I feel is high quality, it was what I needed after living in poor quality housing in central London for a few years. I also really like that the home is energy efficient and therefore the bills are more affordable. I think it provides good housing for younger people who can't afford to buy. However it's really important the good soundproofing between homes is built in to make them feel private.

[I dislike] the sense of lack of management and safety. No one is around to fix anything. We have been 10 days with no lift and counting in a 15-story building, no concierge, responsible or anyone that we could communicate with. The maintenance (cleaning, checking security features, etc.) is very poor.









The town centre interventions

Town centres are seen as key opportunities for densification, as they usually have good transport links and strong local character but may have underused properties (car parks, derelict shops). The Draft New London Plan takes an explicit town-centres first approach, saying boroughs should try to optimise 'the agglomeration benefits and accessibility of town centres and to ensure sustainable patterns of development'. Such regeneration is often framed as an effort to 'breathe life' back into an area, and plays upon historic uses like markets. Town-centre schemes usually encompass a wide range of different uses in addition to residential (e.g., libraries, retail, civic offices—at Woolwich Central the scheme included a new building for the local authority), and because of their location there is an emphasis on accessible and functional public realm.

The schemes in Barking and Woolwich are located in relatively peripheral areas of east and south London, but both proudly badge themselves as 'Central'. Whilst they were built around the same time, Woolwich Central's development was significantly affected by the 2008 recession and the scheme is still technically incomplete relative to the original plans, whilst Barking Central is far more cohesive.

The imposing bulk of Woolwich Central dominates the centre of Woolwich. Interventions like this can shift the centre of gravity of a local area.

Barking Central

Borough: Barking & Dagenham
Number of units: 516
Density: 403dph
Number of buildings and heights: 7 buildings between 6 and 17 storeys
Occupied: Phase 1 2007; Phase 2 2010
Developer: Redrow and LB Barking & Dagenham

This mixed-use redevelopment occupies a prominent position just a few minutes' walk from Barking Station. Its seven buildings enclose a linear 'arboretum' and create a new civic square in front of the borough's 1950s town hall. The scheme includes over 500 residential units, a 66-bed Travelodge, a bicycle shed for 250 bikes, nine retail units and a café. The existing public library building from the 1970s was incorporated into the fabric of the new scheme (which entailed significant additional cost) and remodelled into a multipurpose learning centre. The scheme is car-free.

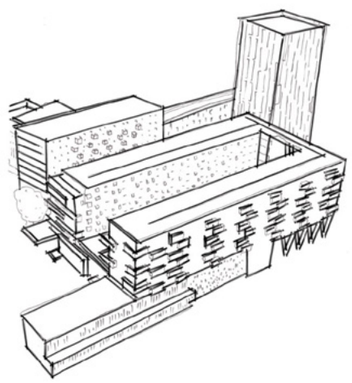
The style and height of the development contrasts strongly with the Edwardian shopfronts and market stalls in the adjacent high street. The blocks feature brightly-coloured balconies; the 17-storey Lemonade Building, with its vivid yellow accents, references the White's Lemonade Factory that formerly stood on part of the site. The public realm features work by both high-profile designers (Tom Dixon lights along the colonnade) and local people (a mock-medieval 'folly') and has won several prestigious urban design awards. It is an inviting space although a few of the details, especially the oft-shady arboretum with seating, have not worn well.

The land originally housed factories but latterly was used as a car park. The project was built in two phases over nine years, and was a partnership between the borough, which owned the land, and private developers: first Urban Catalyst then Redrow, which took over when the original scheme ran into difficulties in 2005. AHMM did the masterplan, and Southern Housing operates the affordable homes.

I don't socialise so I'm here for the transport links and grocery stores.

I like the area even more than I expected but the building itself disappointed me: I live on the second floor and only look out at neighbours, no sense of space or light, feeling quite caged a lot of the times. The air is quite stuffy.

I am comfortable here. There are downsides but on balance I feel it's a decent place to live. The area isn't the best but the flats are adequate for my needs as a single young professional.



Woolwich Central

Borough: Greenwich
Number of units: 304 (phases 1 & 2 of 4)
Density: 420dph
Number of buildings and heights: 6 blocks up to 17 storeys above large Tesco
Occupied: 2014
Developer: Spenhill (property arm of Tesco)

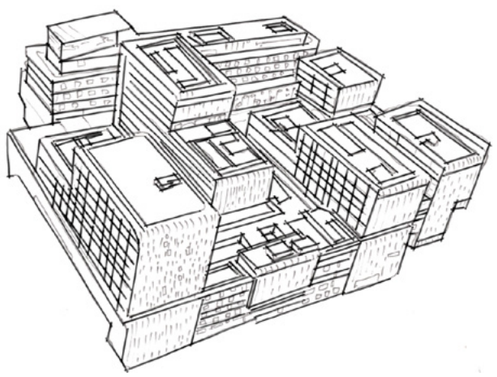
Woolwich Central, a mixed-use scheme incorporating Europe's largest Tesco, won the Carbuncle Cup for Britain's worst architecture in 2014. The housing blocks surround a residents-only sky garden eight floors above ground on the supermarket's roof. The design, with enormous metal S-curves snaking across the building's bulky exterior, does have its defenders, but even those who admire the concept say some of the execution was poor—especially the long side elevations, bleakly featureless apart from bin stores and service entrances. Internally the scheme is much more inviting; there is a complex arrangement of public and private spaces, and all flats have either a south-facing external balcony or a north-facing 'winter garden.'

Woolwich was historically a major military location but became increasingly run-down in the 1980s and 1990s and was badly damaged in the 2011 riots. The site is slightly away from the town's historic retail core and was previously occupied by two outdated council buildings, which Tesco replaced as part of the land-purchase deal. The buildings surveyed in this project make up the first two phases of what was originally a four-phase scheme. In 2015, Tesco sold several development sites including the remainder of this one to Meyer. The new owners have been refused planning permission to build out the two remaining phases, including a 27-storey residential tower, but are appealing.

The building design allows residents to experience a peaceful, secluded and secure community despite its location.

(I like the) convenience of being above a Tesco.

The service charges are very high and can be increased at will of the management company, this a big drawback.



The historic Pimlico estates

Pimlico is by far the most central location included in this study, sitting squarely within the City of Westminster. The area was built as a southern extension to neighbouring Belgravia. Its grids of residential streets, many lined with white stucco terraces, were planned by the famous Thomas Cubitt in 1825, with various high-density blocks being added in later years. Most of Pimlico is now protected in several conservation areas. This includes the Millbank Estate and Lillington and Longmoore Gardens; the Tachbrook Estate is one of the few parts of Pimlico that does not have protected status. Having experienced various waves of development, the neighbourhood is now home to a unique mix of exclusive restaurants and hotels on the one hand, and a long-standing residential community on the other, including many council tenants whose families have been in Pimlico for decades.

Our historic high-density case studies represent three periods of 20th-century social housing construction: the turn of the century (Millbank Estate, completed in 1902), 1930s (Tachbrook Estate) and 1970s (Lillington and Longmoore Gardens). All three are 'dense' in that they have more than 100 dwellings per hectare, but their built form and density contrast strikingly with some of the new schemes, particularly the towers and urban insertions. They are lower-rise than most of the new schemes; in Lillington and Longmoore Gardens the tallest buildings have only 8 storeys. Unlike our contemporary case studies, the three Pimlico estates do not stand out, in density terms, from the neighbourhoods that surround them. The neighbourhood plan points out that those living in the Tachbrook and Lillington/Longmoore estates have better access to green space than most Pimlico residents.

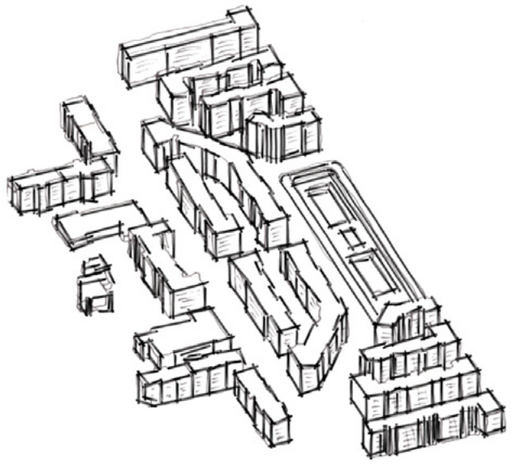
Generally speaking, respondents from these three estates were much older and less transient than those living in newer schemes, and this was reflected in their answers. More than 55% of respondents from the Millbank and Tachbrook estates were over the age of 50, as were 45% of those in Lillington and Longmoore Gardens. Many had lived in their homes for several decades and were acutely aware of the long-term changes in their local community (due to, for example, many council flats being transferred into private ownership via Right-to-Buy).

The buildings of Lillington Gardens straddle Moreton Street. This historic estate was considered dense when built in the 1960s.

Millbank Estate

Borough: Westminster
Number of units: 562
Density: 141 dph
Number of buildings and heights:
17 buildings of 4-5 storeys
Occupied: 1902
Developer: London County Council

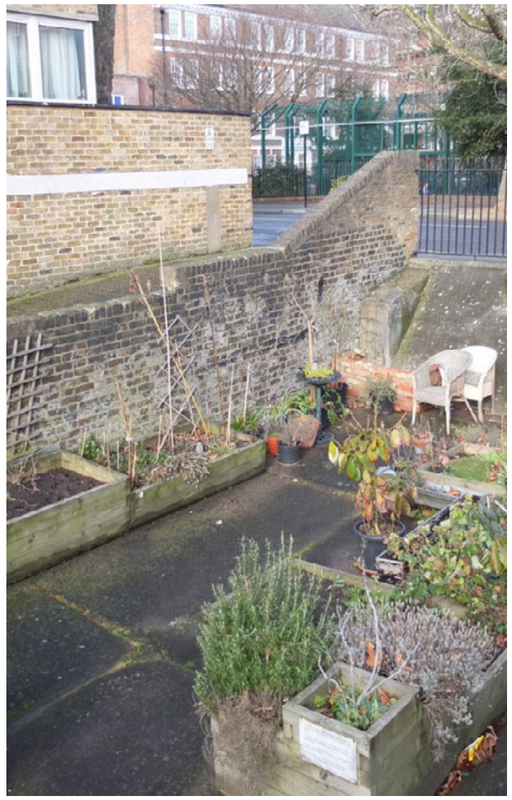
The Millbank Estate was built between 1897 and 1902 by the London County Council to rehouse Londoners displaced by the building of Kingsway. The Grade II-listed estate, located directly behind the Tate Britain, is regarded as a masterpiece of Arts and Crafts design. Its handsome seven-storey brick blocks are arranged around austere pedestrian courtyards. The estate is now owned by Westminster Council. Many of the units were purchased by tenants under Right to Buy and private flats now change hands for up to £1 million.



5 storey high buildings can provide a lot of density without being detrimental to the neighbourhood in terms of capacity and light.

[I don't like] the poor state of repair of the buildings - i.e ancient windows - it costs a fortune in heating. Lifts could be installed.

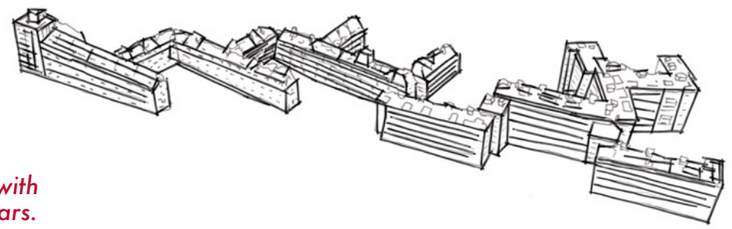
It is so stable - people have lived here for years. It's so lovely - just the best place to live.



Tachbrook Estate

Borough: Westminster
Number of units: 427
Density: 225dph
Number of buildings and heights:
14 buildings between 2 and 8 storeys
Occupied: three phases: 1935 – 1953
Developer: Westminster Housing Trust Ltd

The Tachbrook Estate in Pimlico houses a stable community made up mostly of social tenants, including some families who have lived on the estate for three generations. It was built in three phases between the 1930s and 1950s on the site of a gas works, and some of its buildings were opened by members of the royal family. The first seven blocks, opened in 1935, were the first working-class flats in London to have lifts. Its 14 six- to eight-storey brick, deck-access buildings are named for significant figures in Westminster history including Christopher Wren.

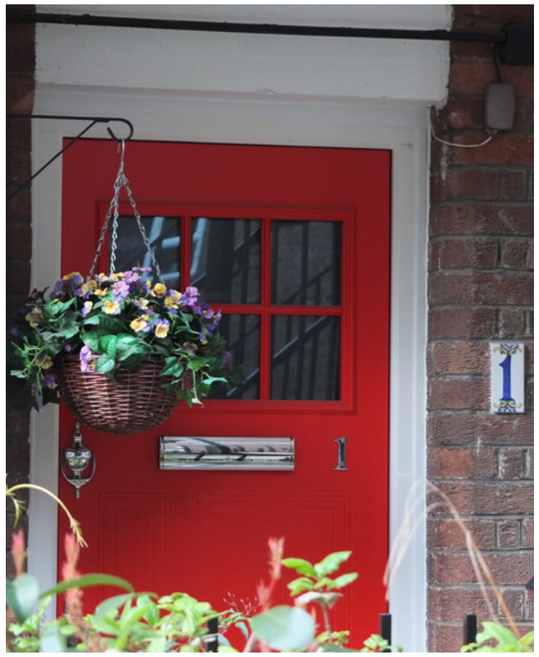


It's a nice old family community, with families who grew up here for years.

[It's] quite friendly, those born and bred in area are very proud of the area love living here make you feel at home, it's also great to hear stories of what the place was like long ago there is continuity. [...] It feels great.

I dislike the families who come onto the estate who never allow their children to mix with local kids as if local kids are not good enough they want their own kids to go to good schools, get good jobs and move out.

I have lived in this area all my life and the central location is the only thing the estate has going for it - and that's beginning to mean little to me.



Lillington and Longmoore Gardens

Borough: Westminster
Number of units: 777
Density: 194dph
Number of buildings and heights: 13 buildings between 3 and 8 storeys, courtyard structures
Occupied: in various phases 1964-80
Developer: Westminster Council

The subject of an open architectural competition won by architects Darbourne and Darke, Lillington Gardens was constructed in three phases between 1961 and 1972. Under the rules of the competition, the new housing had to accommodate 200 persons per hectare (regarded at the time as very dense) and to preserve the 1861 church of St James the Less, around which the new homes were built. Known for its staggered elevations, generous courtyard style green spaces and red-brown brick, the estate is widely regarded as an archetypal high-density, low-rise scheme and was one of the largest high-density public housing schemes built in London during the post-war period. The adjacent Longmoore Gardens, designed by Westminster's in-house architects, was built later and occupied in 1980.

The whole of Lillington Gardens was designated a conservation area in 1990 and the status was extended to adjacent Longmoore Gardens in 2012. The schemes are now owned by Westminster Council and managed by its arms-length management organisation, CityWest Homes.

If you live in a flat, it is not a house and you have to accept to live differently.

I've been pleasantly surprised. It's central London yet feels like a small town - in a good way!

Lack of community feel is because I think that social housing tenants do not realise the beauty of their estate and appreciate living here.

5 Pluses and minuses of dense living

This section explores the general features of the schemes and respondents' views about the advantages and drawbacks of living in high-density housing. The discussion is centred around five themes:

- who lives in these schemes
- choosing a home, neighbourhood and community
- issues to do with built form
- management, amenities and service charges
- other advantages and disadvantages of high-density living

Survey results are mostly presented as aggregate figures for all schemes, but where it seemed relevant we broke responses down by scheme, tenure, age of development and/or household composition.

Most of the findings are from the survey of residents, which had 517 responses. The survey was conducted in two phases. In Phase 1 we surveyed East Village, Hale Village, Lanterns Court, Pembury Circus, Greenwich Creekside, Strata, Barking Central and Stratford Halo. Phase 2 schemes were the three historic Pimlico estates plus Thurston Point, Woodberry Down and Woolwich Central.

Demographics of high-density schemes

Mostly childless singles and couples, and mostly young people in new schemes

We wanted to understand who was living in these schemes. Were they a microcosm of London's population, or were certain types of household more or less likely to live at high density? In the new schemes the answer was clearly the latter: we found a preponderance of small childless households and young people.

Overall, 78% of respondents lived in households with one or two persons, rather more than in London as a whole where 61% of households have one or two people[1]. Household size varied by scheme: 63% of Tachbrook respondents were in single-person households, while 69% of Thurston Point respondents were in two-person households (though not necessarily 'couples'—about 20% were adult sharers). The highest proportions of households with three or more residents were at East Village (38%) and Woodberry Down (31%), and the lowest at Woolwich Central (11%). Clearly this is partly a function of unit size, particularly number of bedrooms—at East Village, for example, the original goal was to attract families and the scheme has a relatively high proportion of larger homes.

Residents of the new schemes are predominantly younger people, while the historic schemes house older households. In all of the new schemes, most residents were under 40. Barking Central and Pembury Circus both had a striking concentration of residents in their 30s: 79% of respondents at Barking Central and 71% in Pembury Circus. The highest proportions of over-50s in the new schemes were found in Hale Village and Woodberry Down (both with 13%), while more than 55% of respondents from the Millbank and Tachbrook estates were over the age of 50, and 45% of those in Lillington and Longmoore Gardens. This distinction was not unexpected—some people moved in to the older schemes a long time ago and stayed, either as social tenants (with tenure security) or owner-occupiers (after right to buy). The new schemes all have a majority of market units; they do incorporate affordable housing but not all of it is social housing and indeed some schemes have no social housing at all.

Some 13% of households responding to our survey had children living at home. Two-thirds of these households had only one child. For comparison, 31% of all London households include children. The proportion of owner-occupiers with children was the same as for the overall sample, at 14%. Social tenants were twice as likely to have children (29%) and private tenants much less likely (8%).

The schemes with the lowest proportions of households with children were Stratford Halo (3%) and Strata (5%), both of which are towers. In four of the new schemes, over 20% of respondents had children: Barking Central, Thurston Point, Lanterns Court and Pembury Circus. The proportion was a bit lower at East Village (19%), even though the original goal of the corporate landlord that manages half the units was to attract families with children to rent privately there.

Looking at ethnicity, some 79% of respondents were white—a higher proportion than in London overall, where 59% of residents are white. The most diverse scheme was Woolwich Central (64% white) while the least was Millbank (88% white). We asked residents of six schemes[2] about their country of origin. About 60% were from the UK, with the bulk of the rest from elsewhere in Europe. Our sample of respondents is as international as the city as a whole: for comparison the 2016 estimate is that 62% of Londoners were born in the UK (ONS Annual Population Survey, 2016).

From very low-income households to high earners

The range of household incomes across six of the schemes[3] was very wide: some 8% reported incomes of less than £10,000 per annum while 6% said they earned over £150,000[4]. For comparison, the median household income in London in 2012/13 was estimated at £39,110 (London Datastore).

The proportion of household income spent on housing varied widely across schemes. The internationally accepted benchmark is that households should pay no more than about 1/3 of their income for housing, but many respondents paid more. Thurston Point was the most extreme example, with 57% of respondents saying more than 1/3 of their income went on housing.

Half owners, half tenants

Except for the Tachbrook Estate (100% social tenants), all our case-study sites had at least some tenure mix. Overall ownership (including shared ownership) was about 50% across all the schemes. This may overstate the true figure: our stakeholder interviews, and other research we have done on research we have done on similar developments, indicates that new high-density developments tend to have higher proportions of private tenants because many units are bought off-plan by investors, who then rent them out.

(highest-lowest by % of owner occupiers)

	Owner-occupiers	Private tenants	Social tenants	Other
Woolwich Central	81%	19%	0%	0%
Greenwich Creekside	71%	26%	0%	3%
Pembury Circus	65%	24%	9%	3%
Hale Village	63%	19%	12%	6%
Woodberry Down	57%	38%	2%	3%
Lillington and Longmoore Gardens	50%	10%	35%	5%
Barking Central	44%	48%	7%	0%
Millbank Estate	44%	18%	32%	6%
Strata	38%	62%	0%	0%
Stratford Halo	34%	47%	13%	6%
Lanterns Court	31%	55%	14%	0%
East Village	29%	57%	12%	2%
Thurston Point	24%	58%	12%	6%
Tachbrook Estate	0%	0%	94%	6%
Overall	**49%**	**36%**	**12%**	**3%**

Table 5.1: Tenure of respondents by scheme

1. Some 13% of individuals in London live in single-person households, and 24% live in two-person households. We asked survey respondents to complete one form per household.

2. The three Pimlico schemes, as well as Thurston Point, Woodberry Down and Woolwich Central.

3. As above. The household income question was not asked of residents in the other schemes.

4 . This question was designed to capture the income of all earners in a home, so e.g., a household income of £90,000 could be one individual earning that salary, or three individuals earning £30,000.

Choosing a home: transport above all

We wanted to understand what factors people considered when deciding where to move, and how they implicitly weighted them. Transport was by far the most common reason given for choosing these homes, with 68% of respondents placing it among the top three criteria (Table 5.1). The other major factors—at some distance behind transport—were price (43%) and liking the neighbourhood (33%). Interestingly, the actual location of the scheme or its proximity to work, school or services seemed to be much less important. Although marketing material for new developments often emphasises communal facilities such as gyms, co-working spaces and roof gardens, these were rarely cited as affirmative reasons to move somewhere.

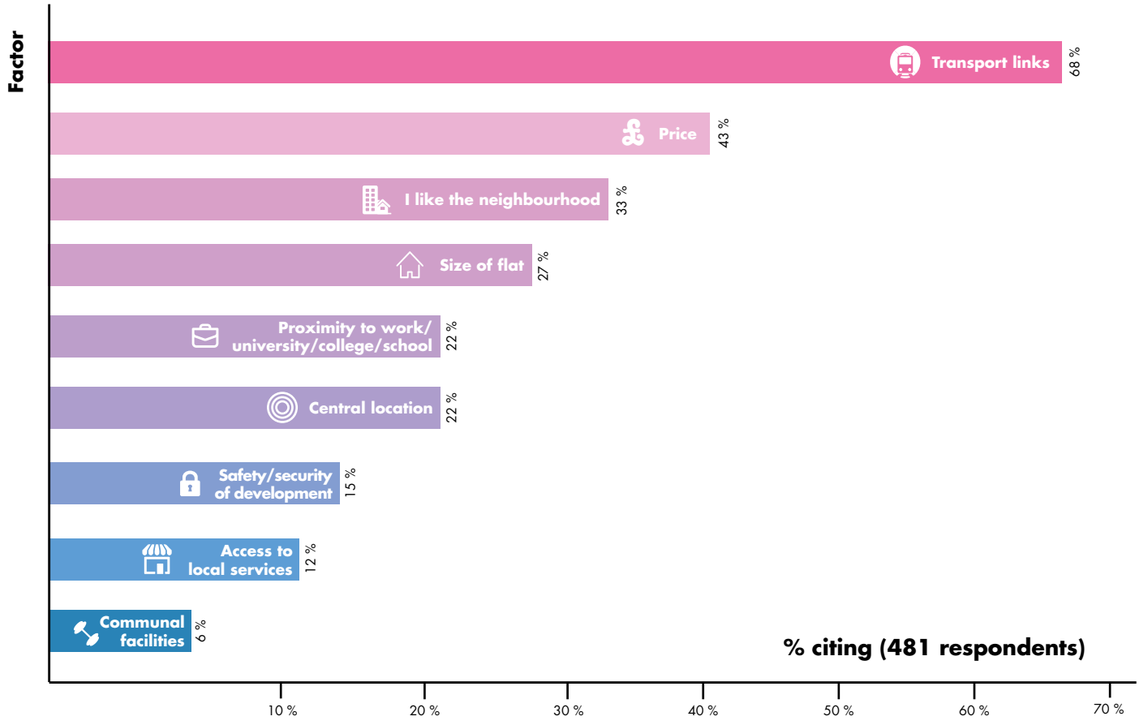


Figure 5.1: Tenure of respondents by scheme

> *'Knew that the local area wasn't great for restaurants/shops etc but consciously prioritised having an affordable modern flat with good transport links'*
> Thurston Point
>
> *'Open green spaces, peace and quiet (compared to the rest of London!), spacious and well-designed flat, convenience of having everything on your doorstep (Westfield, dry cleaning, restaurants, hair salon, etc.) and the brilliant transport links.'*
> East Village
>
> *'Amazingly close to public transport, a clean modern apartment, and a Sainsbury's has opened since we purchased the property and other shops and cafes have opened which is nice.'*
> Woodberry Down

We asked not only why people had chosen to live where they did, but also what they most valued in a home. The answers were closely aligned: the three most important aspects of a home, by some margin, were transport, neighbourhood safety (related to liking the neighbourhood) and affordability (Table 5.2). Social considerations such as proximity to family and friends, living somewhere child friendly and a sense of community were only cited by a minority of respondents. The importance accorded to public transport echoes the findings of the 2004 LSE Cities research, in which 54% of respondents said good transport was one of the five 'things that are most important in making an urban area a good place to live'.

Bus stop adjacent to Thurston Point, Lewisham. Like many of our case studies the scheme is very well connected. It is located just a short walk from Lewisham Station, with its rail and DLR services (and possibly eventually the Tube), and next to the A20, a major bus route.

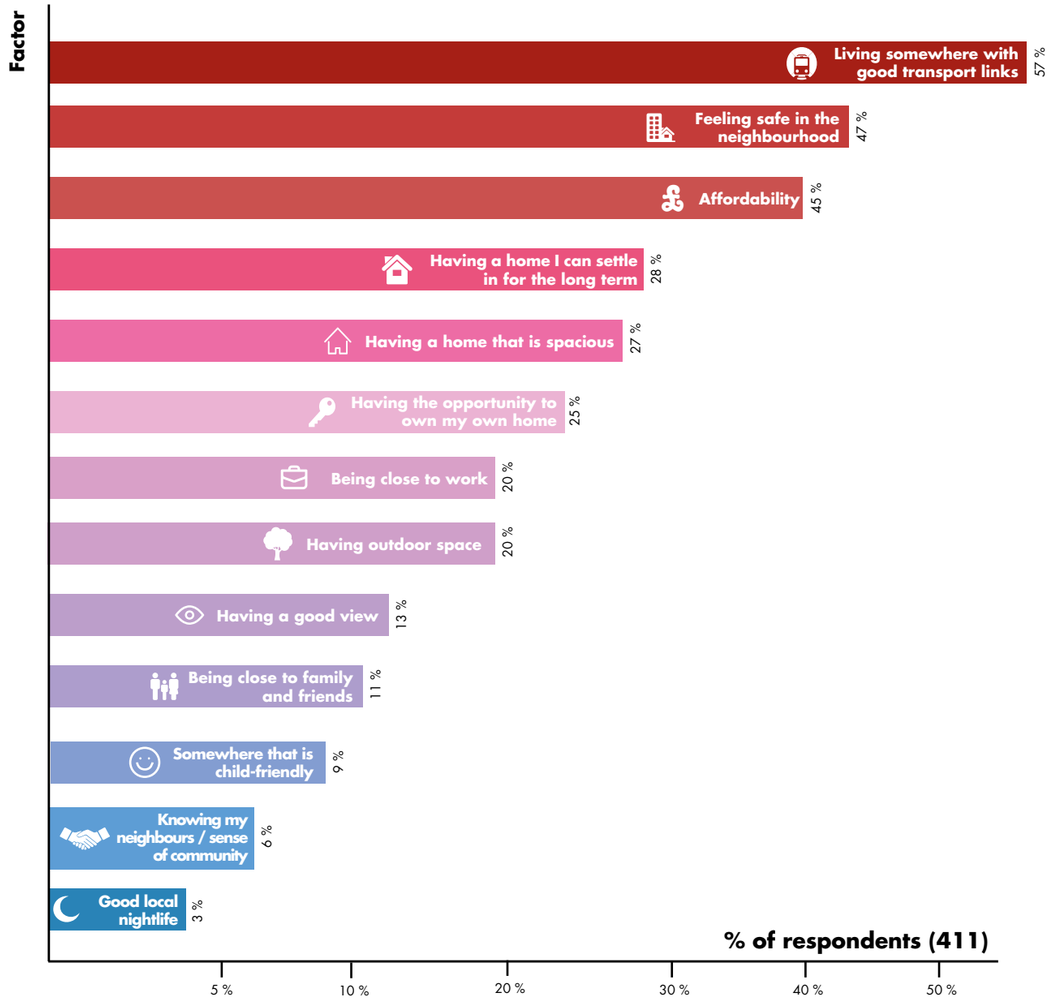


Figure 5.2: Most important aspects of a home

Planning policy emphasises that high-density residential schemes should be located in areas with good transport accessibility and most of our case-study sites are. The average PTAL rating for our 14 schemes is 4 (with 6b being the top), and only a minority of our respondents owned cars. We heard from many, though, that rapidly increasing local populations had strained local transport services, and that even though they lived close to a station they couldn't necessarily board the first train in the morning. One resident of Greenwich Creekside said, 'Development in infrastructure hasn't followed the growth in number of inhabitants (e.g. DLR is now a nightmare in the morning…).' Asked what they disliked about living at Hale Village, one respondent said simply 'Tube station overcrowding.'

Neighbourhood and community

The largest of our new case-study developments house thousands of people and are more populous than many English villages. Among the key long-term questions about such schemes is whether they will turn into identifiable communities, and/or whether they will integrate well with the neighbourhoods that surround them.

Sense of community

The ground floor of Pembury Circus caters to the diverse neighbourhood with a Peabody-run community centre, Coffee Afrique and (just to the right out of shot) Café Vincent, with 'all-day modern Euro eats & craft beers'.

We asked survey respondents whether their schemes had a strong sense of community. Of the new schemes, residents of East Village and Hale Village generally felt that they did, while those in Lanterns Court and Stratford Halo said they did not (Figure 5.3). Unsurprisingly, older schemes—particularly the Tachbrook Estate with its stable population of long-term tenants–generally reported a stronger sense of community.

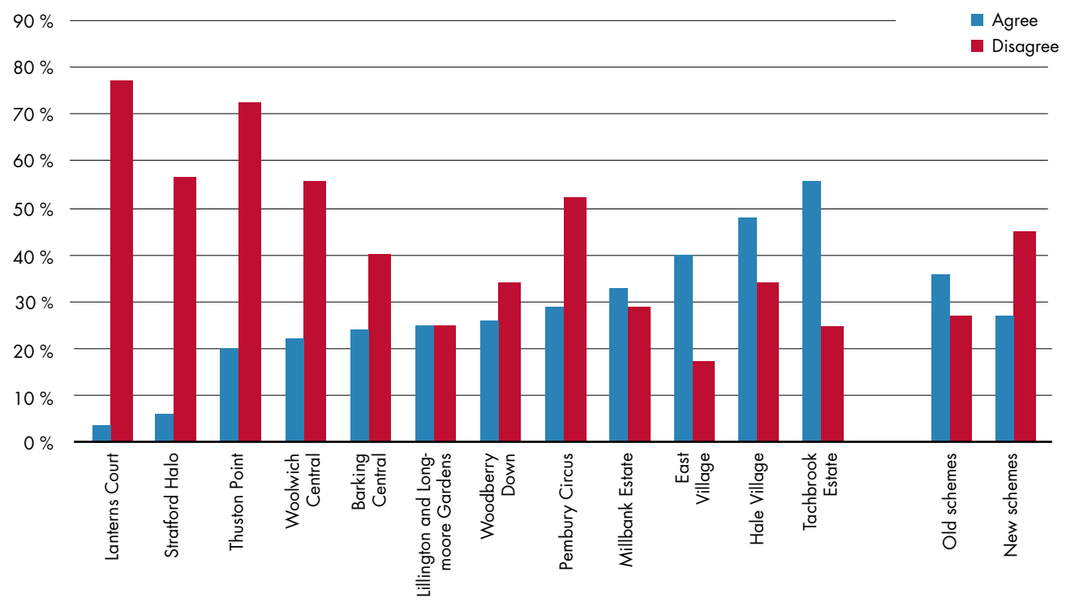


Figure 5.3: Agree/disagree that development has a strong sense of community, by scheme

The presence of children changes the social dynamic of a place, and parents who meet each other at their children's nurseries and primary schools or while supervising play in the park often form long-lasting networks. In our study there was an obvious difference in perceptions of community between parents and non-parents: 49% of families with children said their development had a strong sense of community, vs 25% of households without children.

We expected respondents to share the view that a strong community feeling was a good thing. Interestingly, some respondents said having a sense of community within their development mattered little to them, as they were members of other, non-place-based communities across London (or even virtually). A Woodberry Down owner-occupier in their 30s said, '… I like anonymity so the lack of community feel is a positive to me. I have no desire to know my neighbours.'

> *'I think that a community is there, though I wouldn't necessarily seek out a close friendship with most people in the building just off the back of them being in the building.'*
> **Woolwich Central resident**

Private tenants were least likely to report strong sense of community and social tenants most likely — although even amongst social tenants this was not a majority view (Figure 5.3). The fact that social tenants generally had lived in their homes for longer is likely to have played a role here: some 31% of social tenants had been in their flats for more than 10 years, vs only 5% of owner-occupiers and none of the private tenants. Perceptions of community were also related to income (itself correlated with housing tenure), as households with lower incomes were more likely to agree that their developments had a strong sense of community.

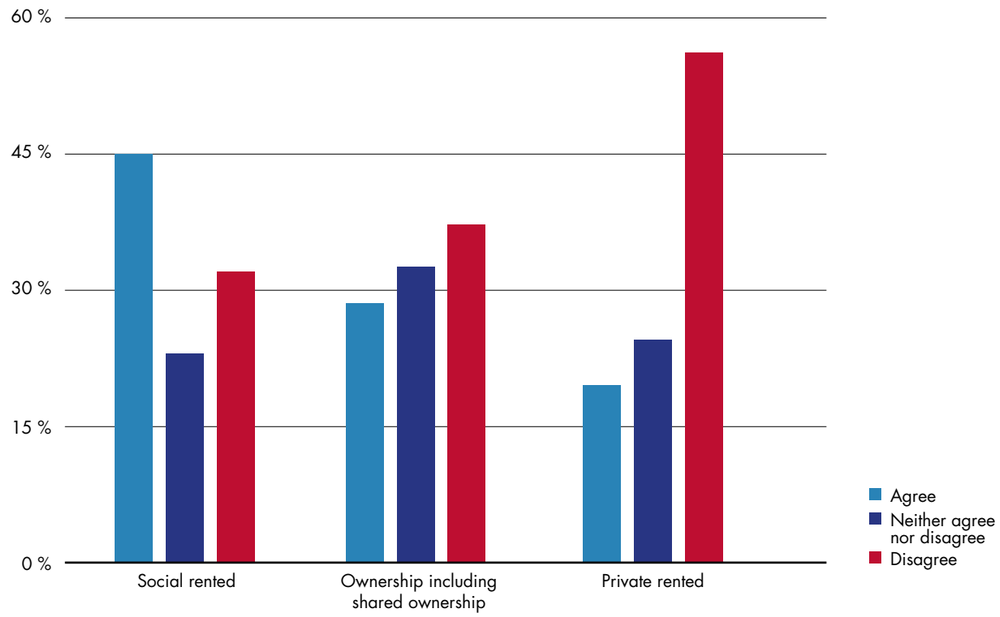


Figure 5.4: Agree/disagree that development has a strong sense of community, by tenure
All schemes except Strata SE1 and Greenwich Creekside

The tenure composition of schemes or individual blocks affects community building. Several respondents said it was harder to create community in schemes with a preponderance of private tenants as they lacked long-term commitment to an area. The short-term nature of PRS leases (usually only six to 12 months, except in build-to-rent schemes) means many private tenants move frequently, and several renters told us that they were more likely to socialise elsewhere as their 'community' was unrelated to the location of their flat. A Stratford Halo resident said, 'There is a very high turnover of tenants many of whom don't care about how they treat their surroundings'.

> *'Market renters were very transient, and often move out within 6 months, and this doesn't encourage community building.'*
> **Woolwich Central resident (owner occupier)**

Building mixed-tenure, mixed-use schemes is currently regarded as the best way to create strong new communities and all sizeable new developments in London are required to have a mix of tenures. Some of our respondents actively preferred mixed communities—one Millbank resident praised the estate's 'diversity of residents (mixture of private tenants, social tenants, leaseholders, families, elderly, young)….'—but others said a mix of tenures (and by extension of incomes) created potential tensions. A few respondents living in private housing made critical comments about the behaviour of social tenants; others expressed an uncomfortable sense of separation from them. One Pembury Circus respondent said 'I don't like the fact that the social housing has been separated out into another block, which seems to have lower specs [specifications] than our blocks. Everyone in my block is exactly the same, the same age, the same race, the same professions…'.

> *[I don't like the] 'separation of shared ownership from affordable housing (creation of them and us culture).'*
> **Thurston Point resident**

Residents of high-density blocks are inevitably affected by the behaviour of their neighbours, and our respondents raised concerns about two issues: overseas ownership of flats and Airbnb. One Woodberry Down resident, asked what they disliked about living there, said 'most flats rented by foreign owners, not being able to have a residents' committee because most flats are not owner occupiers'. Very short-term renting is forbidden in some schemes but respondents from several developments, both old and new, said it was an issue. Such use is perhaps easier to identify in settled communities such as the Pimlico schemes as residents are more likely to know their neighbours, but the sound of wheelie suitcases trundling down corridors in the morning was an irritant in many places.

Several schemes had online forums or Facebook groups: some were hardly used while others seemed to serve as the backbone of the community. Woolwich Central stands out for having a particularly active online forum: 23% of respondents said they used it more than once a week, and 14% said they looked at it daily. One said, 'Woolwich has a brilliant community but only on Facebook. Everything gets sorted on Facebook…(the group) exchanges information and support, and we've borrowed things from people off that before, which is really nice…', and a Pembury Circus resident said, '[I] know quite a few direct neighbours, but more through meeting on online Facebook groups set up and at residents meetings where we bond over all the problems!'

Knowing the neighbours

As is the pattern everywhere, our respondents were more likely to know their neighbours if they had lived in the same place for a long time and/or if they had children. Overall, 29% of respondents said they didn't know anyone else in the development and 29% knew 1-3 people. The differences by scheme were stark: on the Tachbrook Estate, 57% of respondents knew at least 7 people while at Lanterns Court 55% of respondents knew no one else. The longer people had lived somewhere the more neighbours they knew, and those who had been in the same homes for more than 40 years (all in historic schemes) tended to know at least 7 people. Nobody who had lived in the same place for more than 10 years said they knew no one.

Only 6% of households with children said they knew nobody else in their development, vs 32% of households without children. Private tenants knew fewest people (77% knew three or fewer) while social tenants knew most (50% knew at least seven).

East Village and Hale Village, two master planned schemes with a range of community facilities and activities, both scored highly on the number of people known. One Hale Village resident said, 'I know more than 10 people in my building - a rarity in London, as I didn't know any of my neighbours (before).'

Sense of local belonging

We asked residents whether they agreed with the statements 'I feel like I belong to this neighbourhood' and 'I like to think of myself as similar to the people who live in this neighbourhood.'[5] Some respondents felt entirely integrated with their wider neighbourhoods. Two of the Pimlico estates stand out in this respect, as does East Village, which in a sense is the wider neighbourhood as it stands physically apart from the rest of Stratford. Rather sadly, some residents of Lanterns Court said they thought there was no 'neighbourhood' as such for them to feel part of.

The largely positive comments about the neighbourhoods around Pembury Circus, Greenwich Creekside, Lillington and Longmoore Gardens and Millbank Estate often referenced 'hip' local culture and/or heritage. East Village and Hale Village residents said the self-contained nature of their developments promoted a sense of neighbourhood belonging.

5. Both questions are taken from the government's 'Understanding Society' survey.

New high-density schemes are often designed to attract relatively affluent home buyers and private tenants to traditionally lower-income neighbourhoods, and this juxtaposition can pose a challenge for incomers (as for existing residents). Our town-centre case studies, Barking Central and Woolwich Central, scored especially poorly on the question of whether respondents felt like part of the neighbourhood. Some said if it weren't for the excellent transport, they wouldn't be living in these locations. In qualitative research, residents complained about crime, dirtiness, poor-quality retail outlets and cafes, and the fact that they were living close to social tenants and/or impoverished communities. These sentiments echoed those expressed in the 2004 LSE Cities research, where the ward-level study found that 'non-estate residents tend to attach a negative social stigma to council tenants due to perceived levels of anti-social behaviour and poor maintenance' (Burdett et al 2004).

> *'Anti social behaviour around Barking station, littering is high. Shops on offer are of very poor quality. Barking Market is also very poor and badly laid out (very unattractive). Barking Town Centre needs a much bigger regeneration push as otherwise the people hanging around the station and town centre will continue to remain the same, which brings the area down (way too many betting shops that attract the wrong crowd)'*
> **Barking Central resident**

By contrast, some respondents said they saw themselves as agents of gentrification, which made them uncomfortable. A Woodberry Down resident noted that '[there is a] sense of [the] fragmented nature of previous/historic tenants of the area and the new 'posh' people. New Sainsburys has driven business away from local community businesses.'

Family living and long-term plans

A local playground, with Greenwich Creekside in the background

The notion of mixed communities includes not only a mix of tenures and uses, but also of ages, and planners often require developers to include a proportion of 'family-sized' units in major schemes, in the hope that families will choose to live in them. We asked residents of six schemes[6] whether they thought their developments were family-friendly. A striking 84% of households with children said yes, they were—but only 44% of childless households agreed. This discrepancy suggests that families' lived experience is better than non-parents assume. However, the numbers are based on a tiny sample: only 12% of the respondents had children and just 4% had more than one child. And 'family friendliness' was not universally considered to be a positive characteristic—at Woolwich Central, one walking interview participant said 'I appreciate the fact that it is not family friendly. I wouldn't move into a family friendly environment.'

> *'I appreciate the fact that it is not family friendly. I wouldn't move into a family friendly environment.'*
> **Woolwich Central resident**

6. The three Pimlico schemes, Woolwich Central, Thurston Point and Woodberry Down

Based on our previous research into new-build blocks in London (Scanlon & Walmsley 2016 & Scanlon, Edge, Blanc & Ortega 2018) we were not surprised to find a preponderance of young childless households in the private homes. As the new schemes and their residents mature and children are born, we may see more mix at least in terms of household composition. Equally though, it is possible that these schemes will always appeal most to childless people at a certain stage in the life course. Many respondents in the new schemes said their flats suited them well now but were not likely to be long-term homes. There were three main reasons for this:

- ***Design***: the lack of space for households with children, and in particular limited storage space for the accoutrements of childhood (bikes, pushchairs, etc.).

- ***Affordability***: the cost of a moving up to a family-sized unit within the same development was often seen as unachievable. Overall about half the flats in the case-study developments had two bedrooms, and only 13% had three or more bedrooms. Some respondents said if they started a family and their household income fell temporarily, they might not even be able to afford their current unit.

- ***Cultural factor***s: many associated family life with a house, a garden and home ownership, and said they wouldn't want to bring up children in a high-density flat. These cultural preferences are well illustrated in Figure 5.5, a word cloud created from descriptions of the kind of place respondents would like to live in ten years' time. The picture it paints is clear: the single most frequent word was 'garden', with 'house' and 'spacious' after that.

Figure 5.5: Where respondents hope to be living in in 10 years' time

We did find some who were bringing up children in the new schemes. One resident said of Woodberry Down, 'It's a lovely place – plenty of amenities for children, very big flats and spacious.' And many of the older respondents from Pimlico had happily raised their families on these estates. One from the Millbank Estate said, 'Absolutely this is a place where people can raise a family, and contribute to London culture. It's been happening for the last 120 years. Great location and lovely apartments, they just need some TLC to go on for another 120 years.'

> *'I think [these developments] provide a good option for younger people to live in before they are able to buy, but before they are settling down to have families. I think with a family I'd want to live somewhere with more space.'*
> **Thurston Point resident in their 20s**

Most Phase 2 respondents said they thought schemes like theirs were a good long-term option for London housing. Thurston Point was an outlier with only 50% of respondents agreeing with the proposition. But while many acknowledged that London had to rely on high-density housing development in order to meet its housing need, they did not necessarily consider it suitable for their own families in the long term.

How well do these buildings work as homes?

Dwelling size and occupancy

A common objection to high-density development is that the individual homes are too small, and indeed developers often build units at or just above the minimum sizes permitted. Overall the number of our survey respondents saying their individual homes were too small was about the same as those who said they were not. Stratford Halo residents were happiest with the size of their homes, and Barking Central residents the least: one described their home as 'Very small and restricted - as if you moved into a hotel. No storage.' Social tenants were more likely than private residents to say their homes were too small.

Upper floors of Thurston Point. Note the belongings stored on the balconies.

The great majority of the homes in our sample (87%) had two bedrooms or fewer. On the whole the number of people in the households corresponded to the number of bedrooms. There was more evidence of 'under-occupation' (that is, households with at least one extra bedroom) than overcrowding, and most respondents said their homes were not overcrowded. The only schemes with a net negative score (that is, where a majority of respondents said their homes were overcrowded) were the Tachbrook Estate and Barking Central. Discussions during focus groups suggested that those who experienced noise, especially from adjacent neighbours, tended to feel that their buildings were overcrowded. Social tenants were twice as likely as private residents to complain of overcrowding (39% vs 21%), which could relate to the higher percentage of families in social homes.

Lack of storage

Closely related to size is the question of storage—and in most of the schemes, respondents said there was not enough of it. Interestingly, lack of storage was just as likely to be an issue in old as new schemes (55 and 54% of respondents respectively agreed that it was a problem). Social tenants were most likely to report this (64%), which may once again be linked to the relatively high percentage of such households with children.

Focus group discussions suggested that the problem was not just limited storage, but also residents' inability to adapt the space with extra storage. Several participants said they had blocked their floor-to-ceiling windows with a storage unit or sofa. Others talked of having to store belongings at their parents' homes. A handful said storage issues contributed to a feeling that these homes were temporary: they couldn't bring all their belongings to their flat, and/or felt they would need to move once their family or their possessions increased. A Stratford Halo resident said, 'There's a lack of space, storage and privacy for long term living. Especially if long term involves starting a family.'

> *'There's no storage inside the flats for families (nowhere to dry clothes, store suitcases, prams etc).'*
> Woodberry Down resident (parent of small children)

Noise

Noise was a significant issue for residents in the 2004 LSE Cities study, and in our study 42% of respondents said their developments were excessively noisy (though there was no control group of residents of nearby non-dense housing against which to compare this).

Noise came from sources both outside and within the building. Several of our case study developments were close to major roads or railway lines (or both, at Thurston Point). Exterior noise was more intrusive if residents had to open windows due to overheating: one resident of Thurston Point said '(the) flats are unbearably hot all year particularly in the summer and because our flat faces the Lewisham Station part of the railway we can't keep our windows open as it's too noisy.' Another common complaint regarding external noise was that of children/youths in the communal areas. At the focus groups, some residents – particularly from East Village and Lanterns Court – said the structuring and positioning of buildings created an 'echo chamber' effect for noises at ground level. This was a problem even for those on the highest floors.

The majority of respondents at Tachbrook Estate, Hale Village and Pembury Circus said noise was a problem. At Woodberry Down and Woolwich Central, on the other hand, most said noise was not an issue. At Woolwich Central even the lowest flats are several storeys above street level and the blocks are arranged around internal courtyards; several residents told us their flats were exceptionally quiet. Woodberry Down benefits from being on a large site that borders a nature wetland.

> *'Everything feels overcrowded in London apart from my building. The city goes quiet when I come into in my flat.'*
> Woolwich Central resident

Mental map drawn by an East Village resident. We asked focus-group participants to 'draw where they live'. The note at the bottom right reads 'screaming gangs of youths/children always in the internal courtyard'.

Noise from neighbours was most commonly transmitted through walls or floors, or through open windows. At Thurston Point, there were also comments about noise travelling several floors through the ventilation system. Hale Village residents complained that the balconies of some flats were placed too close to the bedroom windows of others, which was particularly problematic in the summer. One focus group participant from Lillington and Longmoore Gardens said, 'I get a lot of noise from under, next door and upstairs neighbours. I have the door to the building, people shouting on the interphone and the door slamming. Impossible to sleep in my flat without earplugs.' Social tenants were much more likely than private tenants or owner occupiers to perceive noise as a problem.

Overheating and aspect

The introduction of more energy-efficient heating systems, the requirement for better insulation in new buildings and the almost universal use of floor-to-ceiling windows means that many new buildings are too hot, especially in summer. Some 33% of our respondents said their homes were overheated. This was most reported at Barking Central, Stratford Halo and East Village. Residents of older historic estates (Millbank and Tachbrook) rarely reported problems with overheating, and Woodberry Down also had a strong net positive score.

Overheating was identified as a problem both within the flats and the communal areas of most new developments. At Greenwich Creekside, for example, residents said corridors and communal areas remained around 30°Celsius all year round. This was echoed by residents from Stratford Halo: one said, 'Corridors are saunas (air ventilation is horrible)'.

> *"Temperature, it gets very hot on sunny days- when temperature outside is 18, it get to 26 degrees inside. It is like a glass house."*
> Stratford Halo resident

Resident's photo showing internal temperature of corridor at Greenwich Creekside (Autumn 2017)

Several interviewees, especially in schemes overlooking railway lines or major roads, said they often faced an unattractive choice between overheating (windows closed) or noise and smell from outside (windows open).

Heating issues were often attributed to the centralised systems found in many of the newer schemes. Residents complained they had little control over the heating in their flats, and many said they resented having to pay a substantial fee for it. However some focus-group participants liked the centralised systems, enthusing that they had only needed to turn the heat on a handful of times during the winter. A number also recognised the potential environmental benefits.

We asked respondents whether their homes were dual aspect (that is, had windows on more than one side). In the older estates, most homes were dual aspect (94% in the Tachbrook Estate), while in almost all the modern developments most homes were not. Woodberry Down was the exception here, with 61% of respondents saying their homes were dual aspect. Current London housing design standards, set out in policy D4 of the draft London Plan, say single-aspect dwellings should be avoided wherever possible, and that if they are built they should have adequate passive ventilation, daylight and privacy, and be designed in a way that avoids overheating. Residents of homes that were dual-aspect were less likely to report problems with overheating (23%, vs 39% for those with single-aspect homes).

Comparing responses from old and new schemes about the three main physical issues, we found that residents of new schemes were much more likely to say overheating was a problem (Figure 5.6). Perceptions about lack of storage and noise were similar between old and new schemes.

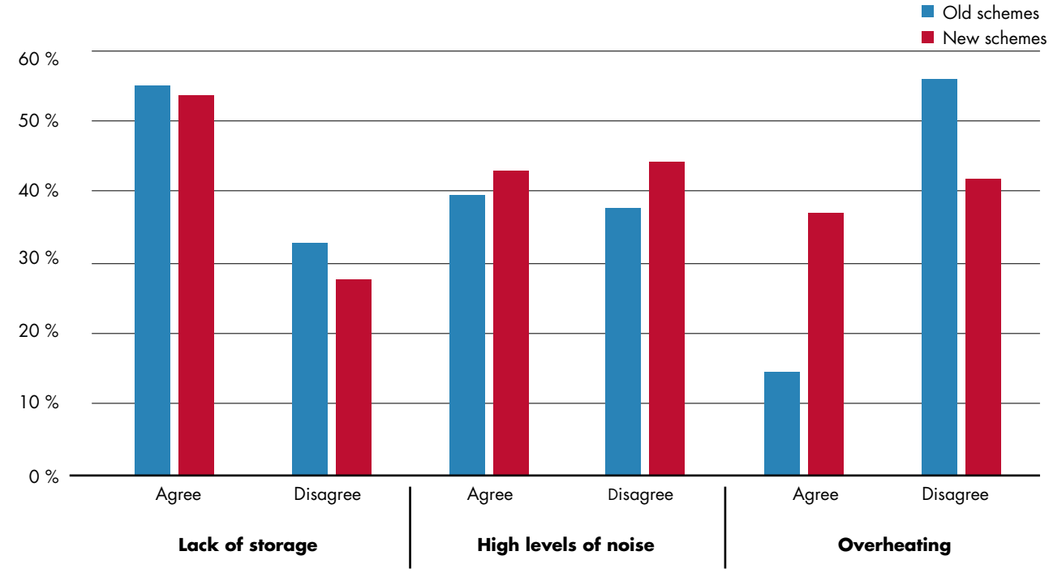


Figure 5.6: Three main physical issues—old and new schemes compared (% agree/disagree that these are problems)

Construction quality

Our 11 contemporary case studies were all completed in the last 10 years, yet residents of some said they were already exhibiting physical problems. They mentioned issues with lifts, and poor-quality floors, walls and carpeting: a respondent at Pembury Circus complained of 'Poor build quality, paper thin walls, hot water problems, poor maintenance in communal areas (bike shed, lobby) which goes unfixed for weeks.' Lanterns Court, Stratford Halo, Pembury Circus and Greenwich Creekside attracted a disproportionate number of complaints about build quality, while residents of Woolwich Central, Woodberry Down and Lillington and Longmoore Gardens praised features such as good sound insulation and well-maintained communal areas.

Car ownership and parking

In the 2004 LSE Cities research into high-density London neighbourhoods, car parking came up as a major challenge, with an increasing number of vehicles requiring parking in streets that were laid out before motor vehicles came into use. Cars and parking seemed to be less of an issue for our respondents, perhaps because most of them were not car owners. Only 26% of Phase 2 respondents reported owning a car (the question was not asked in Phase 1); this compares to 54% of London households overall (TFL undated). Those who did not own cars were asked the main reason why not. The overwhelming response (78%) was that other modes of transport were more convenient—reflecting the excellent public transport accessibility of most of these schemes. Note that all the new case-study schemes are located outside the congestion-charge zone, while the three historic schemes are within it.

Three of the eleven modern schemes (Pembury Circus, Barking Central and Hale Village) are car-free, although some residents in each complained that they had not known this before moving in. The new schemes that are not car-free generally incorporate underground car parking for which residents usually must pay a fee (sometimes through the service charge) or purchase a parking space. Of car owners, 57% parked within their developments and the remainder on the street.

Management, amenities and service charges

The quality of management can have a major effect on residents' experience, as everything outside the door of the individual flat is the responsibility of the building manager.

Quality of management

Across all tenures, most respondents said their schemes were well-managed. Residents of Lanterns Court and Woodberry Down had strong net positive ratings. Only in Lillington and Longmoore Gardens did 'disagrees' outnumber 'agrees'. Looking at tenure, private tenants were the happiest with management; 69% said their developments were well managed.

Entrance of Strata SE1, with cleaners visible inside.

Because our research focused on understanding problems, we collected more data about shortcomings than about good practice. Issues that came up several times included slow response times for repairs (especially of lifts), poor initial build quality, high utility bills from monopoly suppliers, and rising service charges. Residents in Lillington and Longmoore Gardens and Thurston Point in particular expressed concern about the accountability of management and said there was a lack of clarity about who was responsible for tasks. Several said they would prefer to have staff regularly or permanently based on site, who could act as a central contact for any issue.

One of the attractions of new schemes was the offer of modern, functional facilities, so residents found poor build quality and mechanical breakdowns both unexpected and disappointing. Malfunctioning lifts, most notably in Thurston Point but also in Stratford Halo, had angered many residents, some of whom were forced to carry pushchairs up and down several flights of stairs. A Stratford Halo tenant said, 'Lifts are worst in the world (aka always broken)'.

> *'More of these estates need to be created but also need to be properly managed. It is not acceptable to get an email from someone called "customer service", I want to have the name of the person I am talking to in order to have a conversation.'*
> **Lillington and Longmoore Gardens resident**

Of the new schemes we studied all but one (Thurston Point) had a concierge service. In two schemes, Woodberry Down and Woolwich Central, we asked specifically about the use of concierges. They were popular and well-used—in both schemes most respondents used the concierge more than once a week, mainly to receive deliveries. Residents also said they valued the more intangible benefits of having a familiar, friendly face at the door, and knowing that there was a staff member on site. However employing a concierge contributes significantly to service charges, especially if there is 24/7 coverage.

Figure 5.7: What Woodberry Down & Woolwich Central residents use the concierge for (more than 9 mentions)

Service charges

Service charges are paid by almost all leaseholders in blocks of flats. The charge is generally calculated on the basis of dwelling floor area, with an annual price per square foot. It is paid by the owner (technically the leaseholder); tenants do not usually pay separate service charges as the amount is included in their rent. Typical service charges in London are between £1,800 and £3,000 per year, and around £850 for local authority tenants (London Assembly, 2012; Direct Line for Business 2016). What is included in the service charge may vary between the shared ownership and market rate units in the same development, and within a large scheme, service charges can also differ by block. Leaseholders generally must pay even if they don't use a service or facility. The service charge for blocks containing mainly affordable housing/shared ownership may be kept down by having no concierge, and their residents may have no access to certain services (gyms, pools etc.).

Our survey did not ask explicitly about service charges, but the subject was frequently mentioned by interviewees and in responses to free-text survey questions. We carried out a short web-based exercise to compare the service charges of our case-study sites. For market sale flats, Woodberry Down had the highest service charges and Pembury Circus had the lowest. There was no clear relationship between the level of the service charge and customer satisfaction; at Pembury Circus, for example, where the service charge was relatively low (£1,367 per year for a 500 ft^2 flat), residents were generally happy with communal services and amenities. We also received positive feedback about management from Stratford Halo and Woodberry Down, both of which had relatively high service charges (£2395 per year at Woodberry Down for a 500 ft^2 flat).

Woolwich Central generated the most comments about service charges, which featured in almost a third of responses to the open-ended question 'what do you dislike about living in…?' Leaseholders said the landlord had increased the fee by about a third over the last few years. One resident noted that 'the service charges are very high and can be increased at will of the management company, this a big drawback and an issue as you cannot sell your shared ownership onwards'.

> *'There is no responsible management, they don't see the tenants as 'individuals' just like a rent that will be received by the end of the month regardless of their work/care.'*
> **Thurston Point resident**

Amenities

Many of the modern schemes offer a range of amenities to attract residents. These include gyms, concierges, co-working facilities, party spaces and roof gardens. Most households agreed that these high-density developments offered good communal services and amenities. Private tenants were most likely to agree (65%) and social tenants least likely (56%). Here it should be noted that in some schemes social tenants do not have access to the same amenities as private residents. All-inclusive services were an attraction in new schemes but not in old ones (comparing Phase 2 schemes only).

All three of the new Phase 2 schemes have gyms onsite. In some schemes membership is included in the service charge, while at others a separate charge is levied. The facility was particularly heavily used at Woodberry Down, where over half of respondents said they went to the gym at least weekly. However, various respondents from Woodberry Down also complained that the facilities were insufficient for the number of residents.

'The shared facilities are overcrowded and have not been designed for the volume of residents using them (e.g. Gym, Pool). It only takes a modest number of people to turn up to make them unusable which means working people can miss out during peak times in the morning and evening.'
Woodberry Down resident

Mix of uses

Major new developments are usually designed to incorporate a mix of uses, with retail or commercial units on the ground floor. Thurston Point and Woolwich Central have supermarkets (Asda and Tesco respectively), and big master-planned developments like East Village and Woodberry Down have populations large enough to support a range of local shops. This mix seems to work well for residents, who said they appreciated living close to shops. For Thurston Point and Woolwich Central, the main benefit was convenience, whilst respondents from East Village and Woodberry Down said the independent shops added to local character and a sense of place.

Ground-floor retail units are provided almost routinely in new schemes, but those located outside existing retail centres, or in areas with low footfall, can struggle to attract tenants. At Greenwich Creekside, for example, some of the units had been vacant for years.

Empty commercial space on the ground floor of Greenwich Creekside. Many commercial spaces were still empty when we took this photograph in the Spring of 2019

Other pluses and minuses of high-density living

We identified a number of stylised benefits and drawbacks of high-density living, and asked respondents whether they agreed that they were features of their own accommodation.

+ Lower fear of crime

Respondents generally felt their schemes were safe (62% agreed and 16% disagreed). A Greenwich Creekside resident praised the 'safe, village-like feel (in Greenwich), whilst still being within the centre of London (for work, social life, etc.),' and a Woolwich Central respondent said 'The building design allows residents to experience a peaceful, secluded and secure community despite its location.'

Social tenants were somewhat less likely than private residents to think schemes were safe (54%, versus 59% for owners and 67% for private renters). A few (private) respondents said the presence of social tenants made their schemes feel less safe. Others complained of homeless people or drug activity in public areas of the development. There were also concerns in some new schemes about front doors malfunctioning and letting in 'tailgaters'.

Features designed to increase security (residents-only access to courtyards, buildings, or individual floors) could make community building more difficult.

''...As much as the secure entry system is good for peace of mind (and needed in Hackney!), the fact that you can only access your own floor in the buildings means you don't get the opportunity to bump into other residents on other floors''
Pembury Circus resident

+ Good views

View of the City from a flat in Greenwich Creekside

About half of respondents said one of the benefits of living in high-density housing was that they had good views. At Woodberry Down, the view featured in over 40% of responses to the open-ended question 'What do you like about living in…' – and as one resident said, 'The view is phenomenal.'

Owners were more likely than social tenants to say the views are good—and they are in fact more likely to have good views because social and affordable units are often located on lower floors (across all the schemes surveyed, 92% of social tenants lived on floors 0-4, vs 43% for owner-occupiers). Residents of new schemes, which are taller than the historic ones, were more likely to appreciate the views, and location also unsurprisingly had a significant impact (Woodberry Down for example overlooks two reservoirs).

Residents in some schemes complained that their view – which may have been a key factor in their decision to move – was being ruined by further construction in the area. A private tenant at Woolwich Central feared that 'new building projects … will block our views and bring more people.'

- Lack of daylight

The converse of good views for those on high floors can be lack of daylight for those on lower floors. 27% of respondents agreed that their homes had limited light; a Lanterns Court resident said in a focus group that the only part of his flat to receive any direct sunlight was one corner of his balcony. The net positive scores were highest at Stratford Halo (a tower) and Woodberry Down (next to reservoirs), while the lowest were at Barking Central and Lanterns Court.

Light is most likely to be an issue for social tenants, reflecting the fact that in mixed-tenure blocks they are more likely to live on lower floors.

- Not enough privacy

Overall, less than 1/3 of respondents said their homes suffered from a lack of privacy. Lanterns Court and Hale Village were the only developments that had net negative scores (that is, a majority of respondents said their homes were not private enough). Several residents of these schemes reported being overlooked by windows on adjacent buildings. In schemes where development was continuing in the surrounding area, some residents feared that the newer homes would reduce their privacy.

> *'More and more houses (are going) up which means a loss of privacy and a loss of view and overcrowding.'*
> *Greenwich Creekside resident*

- Limited access to outdoor space

Most of the schemes are located within an easy walk of outdoor space. Woodberry Down sits on the edge of two reservoirs, East Village is a stone's throw from the Queen Elizabeth Park in East London (with Stratford Halo also close by), and the Pimlico estates are a few streets from the Thames. Except for Strata with its very constrained site, all schemes provide outdoor space of some kind, ranging from resident balconies (most) to large landscaped communal areas (East Village, Woodberry Down, Hale Village). Most also incorporate dedicated play space. Residents' use of these spaces similarly varied widely, reflecting not only the amount of space provided but also its quality and the degree to which it suited resident lifestyles.

Looked at by scheme there was a range of feeling about whether access to outdoor space was a problem. Woodberry Down and East Village, both of which incorporate large areas of well-landscaped outdoor space, scored strong net positives: one East Village resident said 'Location is fabulous…the green spaces, the QEOP (Queen Elizabeth Olympic Park), the canal provide excellent opportunities to walk, cycle, explore.' A Woodberry Down resident said, 'The high density is balanced by access to communal green spaces.' By contrast Pembury Circus, Lanterns Court and Stratford Halo, which are on smaller plots and have little outdoor space on the schemes themselves, scored net negatives.

In Phase 2 we asked respondents how often they made use of outdoor communal areas. In almost every scheme there was a range from 'every day' to 'never'. More than a quarter of residents of Lillington and Longmoore Gardens and the Millbank Estate said they used the outdoor areas daily; by contrast 78% of Thurston Point residents said they used them less than once a month or never. The main difference here is that residents in the Pimlico estates naturally move through the outdoor space as they go to and from their flats. At Thurston Point the main entrances are on the other side of the building from the courtyard space, which has little to attract the casual users (no retail units, cafes etc.).

> *'The terrace (with playground and some green space) on the 8th floor is excellent – it's not visible from the outside. The green area in front of Tesco is a waste of space'*
> Woolwich Central resident

Woolwich Central, Woolwich

Lillington and Longmoore Gardens, Pimlico

Millbank Estate, Pimlico

Thurston Point, Lewisham

Outdoor space in Woolwich Central, Lillington & Longmoore Gardens and Millbank Estate is well used, as residents walk through communal areas to reach their homes. By contrast the courtyard at Thurston Point has no through pedestrian traffic.

Although many of the developments include roof gardens, we heard consistently that these were rarely used, perhaps because residents were unaware they had access to them and/or there were restrictions on their use (e.g., no barbecues, early curfews). Referring to the roof garden at Pembury Circus, one focus group participant commented that it was empty most of the time because 'people don't know what to do there'. Several said they were more likely to use their private balconies than the roof gardens.

6 Conclusions and lessons

In this final section we reflect on the themes that emerged over the course of this project. It is beyond the scope of this exploratory study to provide detailed policy recommendations, but we draw some lessons that may be of help to planners, designers and fellow academics. Not all of these lessons are new—many echo what is already recognised best practice or incorporated in official guidance (although not always followed in practice).

Community

Most of the recent schemes we studied were built on brownfield sites, and when complete the new blocks of flats were occupied by hundreds or thousands of households over the space of a few months. In a physical sense, entire new communities were created, but not all are yet functioning as communities in a social sense.

Our respondents picked their homes on the basis of two main factors: transport links and price. Implicitly they were prepared to make trade-offs. We found that in general, social considerations such as being close to family and friends were well down their list of criteria for choosing a home.

It was clear that the physical proximity engendered by high-density built form did little in itself to encourage community. This appeared to be driven by other factors, some of which can be engineered and some of which are serendipitous. A number of respondents in the new schemes (mostly childless, younger people) said emphatically that they had no interest in being part of a community based on where they lived—their social networks were located elsewhere in London (or indeed elsewhere in the world) and one of the benefits of living where they did was that they could easily travel to meet them. This view was surprisingly widespread, and challenges accepted notions of the desirability of community.

A critical mass of long-term residents seems to contribute to a sense of community and security in a development. The three Pimlico estates all had this critical mass (some residents were the third generation of their family to live there), and unsurprisingly respondents from these schemes knew many more people there than those in new developments. Of course, it is too early to expect the same depth of social engagement in developments that have been occupied for as little as two or three years but there are signs that rich networks are already developing in some of the new schemes, especially the big master-planned communities.

Length of stay is inextricably linked to tenure. Social tenants and owner occupiers are more likely to see their flats as long-term homes, while private tenants are more transient. Existing planning tools allow us to determine the number of social and affordable units in new schemes, and planners (should) require developers of super-dense schemes to provide high proportions of affordable housing. Not only are such homes desperately needed, but they also house a core of longer-term residents. However, planners cannot control the eventual tenure of private for-sale units, which are almost always the majority in new developments. Many speculative schemes are dominated by private tenants renting from individual investor landlords. Turnover amongst such tenants can be very high (although this may change when the government fulfils its pledge to end Section 21 no-fault evictions), making community-building even more of a challenge.

Some developers have begun to take active responsibility for promoting community, by for example sponsoring events, creating online platforms and providing social spaces. This happens especially in purpose-built Build to Rent schemes.

> *"There is a difference between facilitating and engineering. It is the role of the developer to create the opportunities for people to meet but it is not the developer's role to make community happen." (Developer)* [1]

'Nudge' interventions could help to encourage spontaneous interactions in the places where residents tend to meet – the lift, the lobby.

> *"Maybe the best we can do is provide opportunities for community to form—think spatially about the built environment and how people might mix in the space. E.g. whether someone from Block A would meet someone from Block B." (Academic)*

1. The quotes in this section are from stakeholder interviews and round table participants.

Lessons:

• High turnover creates challenges for community building in schemes dominated by private renting, especially where there are many individual investor landlords.

• Residents living in the same scheme or even the same corridor don't necessarily socialise or recognise each other. Circulation areas like lifts, corridors and lobbies could be thoughtfully designed to encourage informal, spontaneous interactions.

Neighbourhood

With a few exceptions, the residents of new schemes seemed to have a rather utilitarian relationship with their surrounding neighbourhoods, focusing on the proximity to services and transport. Some new developments offer a range of services and amenities that allow residents to have a more or less self-contained lifestyle, and several said they used few facilities beyond them. As newcomers they often knew little about the local culture and heritage. Most respondents in historic schemes, however, had a long-term commitment to their local area. Many felt privileged to live in the attractive central London neighbourhood of Pimlico and were well-informed about the history and architecture of their homes.

Some of these large new high-density housing schemes, and the mass of (relatively) socially homogenous residents that they brought with them, seemed to sit uneasily within their neighbourhoods. In Woodberry Down and Pembury Circus, respondents were acutely aware of the tenure and income divide between newcomers and neighbours living in the surrounding estates; some were concerned about the potential role of their development in displacing the local community. Many said they felt disconnected from their wider neighbourhoods: some because of their own perceived role as gentrifiers, others because they were concerned about problems (e.g. crime, antisocial behaviour) in the neighbourhood.

Lessons:

• Integration with the surrounding neighbourhood can be fostered through pedestrian permeability and incorporating amenities that can be used by the wider community.

• Encourage incoming residents to engage with local area, for example by providing information on local resident associations and neighbourhood groups.

Infrastructure

Residential development should proceed hand-in-hand with infrastructure improvements but there is often a lag. Many respondents said their local infrastructure and services were under strain, with long queues at tube stations, difficulty getting a GP appointment, and schools at full capacity. These problems were particularly acute in the 'Urban Insertions'.

Several of our schemes were in the vanguard of development in their local areas. Respondents were disturbed by continuing construction, but also by the prospect of greater crowding on transport and higher demand for services. While planners may welcome a 'density bonus' of developer contributions to infrastructure and amenities, residents are more likely to perceive a 'density penalty' because the new infrastructure does not arrive in tandem with the new buildings. And even when infrastructure improvements do happen, the link with development may not be obvious.

Lessons:

• New schemes can bring sudden sharp increases in local population. Necessary improvements in infrastructure and services should arrive with the new residents, not years later.

• Information about the impacts of new development on infrastructure and local amenities could be better communicated with local residents.

Family living

Those living in the market homes in new schemes were, largely speaking, childless young professionals. This is a question of cultural preference (most people aspired to live in houses with gardens) but also of affordability: some respondents said they enjoyed living where they were now but could not afford a family-sized unit in the same scheme and would perforce have to move if they had children. At the other end of the spectrum, older people told us that the attractions of living in a modern flat (easy access, good views, low maintenance, security) were attenuated by the lack of space for their accumulated possessions.

Small units are an outcome of the 'viability' process: for a given floor area, many small units will generate a higher profit than a smaller number of large units. New units are therefore often at or just above the minimum space standard, and high-density schemes generally comprise many one- and two-bedroom flats. Planners usually require some 'family-sized' units with three or more bedrooms but in the market sector there is no way to control who lives in them and they are more likely to be occupied by single sharers.

Those living in social rented properties were more likely to have children. Across all tenures, parents of small children said their schemes were good places for families to live—but also that their flats had insufficient storage and play space. Inadequate storage was more of an issue for our respondents than size per se.

Families evolve and grow. Adaptable homes can accommodate these changes, but the schemes we looked at were not notably flexible. A combination of building regulations, planning requirements and development economics produces a standard development type which is not necessarily responsive to the needs of families. The layouts of flats in the new schemes were strikingly similar: most had open-plan kitchen/living rooms, floor-to-ceiling windows in the main rooms, and small balconies. Window size and floor plans mean there is often only one possible furniture configuration, and it may not be straightforward to move or add walls. We should be trying to create more flexible spaces if we want families to choose new homes and stay in them as they grow and age.

Lessons:

- **Think creatively about how to provide enough storage space for families, either within flats themselves or elsewhere--possibly by repurposing unused parking spaces or offering basement storage units.**
- **Design homes whose space can easily be reconfigured as households' needs change.**

Management

Many residents said their schemes were well managed, but were more inclined to go into detail about failures (broken lifts, etc.) than about successes. High residential densities can become dysfunctional if mismanaged: a broken lift can mean hundreds of people have problems getting into or out of their homes; a broken pipe can leave them without hot water. Especially in new schemes, for which residents had high expectations, these failures were a source of disappointment and eventually anger, which was often directed at management.

Residents said they valued efficient management but also wanted a sense of connection with those responsible. Physical presence matters: people like dealing with known and trusted staff. The importance of the concierge to residents of new schemes – in terms of dealing with problems but also as a reassuring social figure – came as something of a surprise to us. Having on-site staff like a concierge (or a caretaker) can significantly improve the experience of residents in large developments.

Another key issue relating to management was the service charge. Residents in some schemes were concerned by the rate of increase of service charges, which they saw as unpredictable and completely unrelated to the services they received. Service charges varied widely across the schemes we looked at, but there was no clear link between the amount of the service charge and residents' degree of satisfaction.

Lessons:

- **Management plans should be accessible to residents, and provide details of current and forecasted running costs and service charges**
- **Having accountable, on-site staff improves the liveability of new schemes.**

Amenities and outdoor space

In broad terms, master-planned, relatively self-contained schemes that provide a range of services, retail outlets and open space seemed to be more successful for residents than one-off insertions into the existing urban fabric. The realities of development economics mean such schemes are much easier to create when land is in single ownership.

Residents value a mix of uses at ground-floor level including essentials (some said the best thing about their flat was living over a supermarket) but also independent businesses. However some of the case studies suggest independent businesses are not necessarily the kinds of commercial tenants that are attracted to these schemes—and some struggle to attract any commercial/retail tenants, at least initially. Residents understandably complained about empty ground floor commercial units at some developments.

While empty commercial units are likely a temporary problem, long blank facades punctuated only by service entrances deaden the streetscape permanently (e.g. at Woolwich Central or Thurston Point).

Architects' renderings of outdoor spaces in new schemes always show them alive with happy picnickers and pushchairs, and indeed we found some schemes that were like that in real life (at least on a warm April day). Others have communal outdoor areas that are windswept and deserted. Predictably, spaces that were attractive, had comfortable seating and served pedestrian routes were better used than hard-surfaced, dead-end, heavily overlooked spaces. Having somewhere pleasant to sit means people might linger, helping to animate the space.

The question of outdoor spaces is intrinsically linked to the question of management: more generous outdoor spaces require more maintenance and therefore cost more. Outdoor space that is open to the wider neighbourhood helps knit schemes into the urban fabric, both physically and socially, but it may seem unfair to require residents to cover the ongoing costs of an amenity that is used by the wider public. Perhaps a partnership between developers and local authorities could solve this problem, as at Woodberry Down, where Hackney Council has taken over management of the green areas.

We should also consider the balance between private amenities and wider public contributions. Reducing the number of private gyms, cinemas etc. would decrease service charges, and opening up amenities to the wider community would better integrate new schemes in the neighbourhood.

> *"The answer would be to stop making private swimming pools in new buildings. It would be much better to invest in a high quality public swimming pool that everyone pays for through their council tax. It is a creative way to keep things fair." (Developer)*

> *"It would be more strategic for different developers building in the same area to work together in order to share the provision of better communal amenities. You don't need a playground on each scheme, you need a very good playground to be shared by different schemes." (Developer)*

Lessons:

- **The amenities and cohesiveness of big master-planned schemes made them popular with residents. Such schemes are much easier to produce when land is in single ownership. More effort should be made to assemble land for key sites.**
- **Street frontages should be active. Retail or commercial frontages should be provided only where they are likely to be successful. In some areas it may be better to designate ground floor units as family homes.**
- **Residents' day-to-day movements should take them through common spaces, to ensure that these areas are used and feel welcoming.**
- **In many cases, it may be better to open amenities to the wider public rather than reserving them for residents only. Bigger, better, publically accessible facilities may be produced by pooling resources from multiple local schemes.**

Built form

Several of our case study schemes received damning reviews from architectural critics, and indeed two (Woolwich Central and Strata SE1) won the Carbuncle Cup. But perceived aesthetic quality did not relate strongly to the everyday experience of residents. For example, Woolwich Central residents said its internal features (particularly the network of elevated terraces) made it a great place to live, despite its ungainly outward appearance.

Similarly, density per se did not seem to be a strong determinant of resident satisfaction: rather, what affected residents' experience was the quality of design and construction of the homes themselves and the outdoor areas, the neighbourhood setting (largely outside the control of the developer), access to green areas and good services, and protection from noxious factors such as noise, pollution etc. The closer people are living to one another, the more important are physical construction details like proper noise insulation, heating design and lifts.

Besides lack of storage (addressed above), the other major physical issues in new case studies were noise and overheating. Overheating was a problem both within individual dwellings and in corridors and other communal areas. Residents often attributed it to centralised heating systems that they could not control. Overheating was less of a problem in homes that were dual aspect (a minority of the modern flats, but a majority on historic estates).

Given that all the modern schemes would have been required to meet recent building standards, there was surprising variation in terms of how much residents were bothered by noise. Many people said they faced a trade-off between noise (windows open) and overheating (windows shut).

Our study supports the thinking behind policy D6 of the Draft London Plan: that the higher the density of any given building, the higher the scrutiny it should be subject to in terms of design and build quality. Based on the experience of residents living next to railways and roads, proposals for 'urban insertions' in areas of high infrastructural density should be held to the highest standards.

Lessons:

• Heating and noise are the physical issues that most concern residents, apart from storage. These issues, and the potential interaction between them, should be explicitly considered at design stage and monitored once the buildings are occupied.

• Buildings that are shoehorned into tightly constrained, irregular spaces should meet the highest design standards, both for the benefit of residents themselves and the surrounding neighbourhoods.

Learning from residents

There was a wide range of lived experience across the different schemes and even within individual schemes, from strongly positive responses to strongly negative ones. On the whole, most residents are satisfied with their high-density homes. Many of our respondents had relatively high household incomes (some because they were sharing) and could choose where to live, and they elected to live in relatively expensive new flats rather than relatively cheaper older housing. On the evidence of this study, 'dense' housing seems to be relatively popular with residents – or at least not unpopular. This in itself is remarkable, given how alien some of these blocks would be to most people in the UK. There is a 'forced' choice issue, of course: most people in London know their options are massively constrained. But overall, residents of these big, densely-populated blocks are happy with their homes.

There was no clear relationship between resident satisfaction and the absolute density of the developments, just as our colleagues found in 2004 when looking at high-density London wards. In another parallel, both studies found that people often had little understanding of the concept of density and no strong views about whether it was a bad or a good thing in and of itself. Density alone does not determine whether these residential environments are experienced negatively or positively. Rather, it is the interaction between density, design, build quality, location and people that creates a sense of place, and the greater the density, the more important it is to get the other factors right.

Londoners are in the midst of a city-wide experiment in built form, yet there is no system for gathering information about the physical and social performance of new residential developments. Post-occupancy evaluations are regarded by architects as best practice but they are expensive and therefore rarely undertaken, and even when they are the information may not be shared. To ensure that our new homes work well for Londoners and for the city, we should routinely assess the physical and social qualities of recent schemes—and when judging their performance we should listen to the voice of residents.

Lesson:

• Post-occupancy evaluations should become standard for all major schemes, with the findings used to improve existing and future developments. Residents should be involved in these evaluations.

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Annex A: Defining density

There are three main ways of measuring or regulating density (Gordon et al, 2016). Each has its advantages but quantifying density can be complex and ambiguous, and none of the available measures captures much about the typology, design or overall quality of buildings.

This report focuses on built density, which is usually measured in one of two ways:

- Focusing on the concentration of dwellings or rooms—e.g. the numbers of dwellings or rooms (or habitable rooms, bedrooms or bedspaces) per hectare
- Focusing on the relationship between built form and land area. Plot ratios are the simplest expres sion; the height and massing of buildings may also be measured or regulated

The third way of measuring density focuses on density of inhabitants, with measures such as households or persons per hectare (sometimes identifying specific types of person such as children). Such measures are not used in this report.

In this report we have measured density in dwellings per hectare (dph) based on the net residential site area within the 'red line' planning application site boundary. It generally includes the development's housing, non-residential uses in mixed-use buildings, ancillary uses, internal access roads and car and cycle parking areas. It also generally includes the on-site open spaces (including those that are publicly accessible), children's play areas and gardens (London Plan Housing SPG, 2016). It generally excludes the adjoining footways, paths, canals, rivers, railway corridors, carriageways and similar open spaces.

Benchmarks for different levels of density vary depending on the source, but are generally around the following:

- **High density** (UK studies): ~100 dwellings or 400-plus habitable rooms per hectare (e.g. Bretherton & Pleace (JRF & CIH, 2008; Dempsey et al, 2012). Amongst our case studies, the lowest-density scheme is the Millbank Estate with 141 units/hectare.
- **Superdensity**: 150 dwellings per hectare or ~500 habitable rooms or above (e.g. London First, 2015). Hale Village and Woodberry Down are both over this benchmark, at 243 dph.
- **Hyperdensity**: 350+ dwellings per hectare or around 1,100 habitable rooms per hectare (e.g. NLA, 2015). Six of the case-study schemes fall into this category, with the highest densities at Strata (1,295 dph) and Stratford Halo (670 dph), both of which are towers.

Annex B: Sustainable residential quality density matrix from 2016 London Plan

hr/unit = habitable rooms per unit
hr/ha = habitable rooms per hectare
u/ha = units per hectare

Setting	Public Transport Accessibility Level (PTAL)*		
	0 to 1	2 to 3	4 to 6
Suburban	**150-200 hr/ha**	**150-250 hr/ha**	**200-350 hr/ha**
3.8-4.6 hr/unit	35-55 u/ha	35-65 u/ha	45-90 u/ha
3.1-3.7 hr/unit	40-65 u/ha	40-80 u/ha	55-115 u/ha
2.7-3.0 hr/unit	50-75 u/ha	50-95 u/ha	70-130 u/ha
Urban	**150-250 hr/ha**	**200-450 hr/ha**	**200-700 hr/ha**
3.8-4.6 hr/unit	35-65 u/ha	45-120 u/ha	45-185 u/ha
3.1-3.7 hr/unit	40-80 u/ha	55-145 u/ha	55-225 u/ha
2.7-3.0 hr/unit	50-95 u/ha	70-170 u/ha	70-260 u/ha
Central	**150-300 hr/ha**	**300-650 hr/ha**	**650-1100 hr/ha**
3.8-4.6 hr/unit	35-80 u/ha	65-170 u/ha	140-290 u/ha
3.1-3.7 hr/unit	40-100 u/ha	80-210 u/ha	175-355 u/ha
2.7-3.0 hr/unit	50-110 u/ha	100-240 u/ha	215-405 u/ha

Notes:

Appropriate density ranges are related to setting in terms of location, existing building form and massing, and the index of public transport accessibility (PTAL). The setting can be defined as:

Central: Areas with very dense development, a mix of different uses, large building footprints and typically buildings of four to six storeys, located within 800 metres walking distance of an international, metropolitan or major town centre.

Urban: Areas with predominantly dense development such as, for example, terraced houses, mansion blocks, a mix of different uses, medium building footprints and typically buildings of two to four storeys, located within 800 metres walking distance of a district centre or along main arterial routes

Suburban: Areas with predominantly lower density development such as, for example, detached and semi-detached houses, predominantly residential, small building foot prints and typically buildings of two to three storeys.

** The Public Transport Accessibility Level (PTAL) measures accessibility by public transport for locations in London. PTAL values reflect walking distance to stations and transport stops of all kinds, as well as the frequency of services at these stations and stops. Scores run from 0 (least accessible) to 6b (best connected).*

Note that the highest density level in the 2016 matrix is 405 units/hectare. Four of our 11 modern schemes exceeded this level.

Annex C: Research methods

This was a mixed-methods research project by a team of researchers from LSE London and LSE Cities, two research units at the London School of Economics. It was carried out in two phases. The first, between November 2016 and November 2017, focused on eight new-build high-density schemes of varying typologies, and allowed the researchers to develop a consistent methodology. The GLA commissioned a second phase of research (late 2017 to summer 2018) which examined a further six high-density developments, bringing the total number to 14. Half of the Phase 2 case studies were historic, with the aim of learning lessons from 20th-century high-density design.

Quantitative methods

We developed an online survey consisting of a mix of closed and open questions on the following themes :

- Resident demographics;
- Household biographies and housing choices;
- Day-to-day life in the developments, and the pros and cons of high-density living;
- Belonging and the wider neighbourhood;
- Housing trajectories and aspirations

We conducted an initial pilot study at two of the case-study sites (Greenwich Creekside and Strata SE1) to optimise survey content and determine the best method for survey dissemination. The survey link was disseminated via letter to the flats in each development; respondents were also given the option of filling in a paper copy. For schemes with fewer than 500 units we posted an invitation to every flat, and to a sample of 500 in larger schemes. At the end of the survey respondents could express interest in being contacted for further research, allowing us to recruit participants for the walking interviews and focus groups.

The final survey consisted of 57 questions (some embedded, only appearing when certain options were selected). There were 517 responses, but not all respondents answered every question. The overall response rate was 8% but varied from 4% at two of the Pimlico estates to 16% at Greenwich Creekside. It well understood that certain groups (older people, those for whom English is not their first language, low-income households) are less likely to respond to web-based surveys and as that suggests, response rates from new schemes were higher than from old ones. Given the differences in response rates across schemes and by income and tenure this should not be regarded as a representative sample of residents, but was our best attempt given the time and resources available. We did not weight survey responses to try to address the underrepresentation of certain groups.

Scheme	Response rate
Greenwich Creekside	16%
Woodberry Down	13%
Pembury Circus	13%
Woolwich Central	12%
Hale Village	10%
Strata	10%
East Village	8%
Thurston Point	8%
Millbank Estate	7%
Lanterns Court	6%
Barking Central	5%
Stratfort Halo	5%
Tachbrook Estate	4%
Lillington and Longmoore Gardens	4%
OVERALL RESPONSE RATE	**8%**

Table C1: Survey response rates by scheme

Qualitative methods

We employed a range of qualitative techniques including site visits, focus groups, resident interviews (sometimes while walking through developments) and production of a short film. We visited each case study site several times to photograph them and record information about access, facilities, and the character of the scheme and the surrounding area. We also undertook structured observations at developments to record the use of public open spaces.

Where possible we visited schemes together with residents. The aim was to be shown, as well as told, what was and wasn't working in the developments. Interviews therefore took place at, or nearby, residents' homes – generally involving a 'tour' of both their individual flats and the wider development. These were very open-ended, allowing for participants to focus on what they felt were the most important aspects, but we also asked them to reflect upon the biggest issues/benefits emerging from the survey for that particular development.
Across the two phases we convened three focus groups with around ten participants each. The sessions allowed for guided, yet spontaneous, interaction among residents from a mix of case study developments, resulting in a useful discussion of key similarities and differences between developments in terms of design and built form; maintenance and management; use of communal space and amenities and family friendliness. As part of the focus group protocol, we asked participants to draw 'where [they] live' and explain what they had produced to the group. An example of a mental map can be found **on page 67**.

In the Phase 2 research we interviewed a variety of key informants involved with designing, planning or managing the different case study developments, including building managers, residents' groups, architects and planners. We wanted to better understand the original visions of the architects and designers of case-study schemes, and to gain some insight into how developments worked from a management/maintenance perspective.

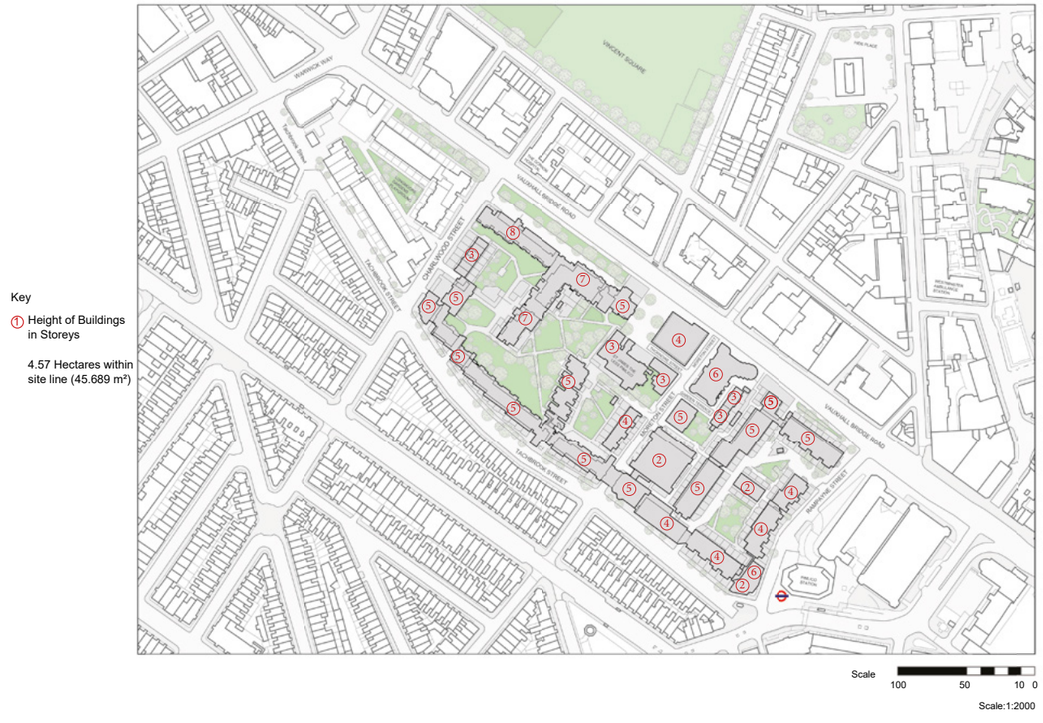
We periodically invited a group of experts, including architects, planners and academics, to LSE to discuss the key findings and consider recommendations for policy and practice. Their advice was invaluable.

Annex D: Mapping density

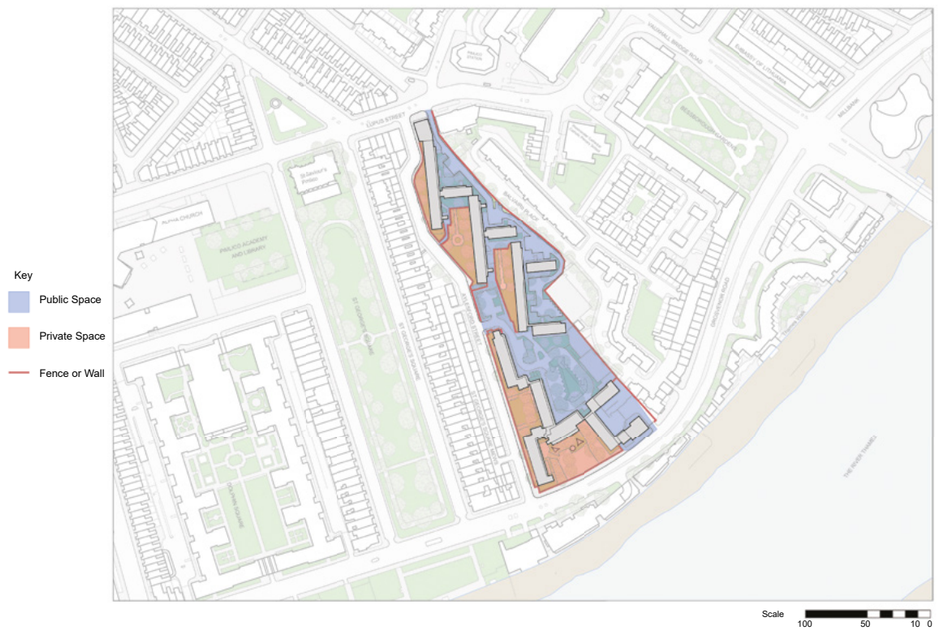
Working with a team of architects, we developed detailed maps of six developments. The aim of this exercise was to illustrate how the developments relate to their respective urban contexts, so as to better understand how this affects the experience of residents. The maps show the form and massing of the buildings and the entry points to the developments, and set the schemes in the context of the local transport network and neighbourhood.

We used five different mapping techniques to focus on different features of the schemes and their neighbourhoods.

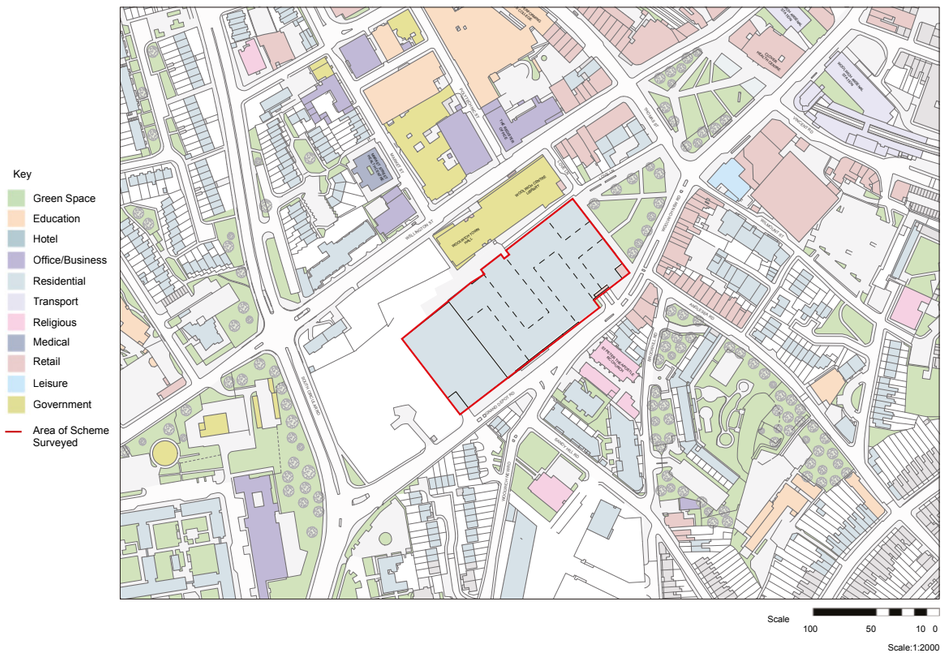
1. Block plan with building heights (Lillington and Longmoore Gardens as example)
This is based on the standard maps used in planning, which usually show the siting of a project on an Ordnance Survey map. Conventions are used to depict boundaries, roads and other details. This map shows the number of buildings as well as the location of trees and paths and the scheme's relationship to roads, but gives little feel for the massing and height of buildings.



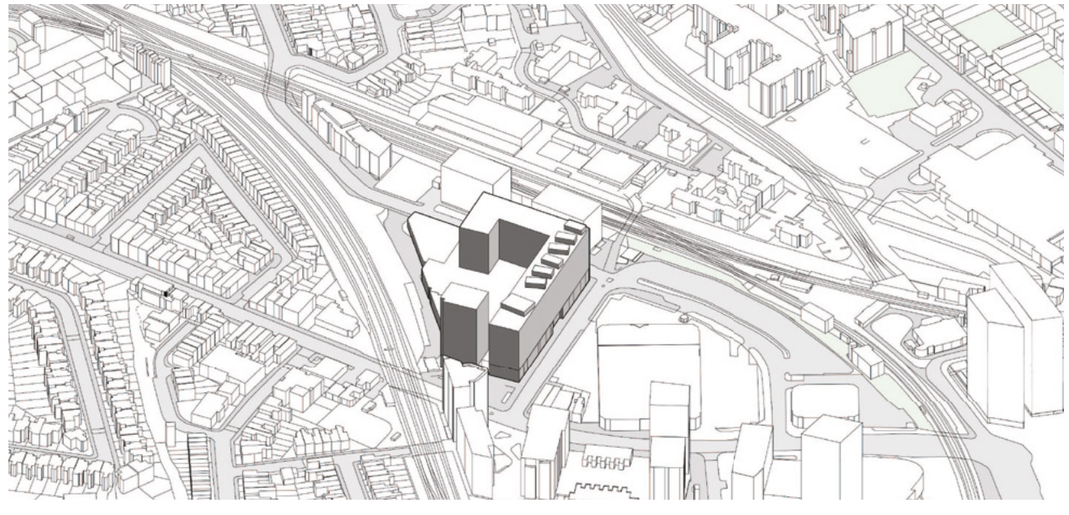
2. Block plan showing public and private space within the scheme (Tachbrook Estate as example)
Using different colours to denote different levels of accessibility demonstrates that not all open space is equally permeable. Colours could also be used to distinguish blocks by tenure, year of construction, etc.



3. Land use map (Woolwich Central as example)
Another type of block plan with more details about uses in the surrounding area. Gives a picture of the relationship between dense schemes and local services, amenities and infrastructure. Woolwich Central sits at the junction between residential uses to the south and west, and retail/commercial/government uses to the north.



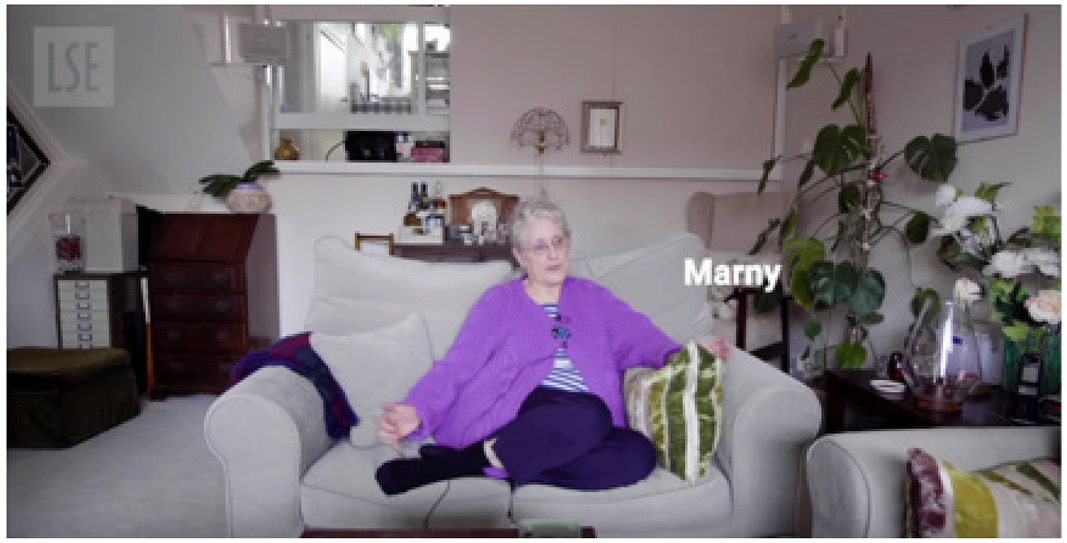
4. Isometric projections (Woodberry Down [top] and Thurston Point [bottom] as examples)
Gives an indication of the bulk of buildings and their heights. Probably the most accessible way of showing density.



Annex E: Experience density

Film

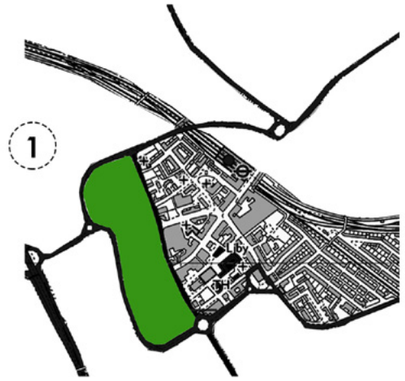
As part of our research we worked with LSE filmmaker James Rattee and with residents of five developments to produce a short film, Living at High Density in London (2019). Participants talked about what they like and dislike about their homes, about their future housing aspirations, and about how their housing contributes to a sense of community – or, in some cases, isolation. The film can be seen at **https://tinyurl.com/Density-film**



An image from Living at High Density in London

Walks

The research team created a series of walks around case study developments and their surrounding areas using Google Maps. These are designed to provide insights about the schemes from the residents' perspective, in addition to some historical and contextual information.



1 - Barking Central

For the detailed map of the walk
please visit **http://tinyurl.com/densitybarking**

The walk begins at the Barking tube station, and takes you though the development and the neighbouring areas and finally concludes at the station. The project was part of the larger plan to revitalize the Barking town centre with a mixed-use scheme. At the time of project approval, the site was being used as a car park for Barking Central. Previously, it held the R Whites lemonade factory, and the colour scheme was designed to honour this history. The urban design scheme aimed to stitch together the various fragments of Barking together (including the town hall and the library). The scheme comprises of 6 medium-heighted structures and one tall tower, and has 518 units.

2 - Strata SE1

For the detailed map of the walk
please visit **http://tinyurl.com/densitystrata**

Strata Tower – completed in 2010 – was built on the former site of Castle House, a council-owned, mixed-use sixties building that included a Chinese restaurant, pizzeria and snooker hall. With 408 flats across 43 storeys, the "Electric Razor – as it's often nicknamed - peaks at 148 metres. The scheme has been widely slated for its lack of social housing provision, and won the Carbuncle Cup in 2010. Its three large wind turbines – intended to provide green energy - have since been put out of operation due to noise and vibration impacts on the upper levels. Strata is situated adjacent to the controversial Elephant Park development, which replaces the Heygate Estate – a large social housing community - with 3,000 new, largely market rate, homes.

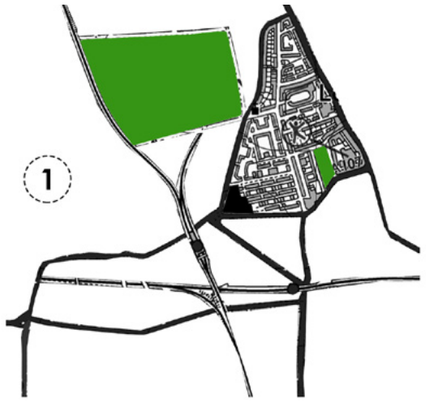
3 - Woolwich Central

For the detailed map of the walk
please visit **http://tinyurl.com/densitywoolwich**

This short walk takes you around the heavily redeveloped town centre area of Woolwich, and the high-density scheme of interest, 'Woolwich Central'. Atop the largest Tesco in Europe, this development infamously won the Carbuncle Cup for Britain's worst architecture in 2014. The walk gives insights into how the conditions around the time of construction resulted in somewhat different outcomes than originally planned. It couples this with some of the perceived benefits and drawbacks of Woolwich Central from residents within, which - considering the criticism the scheme received – were surprisingly positive.

The Stratford Walk

For the detailed map of the walk please visit **https://tinyurl.com/densitystratford**



1 - Pembury Circus

Pembury Circus dominates one corner of a busy five-road junction in north Hackney, close to Hackney Downs Overground station. The new scheme is tucked into the much larger Pembury Estate, formerly owned by Hackney Council and now run by Peabody Housing Association. The older estate is made up of several 1930s blocks as well as rows of small terraced houses. Most of the Pembury Circus site was formerly occupied by car parking. The scheme features three mid-rise blocks around a paved pedestrian area flanked by a Co-Op supermarket and a café; there is also a Peabody-run community centre. Access to the residential blocks and internal courtyards is fob-controlled. There are 268 flats, many let at affordable rents or affordable private ownership. The scheme itself is car-free, although some parts of the surrounding estate have garages (many now disused).

2 - Stratford Halo

Stratford Halo comprises an oval(ish)-plan 43-storey tower surrounded by several low-rise blocks, and occupies the site of a 1930s soap-box factory. The scheme was built by Genesis Housing Association as part of the 2012 Olympic redevelopment and first occupied in 2013. The flats in the tower are all private rental, while the lower blocks are a mix of social and affordable housing, including an extra-care block for older people. The southeast side of the scheme sits on busy, scruffy Stratford High Street (the A118) while the back borders the Waterworks River. Formerly a heavily polluted industrial stream, this was cleaned up as part of the Olympic project.

3 - East Village

East Village was constructed in the run-up to the London 2012 Olympics as accommodation for the world's athletes. The scheme was master-planned and landscaped to a high standard, and several well-known architects designed the individual mid-rise blocks. After the Games the 3000 units were reconfigured (they originally had no kitchens) and ownership passed to two big landlords: Triathlon Homes, a consortium of three housing associations, and Get Living London, a corporate private landlord. The first post-Olympics residents moved in in 2013 and over the next few years the commercial and retail spaces at ground level were let, mostly to small businesses. The neighbourhood is being further densified with the insertion of several high-rise residential blocks, with hotels, offices and student accommodation around the perimeter.

The Pimlico Walk

For the detailed map of the walk please visit **https://tinyurl.com/densitypimlico**

1 - Tachbrook Estate
2 - Millbank Estate
3 - Lillington Gardens

This walk loops around three historic high-density housing developments, representing different periods in 20th century social housing construction. Firstly you'll see the infamous Lillington Gardens, completed in the 1980s, which is widely regarded as an archetypal example of high-density, low-rise housing. You will then cross over to The Millbank Estate, built between 1897 and 1902 by the London County Council to rehouse Londoners displaced by the building of Kingsway. The walk ends at Tachbrook Estate, most of which was built in the 1930s – a development that unlike the others is still largely comprised of social housing units. Throughout you will be guided by perceptions of the residents surveyed in each scheme, picking up on everything from landscaping to community cohesion. It should be noted that, generally speaking, respondents from these three estates represent a much older and less transient demographic than those from the newer schemes.

The Waterside Walk

For the detailed map of the walk please visit **https://tinyurl.com/densitywaterside**

1 - Thurston Point

The first stop, Thurston Point is a Build-to-Rent building developed amidst of the Lewisham Gateway regeneration.

Designed by ECE Architecture and Bouygues and managed by L&Q, Thurston Point was completed in 2016. It comprises 406 units and has a density of 390 dph.

2 - Greenwich Creekside

The second scheme, Greenwich Creekside is located 5 minutes from Cutty Sark and offers views of Canary Wharf.

Designed by Squire and Partners and completed in 2012, the scheme has 371 units spread across 4 building making a density of 334 dph.

3 - Lanterns Court

The final stop will be at Lanterns Court. Located in London's densest ward, this scheme is surrounded by both new built high density and late Victorian houses.

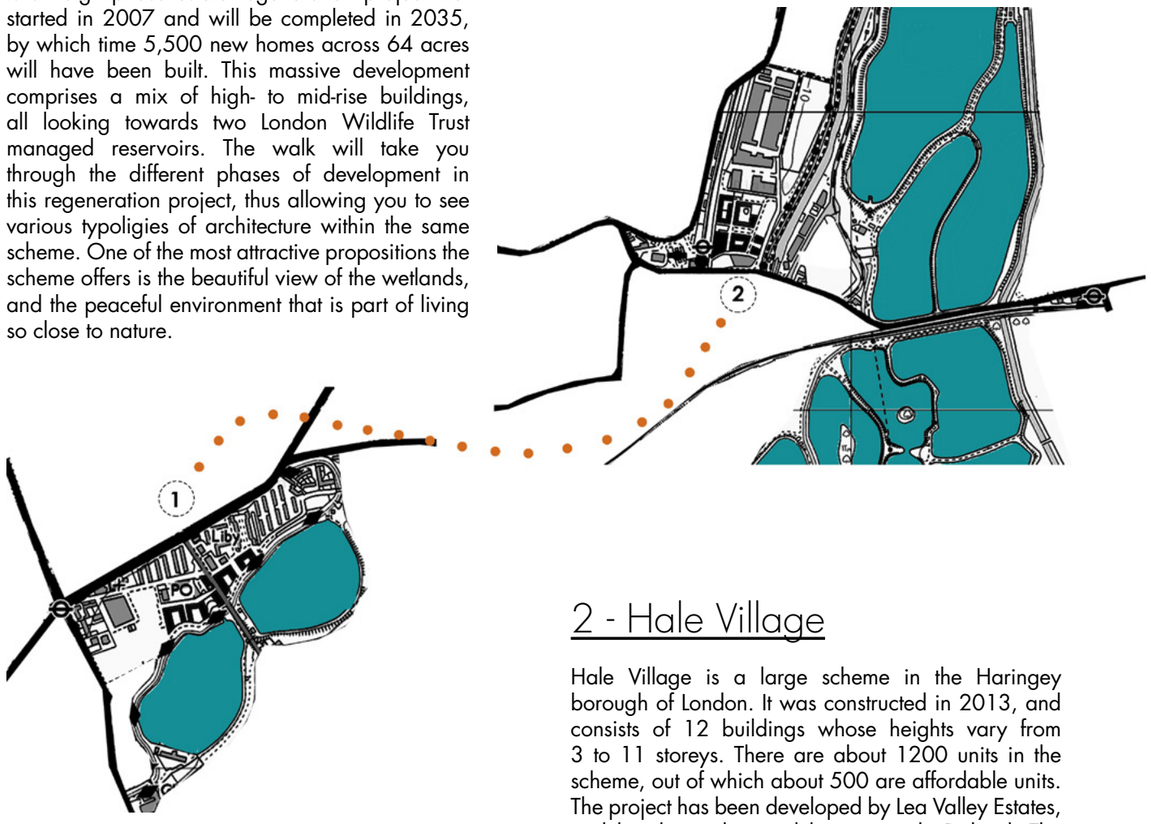
Designed by BUJ Architects, it was completed in 2011. It comprises 656 units and has a density of 532 dph spread across three buildings between 4 and 18 storeys.

The Wetlands Walk

For the detailed map of the walk please visit **https://tinyurl.com/wetlandsdensity**

1 - Woodberry Down

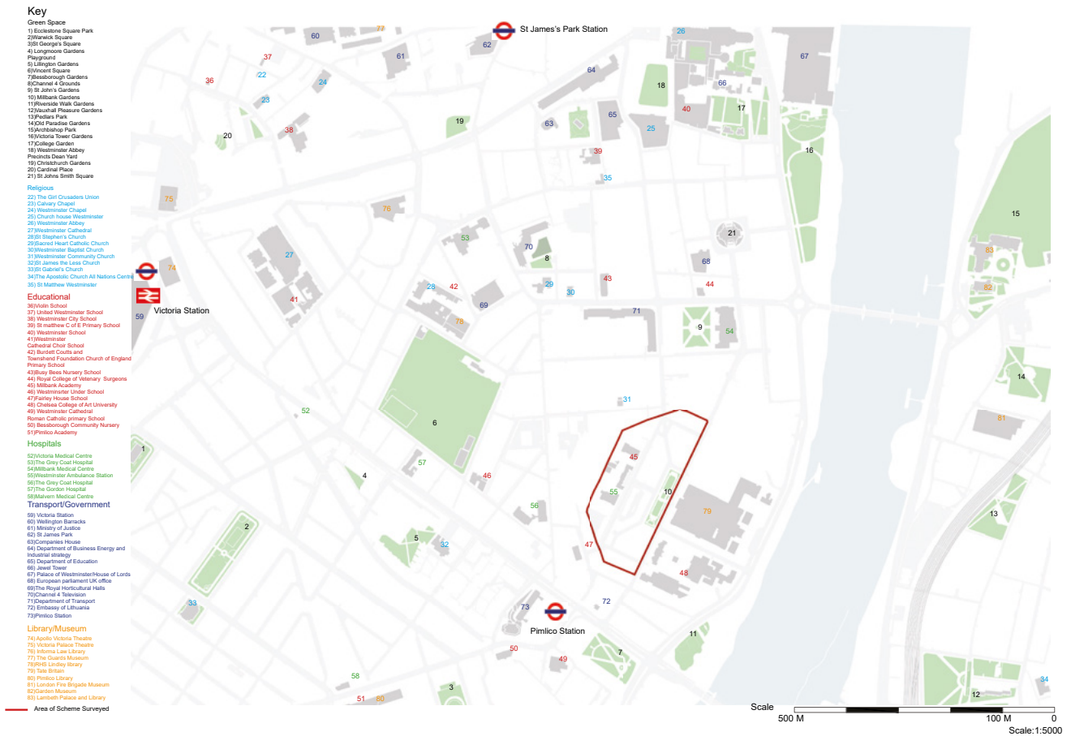
Woodberry Down, close to Manor House station, is an eight-phase estate regeneration project that started in 2007 and will be completed in 2035, by which time 5,500 new homes across 64 acres will have been built. This massive development comprises a mix of high- to mid-rise buildings, all looking towards two London Wildlife Trust managed reservoirs. The walk will take you through the different phases of development in this regeneration project, thus allowing you to see various typoligies of architecture within the same scheme. One of the most attractive propositions the scheme offers is the beautiful view of the wetlands, and the peaceful environment that is part of living so close to nature.



2 - Hale Village

Hale Village is a large scheme in the Haringey borough of London. It was constructed in 2013, and consists of 12 buildings whose heights vary from 3 to 11 storeys. There are about 1200 units in the scheme, out of which about 500 are affordable units. The project has been developed by Lea Valley Estates, and has been designed by cartwright Pickard. The project is located adjacent to the River Lee, and is well-connected through the Tottenham Hale tube and bus stations. As was in the case of Woodberry Down, one of the key highlights of this project is its proximity to the Walthamstow reservoirs. The walk takes you through the scheme and the beautiful landscapes of the wetlands.

5. Location plan (Millbank Estate as example)
Situates a scheme within its wider neighbourhood and in relation to familiar landmarks. This map shows local transport nodes, green spaces, religious institutions, educational institutions, hospitals, government buildings and cultural facilities, but conveys almost no information about the characteristics of the scheme itself.



Acknowledgements

We would like to express our sincere thanks to residents of the case-study developments – especially those who participated in focus groups, took part in the making of the film, or showed us around their developments – for sharing their insights and their time. We are also grateful to our steering group members for their support and guidance. To enable research participants to express their views frankly we have not named individual contributors. Much of this document was informed by our interviews and discussions, but the final report is the work of the research team and may not reflect the view of all participants or of our funders.

We are grateful to
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- LSE's Knowledge Exchange and Innovation Fund for funding this report and other knowledge-exchange activities
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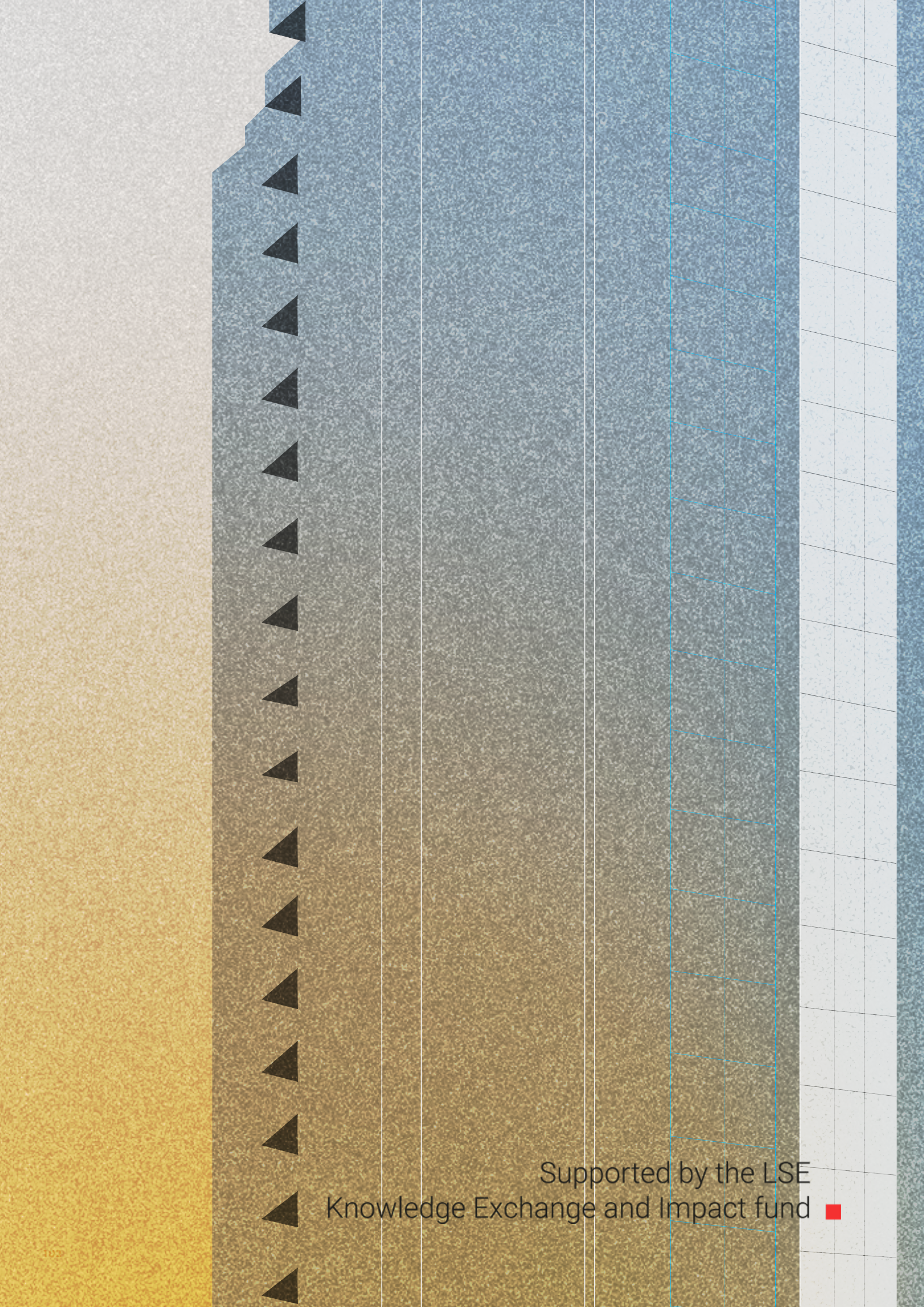

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