

RELATIONAL GRAIN

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INTRODUCTION

NODAL URBANISM

Cities are the absence of physical space between people and companies. They are proximity, density and closeness. (Glaeser, 2011:6)

In cities like London, density has increasingly become a key policy issue for urban growth and development. As neoliberalism takes hold as the dominant development paradigm in cities (Harvey, 2007), densification is increasingly being delivered by private companies who assert a profit-seeking development logic, particularly at sites with high levels of transport accessibility and comparatively lower land values; often cited as the efficient use of land which results in the delivery of density through tabula rasa approaches.

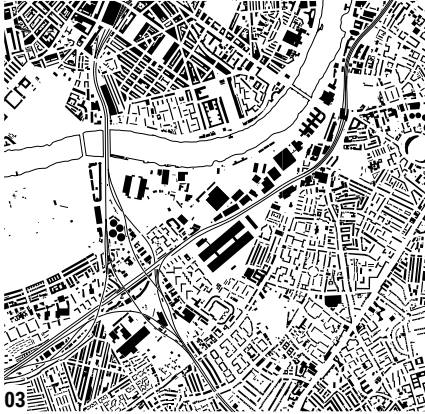
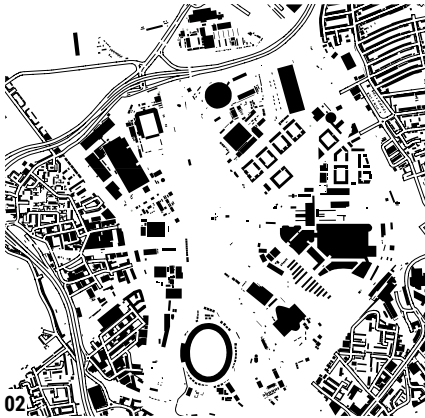
Such processes can already be witnessed at large brownfield sites like Kings Cross driven by infrastructural development, Stratford driven by special events or Nine Elms driven by commercial interests. Looking at the locations of these sites in the context of today's polycentric city, it becomes more relevant to articulate sites for densification not in terms of their centrality or marginality, but to understand these sites as major confluences, a system of interconnected nodes within the city network. These nodes are physically dense and functionally heterogeneous entities, but more than that they are complex in scale and manifest as hybrid urban forms, from façades of global exchange to backyards of everyday functioning.

The question for development is how to then deliver density at nodal sites within existing fine-grained urban areas, without resorting to the erasure of existing contexts. In a time when city growth and form are being increasingly challenged, we

begin our investigation of 'the resourceful city' at Elephant & Castle, located in the London Borough of Southwark, at a moment of intensive speculation; when decentralisation has devolved power to local authorities, when the area is once again the site of great economic prospect and when large tracts of land to deliver density remains scarce. As Richard Sennett (1977:39) writes, 'a city is a human settlement in which strangers are likely to meet. For this definition to hold true, the settlement has to have a large, heterogeneous population; the population has to be packed together rather densely (and) market exchanges among the population must make this dense, diverse mass interact.'

Sennett clearly acknowledges that density does not work alone; yet, the prevailing conception of density harbours a narrow implementation thereof, guided by quantitative tools and targets which neglect its effects on the economic sustainability and social life of the city. As stated in a report by Design for Homes (2007:5), 'the industry as a whole - designers, developers, clients and statutory authorities - are caught in a design framework and business model which produce super dense developments which are unlikely to prove satisfactory in the long term.' Thus, density is not currently an organically occurring phenomenon in cities, but more so an actively pursued and prescribed urban treatment, raising question as to whether a different quality of urban density can be produced through planning policy reform and urban design. Elephant & Castle offers an opportunity to question the efficiency of traditional forms of development influenced by private interests and to re-conceptualise density as a truly resourceful constituent in the city making process; for a more socio-economically sustainable city at large.





THEORETICAL FRAMEWORK

In his article *Nothing Gained by only Counting Dwellings per Hectare*, Elek Pafka (2013:8) echoes the critique of using conventional measurements of density, which 'obscures the diverse possible relationships between built and population densities', and results in static density. However, current planning policies hinge on numerical methods of delivering and assessing densification, thus neglecting complex nuanced and qualitative facets of density. Within the framework of London's planning policies, Southwark Council's Supplementary Planning Document (2008:8) defines density as 'a measure of the amount of residential accommodation on a development site [...], (which) ensures efficient use of land to provide new homes, jobs and services.' Despite the London Plan (2011:84) emphasising that 'higher density does not necessarily equate to high-rise development', the current mode of delivering density in nodal sites is most often through such development models in response to pressures of growing population, physical limitation of space, high land prices and profit-seeking logics of those agents responsible for densification as observed in recent developments at Elephant & Castle like the Strata Tower and One the Elephant. Such one-dimensional understanding and application of delivering density provides impetus for the project to seek alternative paradigms.

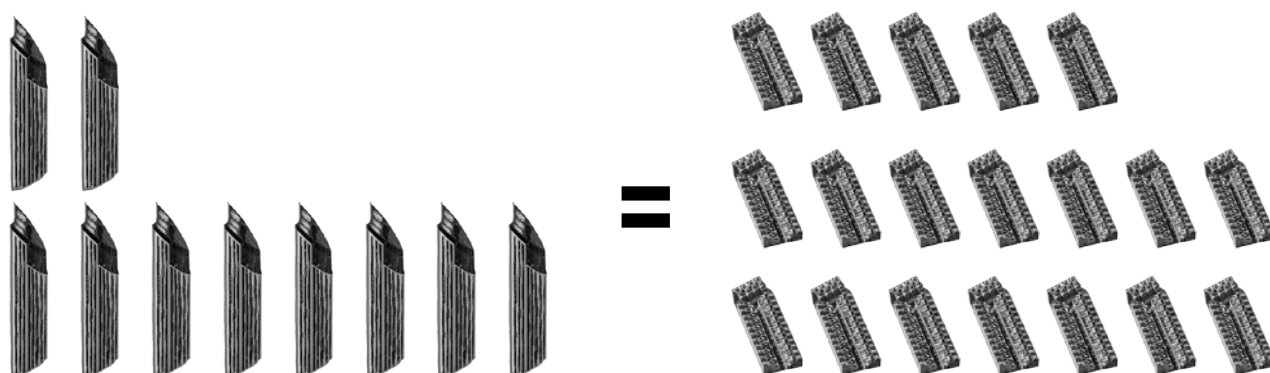
Many scholars have developed alternative approaches to re-conceptualise (Cruz, 2011:116; Rapoport, 1975; Tonkiss, 2013) or measure density (Pont and Haupt, 2005). Teddy Cruz (2011:116) defines 'density not just as the units per acre but as the amount of social and economic exchanges per acre', while Amos Rapoport (1975) speaks about 'density as a perceived experience with desired levels of interaction

and information'. In Emile Durkheim's (1984) writing on the theory of modernisation, he speaks about a 'dynamic density' as the emergence of 'organic solidarity from mechanical solidarity'. Premised on population growth and concentration of people, the resultant intensification of communication becomes the glue for social integration and development of social differentiation. While these authors, amongst others, recognise that diversity appears as crucial component that exists alongside density in urban areas (Burdett et al., 2004; Simmel, 1995; Sennet, 1977; Wirth, 1964), they are limited in providing an understanding of how such a static density and diversity mutually support each other beyond their locational proximity or co-existence.

For even if the concentration of people is one of great heterogeneity, the manifestation fails to optimise the relationality of such heterogeneity in urban areas. If this singular understanding of density remains the dominant planning paradigm, then to attain the London Plan's target of 4000 new homes in the Elephant & Castle Opportunity Area, would mean the equivalent of 10 high-rise typologies or the alternative of 15 low-rise terrace typologies. Our conclusion negates both scenarios, underlining that it is not merely a matter of building typology to create alternative lifestyles choices or calculating optimal land-use for high concentrations of people but rather one of creating conditions for density and diversity to work in relation to one another. We therefore need to nuance the descriptions of 'diversity' beyond the mere demographic figures and form a more comprehensive definition of density beyond a numerical measure, as a resource for development in nodal urban contexts.

Fig. 02 | Density and building morphologies

The amount of towers and terraces necessary to fulfil the London's Plan 4000 housing provision.



CRITICAL ANALYSIS

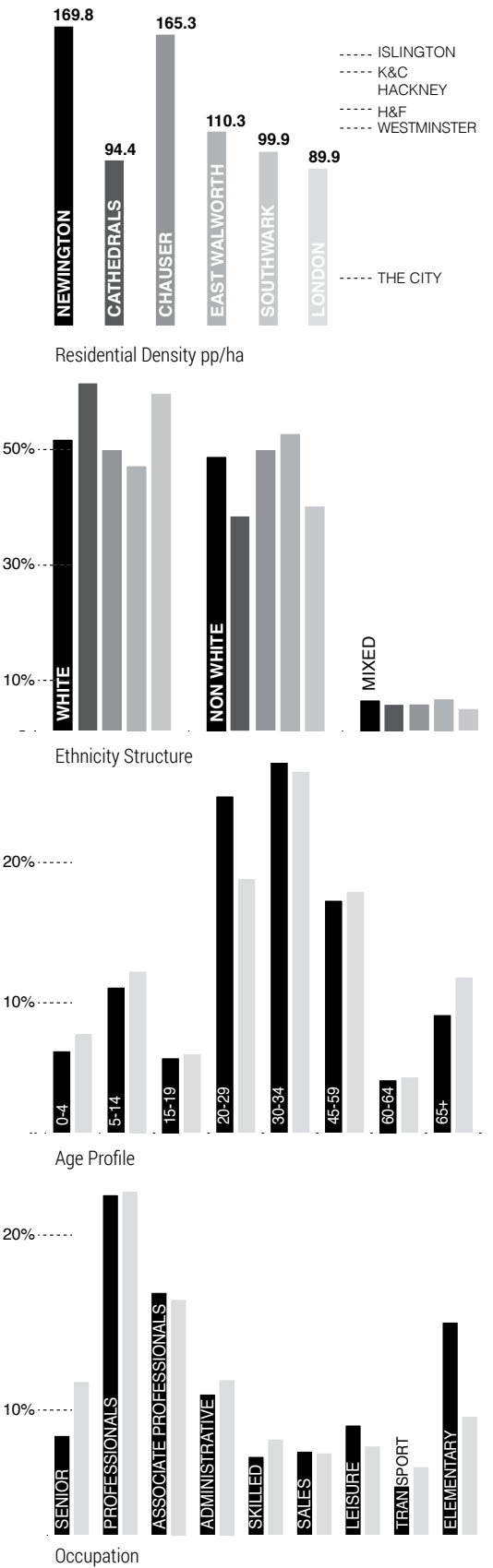
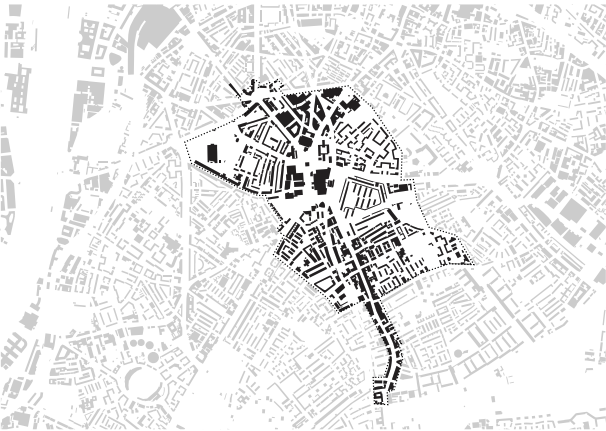
NODAL CONTEXT: ELEPHANT & CASTLE

If dynamic density is neither about quantifying building typologies nor land use efficiency, then there is a need to re-conceptualise such a density. As aforementioned, the project recognises the valuable resource in how density and diversity work in tandem with one another at nodes of dense and heterogeneous agglomerations. Adopting Durkheim’s term ‘dynamic density’ we begin to develop a more complex understanding of the link between the two.

This section begins to unpack dynamic density by looking at ‘static density’ and ‘static diversity’ in Elephant & Castle, a designated Opportunity Area located in the London borough of Southwark, to acknowledge the limitations of such measures, before attempting to deconstruct the complexity of the node through other additional indicators which are referred to as nuanced density and diversity. Thereafter, we will zoom into a typological study of a chosen study site in order to articulate the factors which affect dynamic density.

As the GIS maps and the bar graphs demonstrate, the number of residents, households and dwellings per hectare varies across the wards covering the Opportunity Area. However, one particular ward in the borough, Newington, consistently fares much higher in density than London’s average. In terms of ‘static diversity’, ethnicity, age and occupation profiles also show the diversity of this residential population, with almost 50% belonging to different non-white ethnicities, and a significant proportion of children and teenagers aged 0-14 and elderly aged 65 and above, in addition to the typical working adult population aged 20-59. Residents are also employed under a range of occupation categories, from higher-skilled professionals constituting approximately 25%

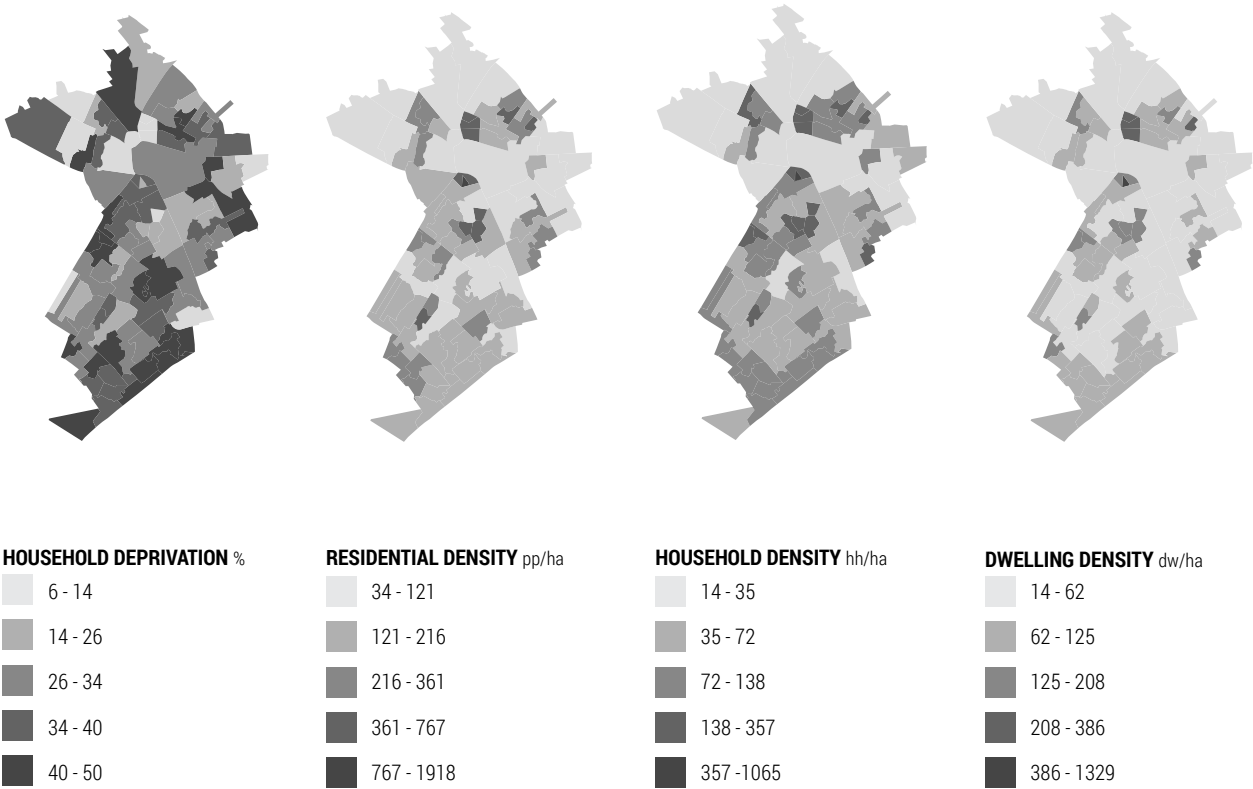
Fig. 03 | Static density and static diversity
Footprint map, density and diversity figures for Elephant & Castle Opportunity Area. Source: Office for National Statistics, 2011.



of the population, to the lower-skilled professions employed in administrative, leisure or elementary industries. These varying socio-economic circumstances are also observed in the spatial distribution of household deprivation levels in Elephant & Castle, with certain areas seeing a greater proportion of households deprived in two or more dimensions compared to others. These indicators showcase a highly dense and heterogeneous social make-up with different needs and priorities for different types of urban spaces and infrastructure at the Elephant & Castle node, yet taken at face value, these measures merely highlight the diversity coexisting parallel to density, without pointing to a relationality and mutual support between the two. There is thus a need not only to nuance the definition of density beyond a simple numerical measure, but also the description of diversity beyond simple demographic figures (Burdett et al., 2004).

Looking at nuanced density through the ‘hardware’ of the spatial fabric in Elephant & Castle, it becomes apparent that there is wide variation in terms of the transport networks be it bus or rail, social infrastructure like schools and religious establishments, and morphology of built forms, each performing different functions for different users. Similarly, looking at nuanced diversity through the ‘software’ of the social fabric, it points to intensities in the implications of such a diversity, and temporal changes of user populations. For instance, housing is allocated through complex tenure arrangements, with not only 21% in privately rented units and 22% in self-owned properties, but also a significant proportion of 54% living in social rentals.

Fig. 04 | Static density and static diversity
Footprint map, density and diversity figures of Elephant & Castle Opportunity Area. Source: Office for National Statistics, 2011.



* households deprived in 2 or more dimensions

Patterns of inflow and outflow of populations during the day also look beyond the static residential population, with 48% of the working population also residing in the area, and the remaining 52% coming from the rest of the city. These demographics also change over time, for instance poverty values have increased by 27.5% over the past 5 years. The dynamics of nuanced density and diversity manifested in both the hardware and software of Elephant & Castle is clearly not a static process, but one supported by and interdependent with several other urban factors. What becomes apparent is the particular ways nuanced density and diversity is manifested in the hardware and software of Elephant & Castle, which leads us to a re-conceptualisation of static density in a more intertwined manner. To probe deeper into the links between density and section, the following discussion outlines the typological study conducted in order to understand the socio-spatial relationships at such nodal sites.

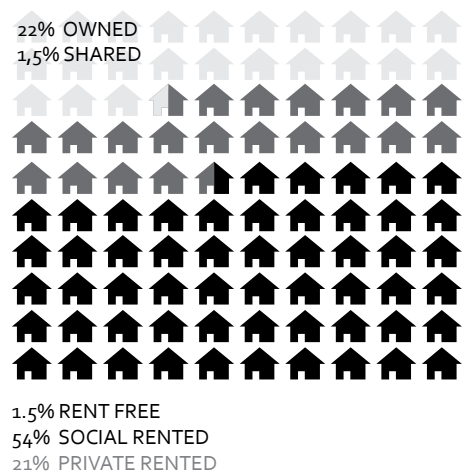
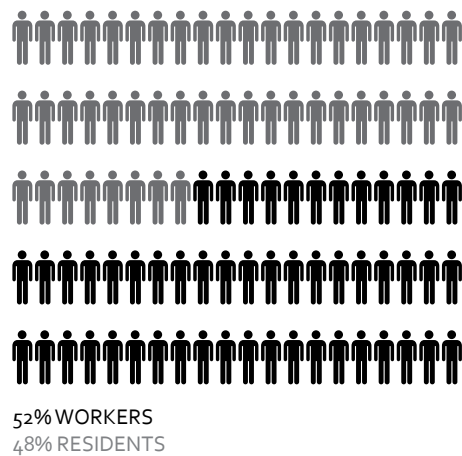


Fig. 05 | Nuanced diversity
The figures show the 'software' of the social fabric in Elephant & Castle Opportunity Area.
Source: Office for National Statistics, 2011.

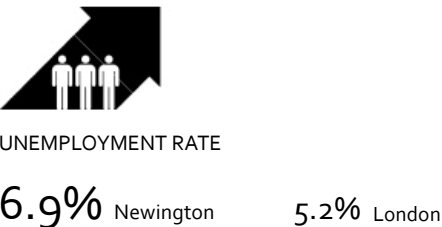


Fig. 06 | Nuanced density

The maps show the 'hardware' of the spatial fabric in Elephant & Castle Opportunity Area.

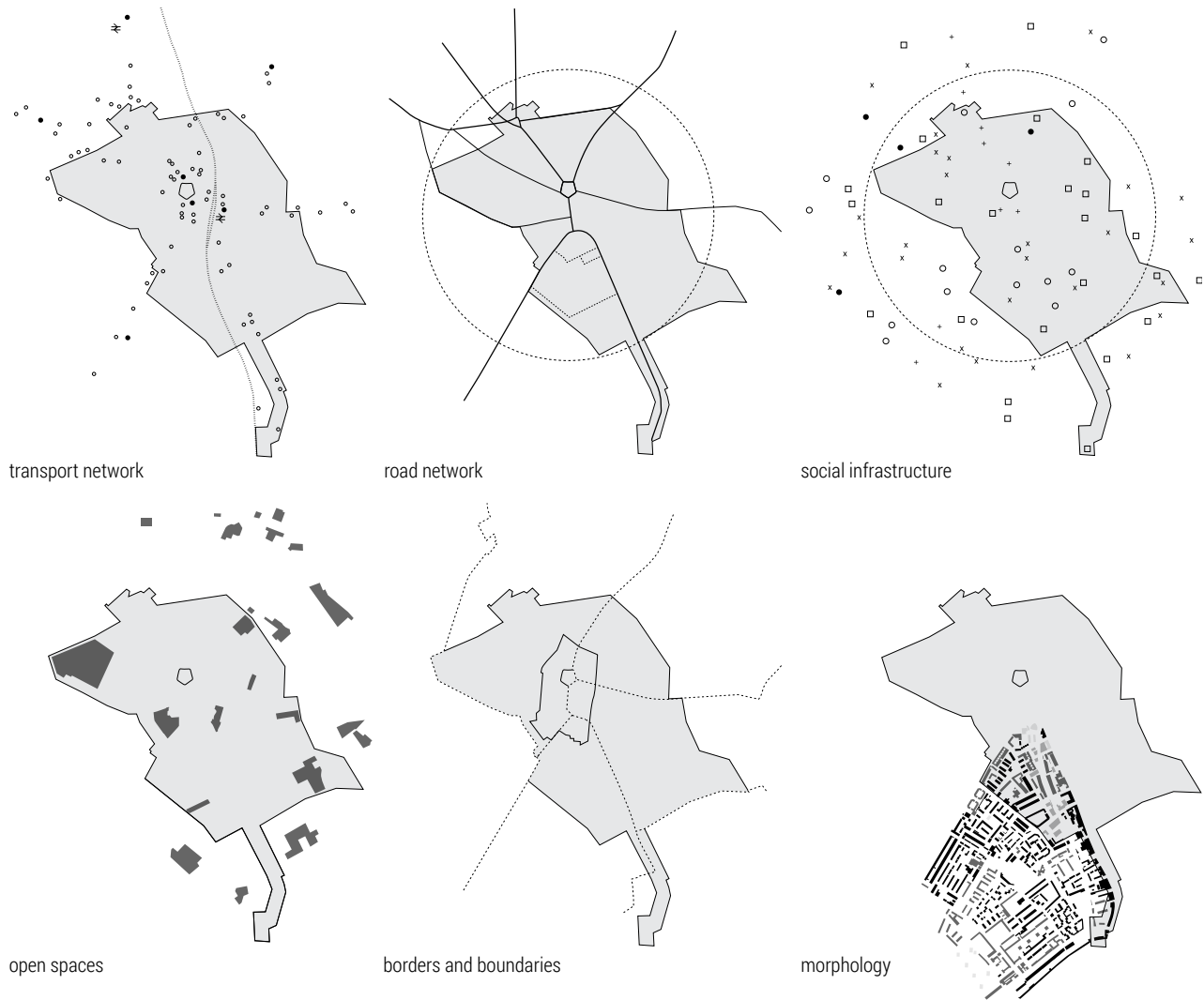
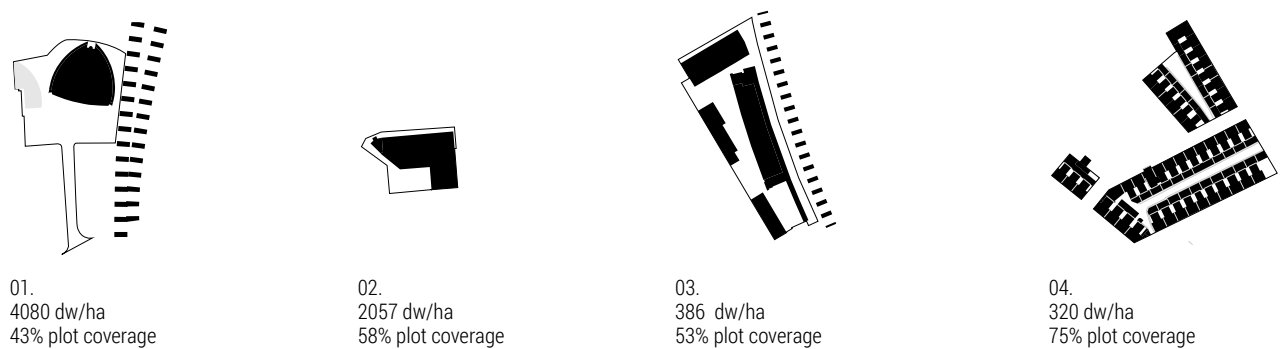


Fig. 07 | Typological study

Site plan of typologies researched in the artificial site located in Newington.



SITE CONTEXT: NEWINGTON

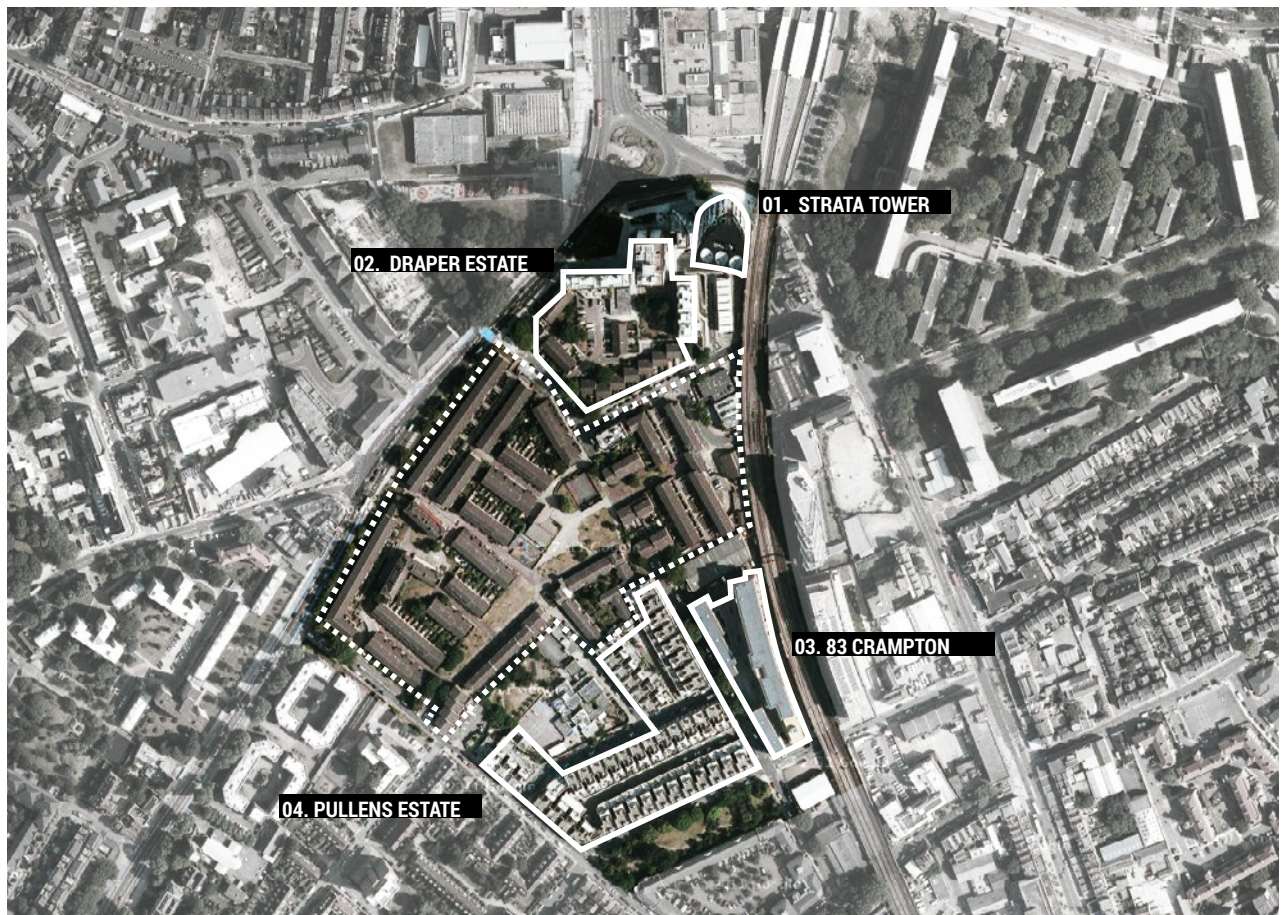
The study site chosen is located south of Elephant & Castle roundabout, within the Newington ward and exhibits high levels of static and nuanced density and diversity. The site was artificially based on criteria of nodal sites being mixed in use, hybrid in scale and providing high levels of accessibility; it is not a site constituted by an administrative boundary nor a meaningful socio-spatial entity with which residents identify or which they refer to.

The methodology for the typological investigation was based on qualitative and quantitative forms of analysis and extensive data collection through the study of planning documents and primary resources, 28 interviews with landowners, shopkeepers, residents and office tenants, as well as observations of the site and use of space. The 4 mixed-use typologies investigated were the private land owned Strata Tower and 83 Crampton, and the public land owned Draper Estate and Pullens Estate. Although Newington Estate, a residential council estate situated at the core of the

site, did not form part of the detailed study it was taken into consideration. It is important to note that the analysis was not limited to the confines of each building or estate, but rather used as a starting point through which to understand the socio-spatial relationships between co-located typologies.

The historical development of the site shows different development pressures and cycles of investments over time, alongside a wider narrative of urban changes and peaks and dips of population density. Beginning as an agriculture-based rural area, the site was rapidly urbanised in the late 1800s following investments in transport infrastructure that unlocked connectivity to the city and region. The drastic population growth that accompanied this was accommodated in densely packed living spaces in workhouses and tenements like Pullens Estate. After WWII, the state began a comprehensive rebuilding programme which accounts for the large tracts of publicly owned land present on-site today, such as the Draper and Newington Estates.

Fig. 08 | Typological study
Aerial view of typologies that make up the artificial site.



Thereafter, retraction of the role of the state meant that recent developments, especially from the 2000s, were largely high-density, private entrepreneurial-based schemes including Strata Tower and 83 Crampton. Such a mix of economic logics implemented over time has allowed the site to be highly heterogeneous in its building morphologies, all of which comprise a static density per hectare that is higher than the area average, alongside a variety of more nuanced factors as the typological study presents. This accretive development process has resulted in a complex architecture of ownership present in the site today.

Within monolithic land ownership patterns of large council-owned estates and private-owned developments, there are differentiated tenure structures, which in turn affects different levels of occupancy and activity in each typology. Publicly owned estates such as Draper and Pullens tend to see greater variation in ownership and tenure structures, and are consequently able to accommodate a more diverse mix of businesses and household types, be it longer-term property owners and renters or shorter-term sub-letters. Privately owned developments like 83 Crampton and Strata Tower also see some variation in tenure types due to its affordable housing schemes, but limited flexibility in tenure lengths and

leasing terms in the work units. Across the four typologies, occupation of residential units is full, with public estates housing a more stable residential population due to secure tenure, and private estates a higher turnover population subject to the rent-seeking private market, often attracting younger more affluent professionals who work outside of the area. Despite the fact that rentals are lower than the London average for both residential and work units in all typologies, there are discrepancies in the occupancy of work units, with lower intensities observed in private developments with empty units, attributed to less flexible tenancies disallowing short-term lets and subletting.

Moreover, spatial design of the developments plays a key role in influencing the types of business who rent the spaces as well as the levels of activities within shared spaces of each typology. The size and configuration of work units affect the scale and type of businesses able to afford rentals and occupy the space further dependent on the access to street level and permeability of the space for loading cars, seating, etc. Clear delineation of live-work spaces in terms of access also becomes critical for effective functionality of these mixed-use buildings.

Fig. 09 | Cycle of investments
Historical developments in Newington.
Source: UK Census Data, 2011.

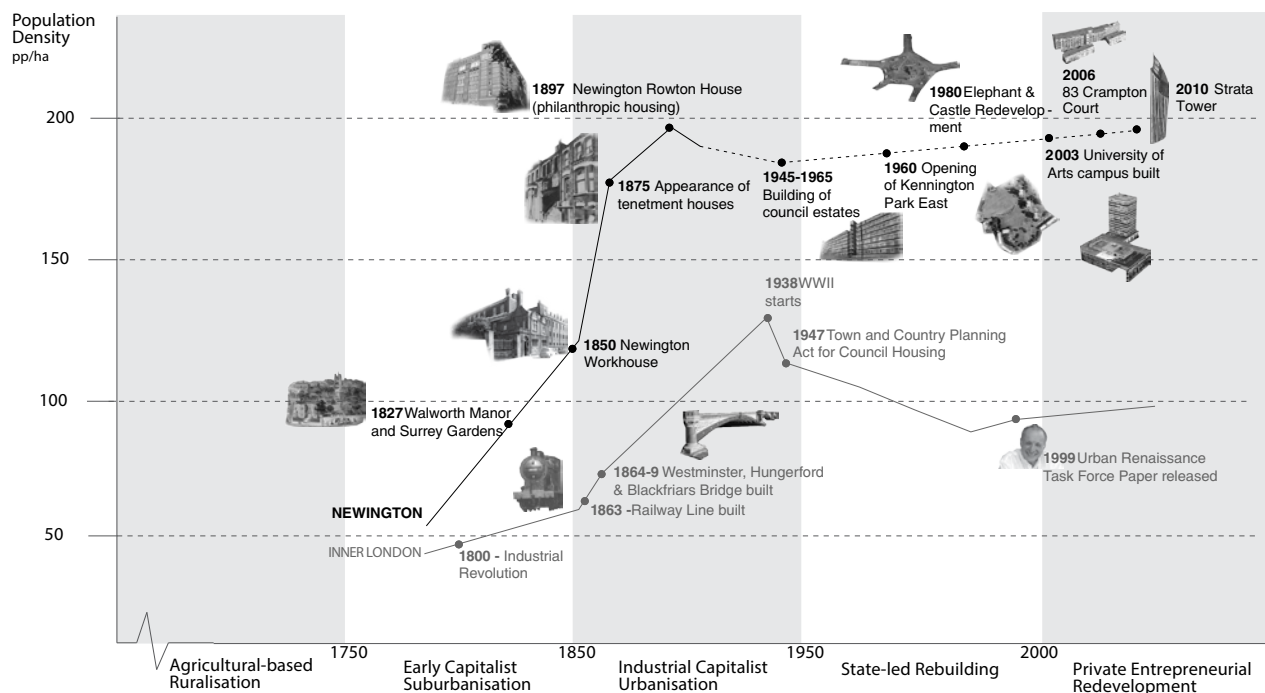
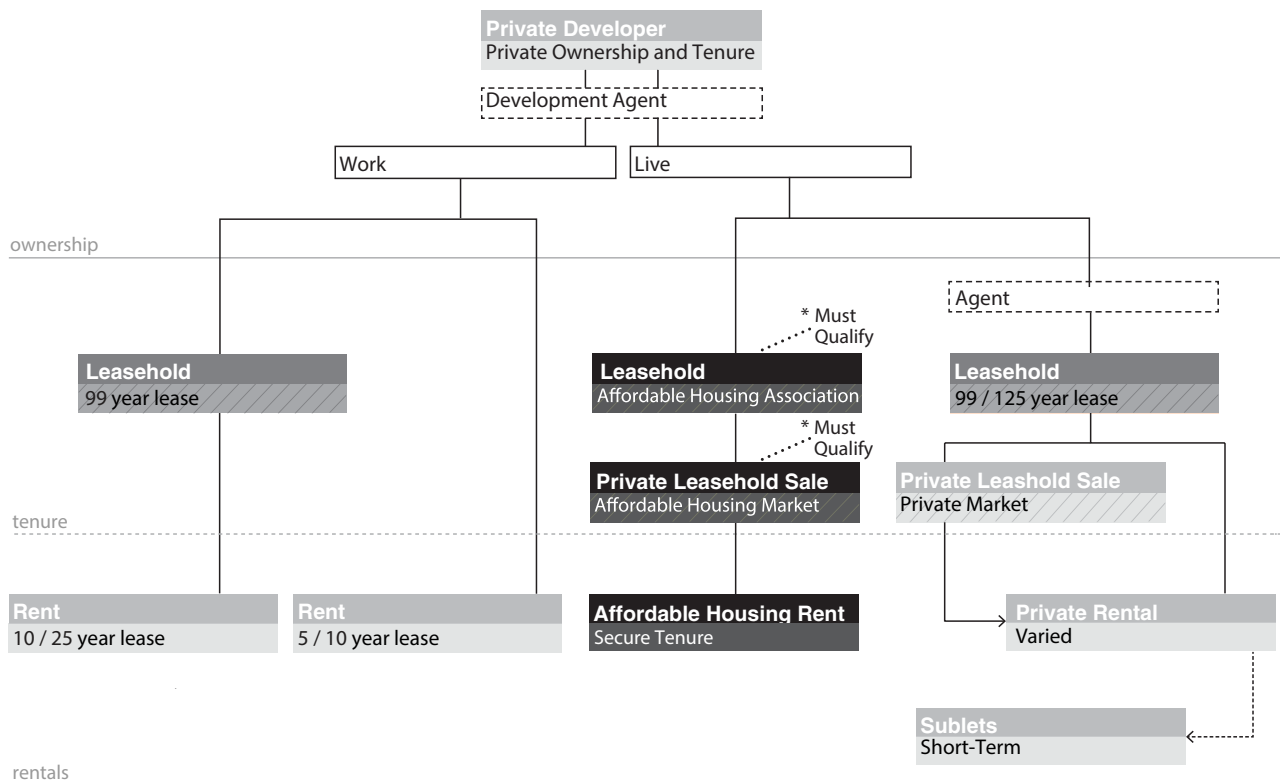
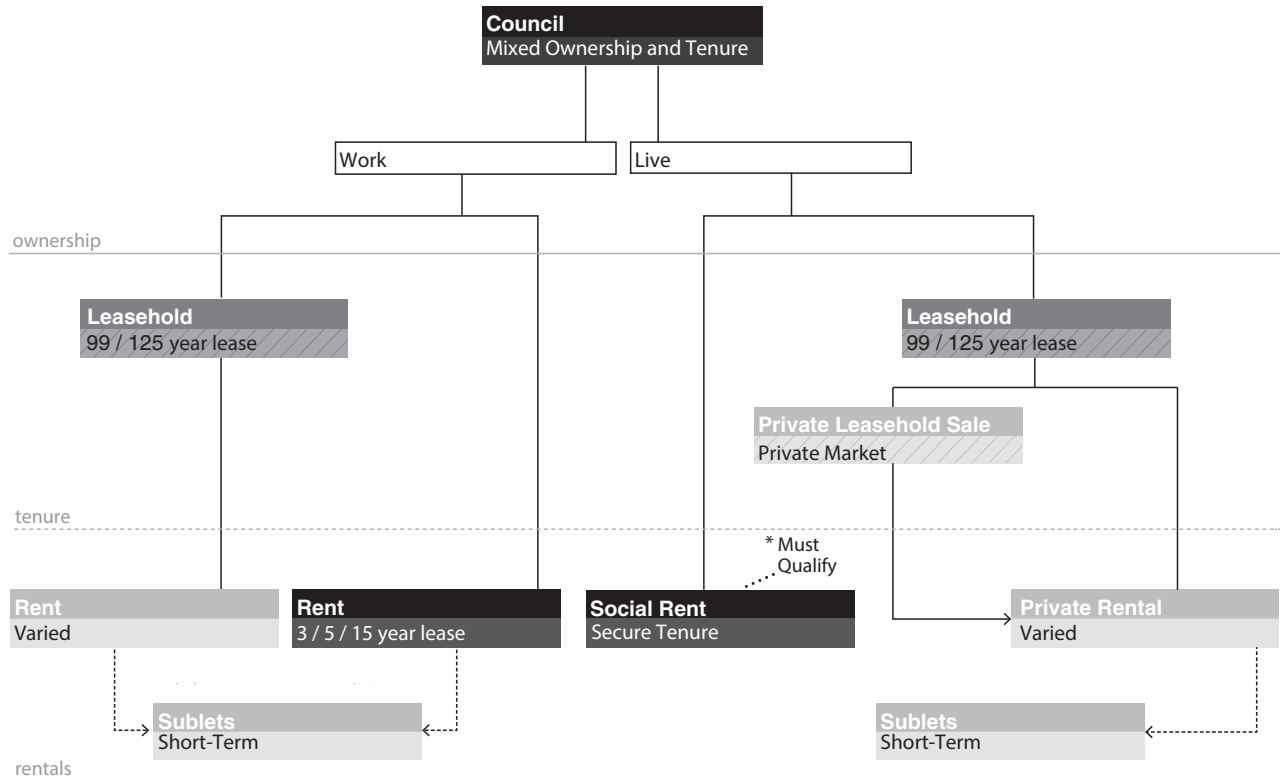


Fig. 10 | Architecture of ownership
Ownership and tenure structure in Newington.

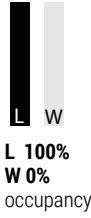




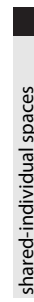
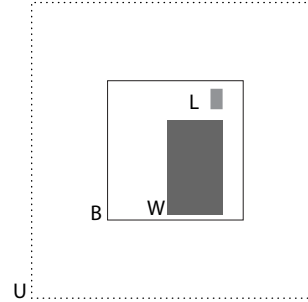
18-31
age



45%
professionals

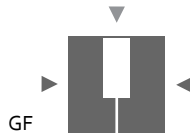


50%
white

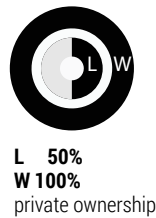


“ The lifts in the building are operated by preset cards, which means that residents have only access to their own floor, the ground floor and the basement. It becomes extremely difficult to meet my friend who lives 15 floors above me. ”

Strata Tower Resident



01. STRATA TOWER



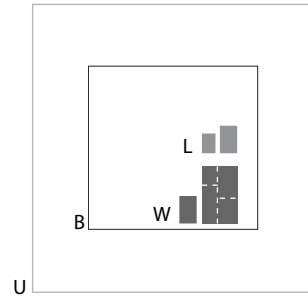
0-50
age



27%
professionals

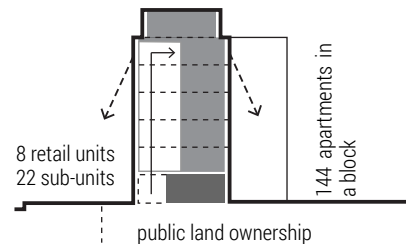
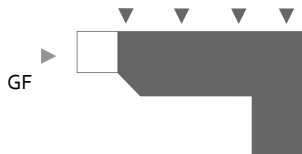


75%
non-white



“ Business rates will kill us. If the Council does not find a way to support us, 90% of Latin-American businesses will disappear as Elephant and Castle is redeveloped. ”

Draper Estate Retail Tenant



02. DRAPER ESTATE



L 100%
W 100%
private ownership



L 90%
W 60%
occupancy



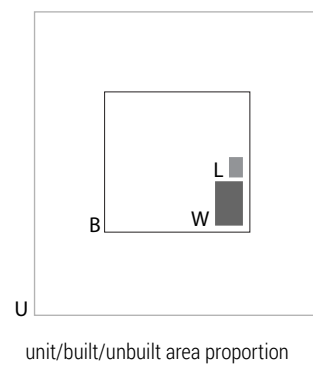
22-40
age



55%
professionals



74%
white



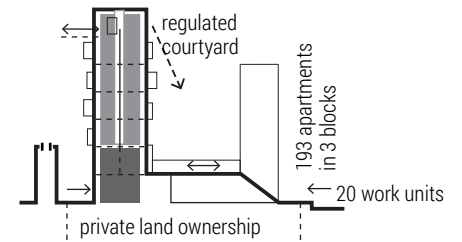
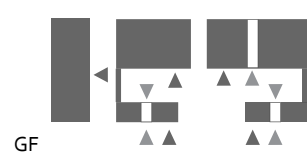
external-internal spaces

20:80% spatial composition

shared-individual spaces

25:75%

"The space is accessible to the public, but it is private property so people are constrained in the way they use this space."
83 Crampton Resident



03. 83 CRAMPTON



L 50%
W 0%
private ownership



L 100%
W 100%
occupancy



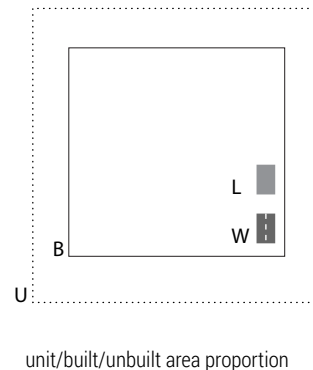
22-55
age



54%
professionals



70%
white



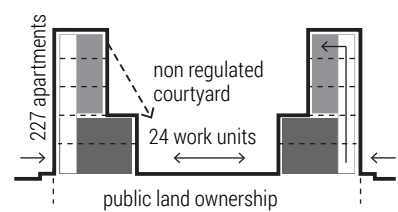
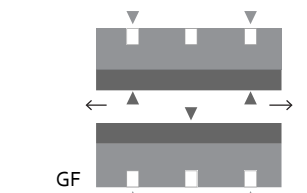
external-internal spaces

20:80% spatial composition

shared-individual space

22:78%

"It is an incredibly creative environment to be part of. We have lunch in the courtyard and chat with our neighbours."
Pullens Estate worker



04. PULLENS ESTATE

“ At Elephant and Castle we need to build and grow organically, take what is there and improve and add to it as opposed to demolish and build from scratch. Otherwise this approach will destroy the last bit of community there is. ”

Elephant Amenity network member
(former resident of Heygate Estate)

“ There is a detrimental lack of open discussion and dialogue between the council and developers and the wider community. This is supposed to be a collaborative process. ”

Elephant Amenity network member

“ I wish the space in front and around the Strata would be more animated and useable. This shows that the Strata does not really blend in well with its surrounding area. ”

Strata Tower resident

“ There is often a lot of noise from the work units at night. We have no way to formally deal with such issues. ”

Pullens Estate TRA chairman

“ The council do not support small business. Rentals are increased without consideration of the consequences. So one cannot be assured of how long the premises will be affordable. ”

Pullens Estate resident

The ownership structure and spatial design also affects organisational management of the site, which accounts for the differences in intensity of activities and use of shared spaces. Private developments tend to be more rigidly regulated, which decreases interaction by users. On the other hand, the lack of structured management results in poor organisational interfaces between different functions which are unable to deal with challenges faced between live and work units operating in such close proximity. These factors in ownership, spatial and organisational dimensions reveal the mechanisms through which a dynamic density operates in nodal areas, as synthesised in the next section.

KEY TYPOLOGICAL STUDY (refer to previous page)



-  live
-  work
- L live
- W work
- B built area
- U unbuilt area
- GF ground floor
- ▲ ▲ access
- ↔ permeability
- > view

Fig. 11 | Typological study (previous page)
Socio-spatial analysis.

DYNAMIC DENSITY: INTENSITY AND VARIATION

From this typological study, factors through which density and diversity are interdependent in a mix-use nodal site are drawn out. Flexibility of tenure structure is highly related to intensities of occupancy levels. Composite land ownership accommodate variations in the make-up of residential households and businesses. In turn, the range of occupancy patterns, be it the more stable or transient, and in economic acitivity, be it larger or smaller companies dealing in production or consumption activities, leads to particular ways dynamic density functions in everyday contexts. Public and private development agents further affect the different levels of regulation and structure in organisational management which also influence intensities in the use of shared space, and their ability to address conflicts arising from intensity and variation. The type of urban infrastructure, including physical space and other facilities, whether collective or private, further result in intensities and variations in usage. Lastly, the design of building typologies affects the extent to which it promotes interaction and the diversity of occupants it houses. These factors of intensity and variation are not individual physical elements, but institutional principles drawing nuanced links between density and diversity, and should therefore be taken into account for the delivery or evaluation of density.

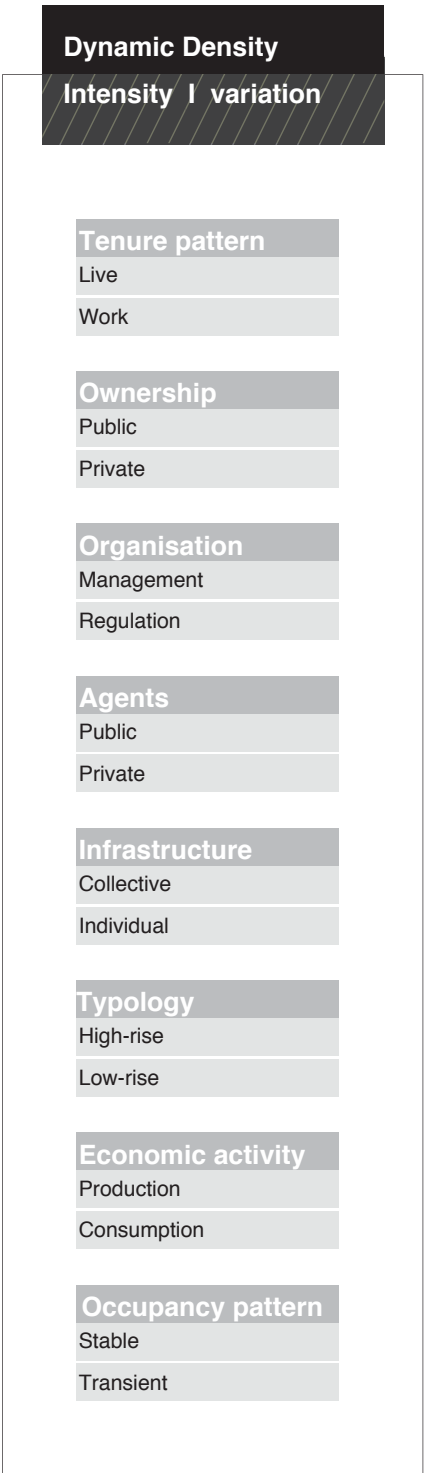


Fig. 12 | Dynamic density
Factors affecting density in mix-use nodal sites.

Fig. 13 | Factors of intensity and variation

Transport and Road Network



Social Infrastructure



Public Open Spaces



Semi-public Open Spaces



Borders and Boundaries



STRATEGIC INTERVENTION

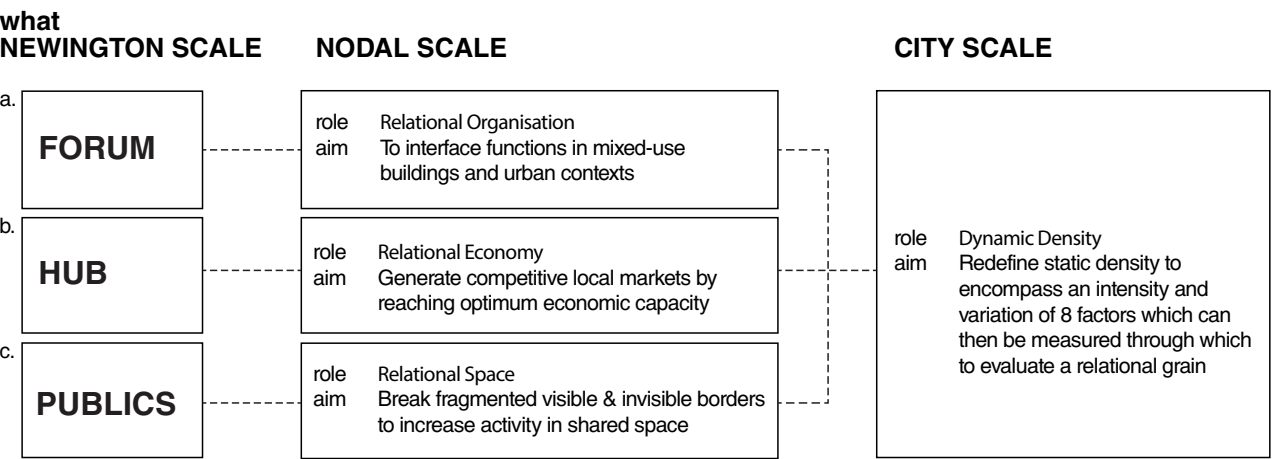
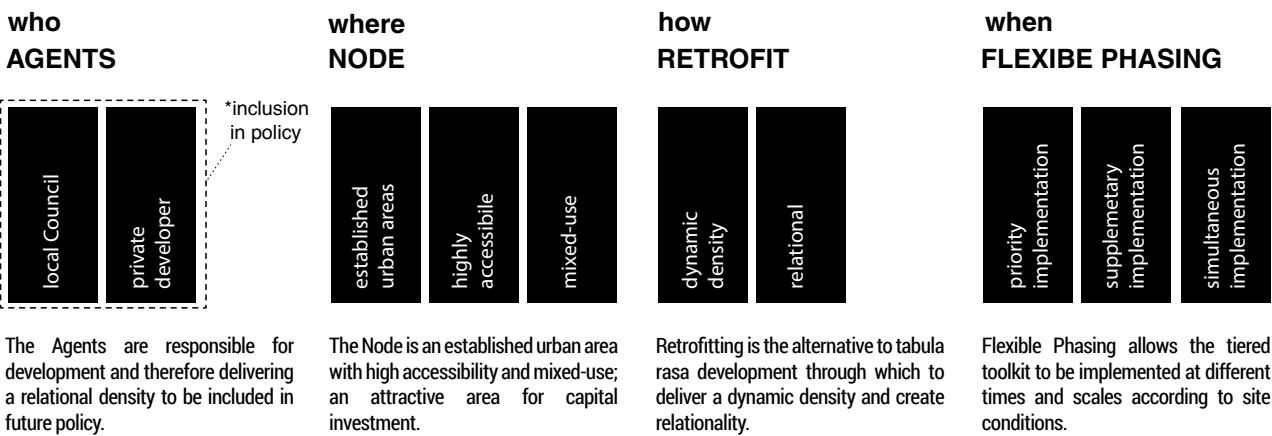
THE TOOLKIT

Revealing these factors has simultaneously shown gaps in how density and diversity may fall short of working in mutual support to generate greater dynamic density. Nodal sites present organisational, economic and spatial fragmentation, in what Jane Jacobs (1961:390) refers to as the ‘bits and pieces of the city’; a series of borders which need to be stitched together through a dynamic density.

The project therefore proposes a three-tiered toolkit for dynamic density to create relationality between organisations, economies and spaces. The Toolkit is intended to inform future policy and decision-making by the local council and private developers involved in the process of urban development, pertaining to nodal sites like Elephant & Castle that are established urban areas with high accessibility and mixed-uses. The Toolkit focuses on a retrofitting approach as the most appropriate model through which to deliver a relational dynamic density. Intended to be a process-driven framework, flexible phasing of the proposed interventions can be tailored to needs of particular nodal sites, whether

through prioritisation, supplementation to existing tools or simultaneous implementation. The three tiers of the toolkit are applicable at three urban scales: the site, the node, and the city. The first scale presents the interventions as a response to the study site in Newington, namely the Forum, the Hub and the Publics. The second scale draws out general principles from this toolkit that can be extended to guiding densification in other nodal sites in creating relational organisation, relational economics and relational publics. The final scale recommends how this new conception of dynamic density, through the eight factors of intensity and diversity, should be incorporated into citywide planning policies to create a relational grain.

Fig. 14 | The Toolkit



NEWINGTON SCALE

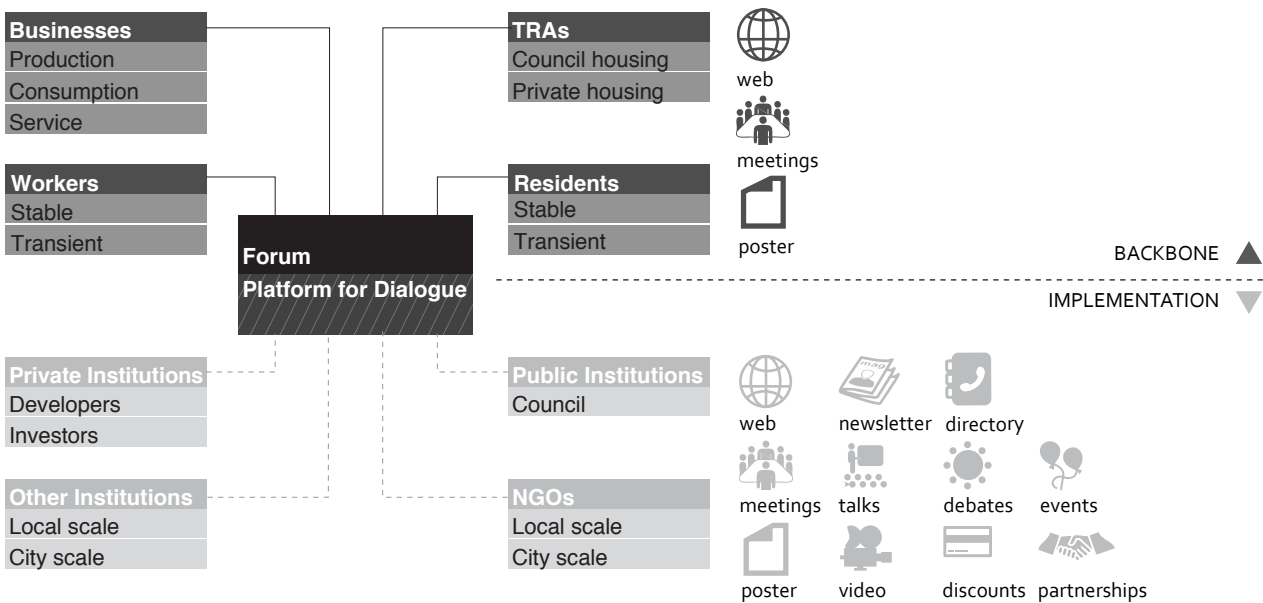
At the first scale, fragmentation in the study site occurs in the management dimension in how each estate is managed by separate organisations without means to address cross-boundary issues, in the economic dimension in how individual businesses can better coordinate between themselves to increase economic productivity of the area, and in the spatial dimension in terms of how open space separated by borders minimises intensity of activity and public interaction in shared commons. Based on these, the project proposes the Forum, which acts as a shared organisational interface, the Hub, which creates synergies between individual businesses, and the Publics, which stimulate and integrate the open space networks.

TIER 1: THE FORUM

The organisational management of the study site currently takes on a piecemeal, inwardly-focused approach, with each building having its own Tenants and Residents Association (TRA) or facility managers. In particular, the lack of management interface between live-work functions neither addresses conflicts such as excessive noise, nor allows a strategic means of engaging wider associations or institutions.

The Forum seeks to create a shared organisational interface which serves as an ongoing platform between these urban actors, to allow the TRAs of respective estates and individual businesses in the site to come together to address common issues through contact points such as monthly meetings, an online forum, posters, etc. Through this, channels of dialogue and exchange are created between these urban actors to mediate between varying interests. These linkages go beyond organisational borders to reach across space, sectors, and across scale, which would mean, for instance, that the chairman of the Pullens Estate TRA would be able to contact business representatives of the Pullens workshops through an online portal when residents need to address noise issues, or the shop owner in Draper Estate would be able to discuss concerns of increasing business rates with the council at a forum meeting, organisational gaps which were identified from interviews conducted with these entities.

Fig. 15 | Tier 1: The Forum
Forum structure at the Newington Scale.



TIER 2: THE HUB

Despite a unique mix of business sizes and types in the study site, from retail, commercial to light industry, economic actors also largely operate in a disparate manner without leveraging on potential economic advantages of being located in close proximity, resulting in suboptimal use of resources in the area as exemplified by existing empty work units.

The Hub seeks to create synergies between these fragmented economic actors, by providing a centre of local economic activity from which new business interactions and connections can springboard. Strategically located in the currently vacant ground floor of Strata Tower, with high visibility, accessibility and footfall, the Hub caters to companies of different scales of economies by providing three core functions: meeting space, showcasing, and business infrastructure. Craftsmen at the internally located Pullens Estate can take advantage of the Hub's location to rent small spaces for display to a wider audience. Additionally, small businesses in the area would benefit from having shared access to facilities such as printers or internet that would minimise their start-up costs. Such flexible occupancy by multiple business users would not only intensify use of the space, but also enable the Hub to be a commercially viable business model with substantial rental income, as opposed to its current vacancy.

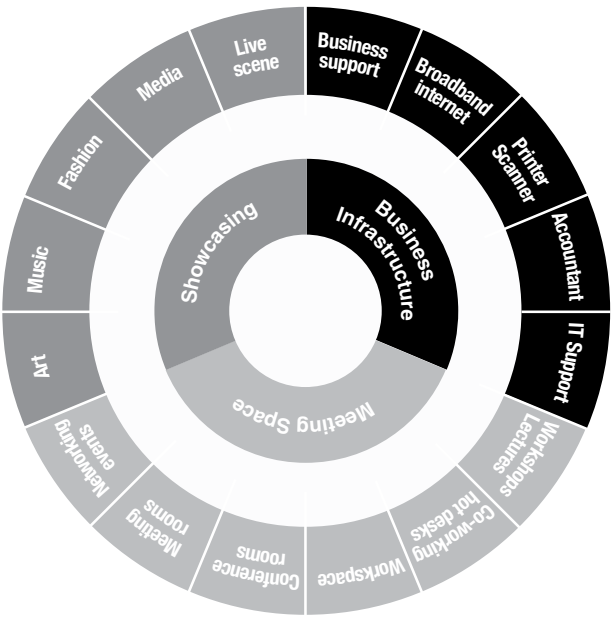
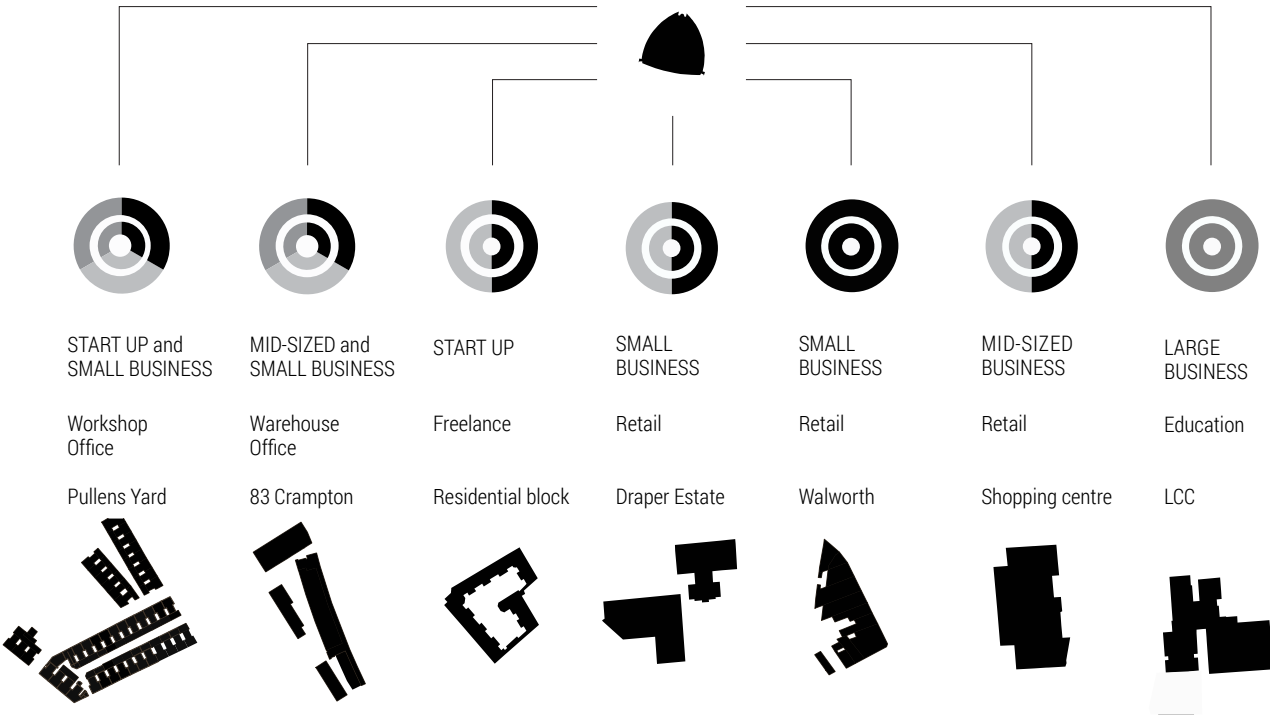


Fig. 16 | Tier 2: The Hub
Hub usage at the Newington Scale.



TIER 3: THE PUBLICS

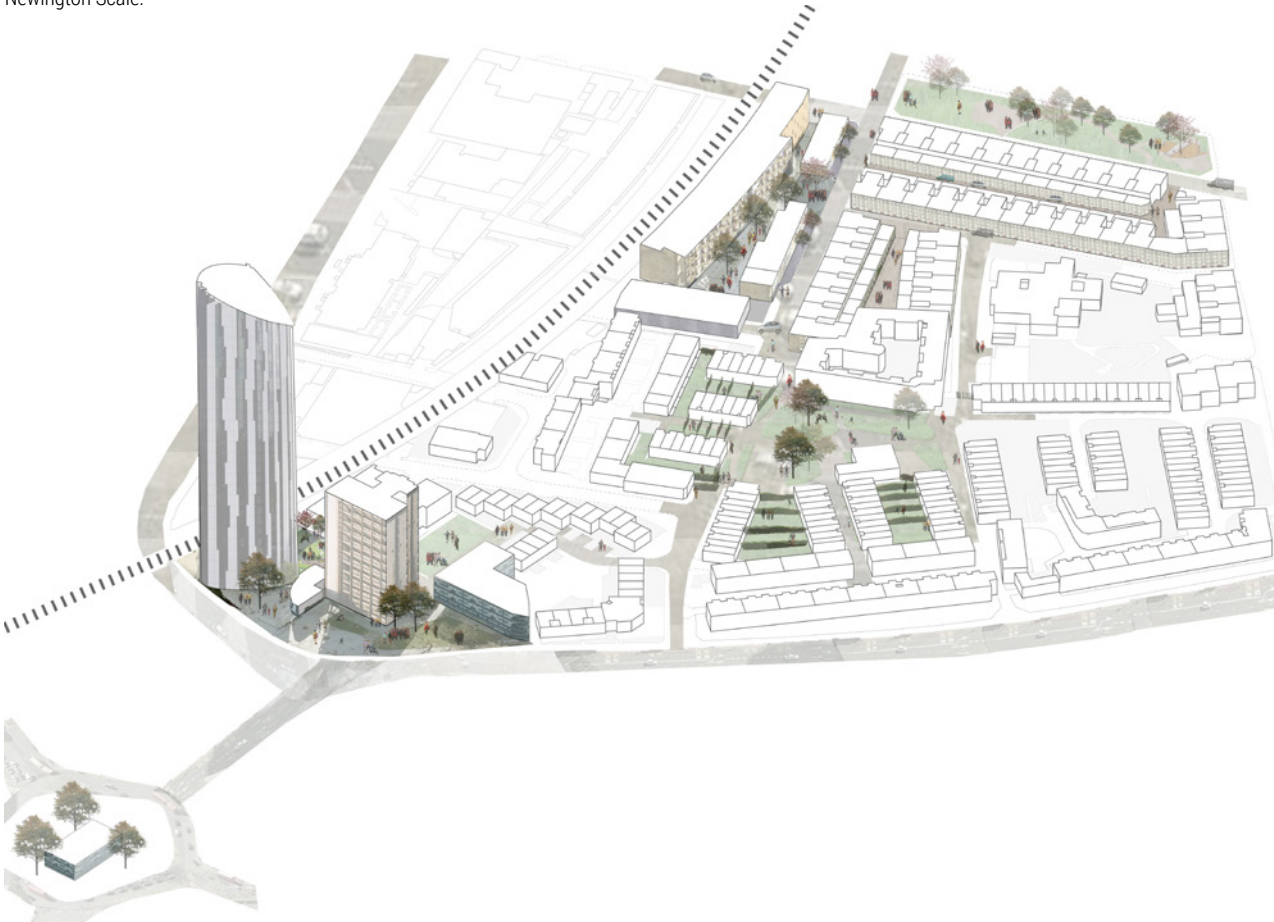
The study site presents a variation of public, semi-public and private spaces, some of which are not clearly defined, connected or active and constitute the fragility of the public realm even though they do not necessarily restrict public use. The third tier of the toolkit therefore addresses the issue of the fragmented urban fabric by breaking spatially manifested visible and invisible borders of public and private land ownership patterns.

The Publics seek to create a gradient of activity within the public realm moving through different degrees of publicness in a series of interconnected spaces. The system is comprised of four elemental spaces that can potentially establish a relational open system. The first space, the urban door, refers to the gateway at the Elephant & Castle roundabout, with the highest degree of accessibility, activity and inclusivity. This then links to the urban foyer, with less footfall, but overtly

open to public use, for instance at the space behind the Strata Tower. In emphasising the development of public spaces on privately owned land, through accommodation of genuine and less formally regulated public usage, the urban foyer is crucial in connecting the Public. The urban foyer then moves into the urban interior, consisting of more private spaces that allow public access, but clearly delineate its more exclusive nature through small-scale physical borders such as unlocked gates, as observed in Newington Estate. Finally, this leads to the urban room, including spaces such as the internal yards of Pullens Estate and 83 Crampton. It is recognised that privacy of such individual spaces should be maintained as the most private realm within this public system. This string of connected spaces foster spatial relationalities and in turn generate intensity, variation and use to encourage interaction in public space.

Fig. 17 | Tier 3: The Publics

Birds-eye view and images depicting the gradient of publicness at the Newington Scale.





Urban Door



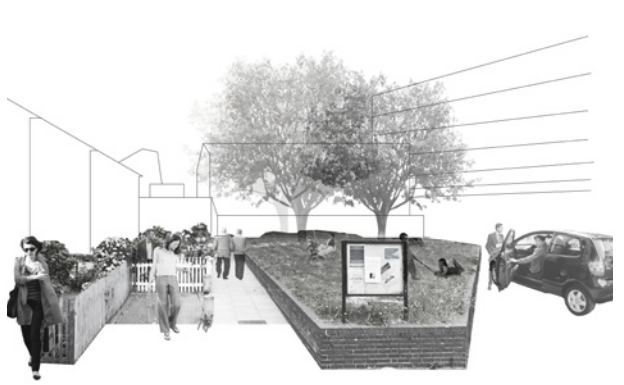
Urban Foyer



Urban Interior



Urban Room



NODAL SCALE

The fragmentation experienced in the study site is not uncommon in urban contexts. From these site-specific interventions, principles are drawn out for more general application to other nodes. The toolkit presents these principles across a spectrum of applicability from their minimum to maximum in creating relational organisation, economies and spatiality, to be tailored according to specific needs of nodal areas.

TIER 1: RELATIONAL ORGANISATION

Relational organisation seeks to create shared organisational interfaces between different functions in mixed-use areas to facilitate dialogue and exchange between urban actors, to manage conflicts arising from intensity and variation.

At its minimum, it can work as an elemental platform for dialogue made up of anchor entities, namely the council, TRAs, residents, and businesses, and operating through contact points like monthly meetings and websites. At its maximum, it could function as a highly organised association that can participate in decision-making processes, for instance as a consulted stakeholder at planning application stages for new developments. It can establish linkages with other urban actors, such as developers, NGOs and institutions, and initiate other contact points requiring more resources, like community projects and local discount schemes.

TIER 2: RELATIONAL ECONOMIES

Nodes house a diverse mix of businesses, yet opportunities from this co-location may not necessarily be utilised. A relational economy seeks to optimise the node's economic

capacity and facilitates synergies between businesses, through access to shared business space, facilities and services in locations that enjoy high visibility, accessibility and footfall.

At its minimum it can function as a business incubator by providing shared flexible space and equipment, which small businesses or freelancers may have difficulties affording. At its maximum, it serves as a platform for business networking and exchange of knowledge through workshops, networking events or business advice. As development pressures and volatility of investment at nodes tend to have repercussions on local businesses, creating a relational economy with stronger local economic networks would allow businesses to be more competitive and therefore resilient and adaptive to external changes.

TIER 3: RELATIONAL SPATIALITY

Patterns of land ownership at nodes create visible and invisible spatial borders and boundaries. Relational spatiality seeks to stitch these spatial fragments together through series of inter-connected spaces with varying degrees of intensity and activity that characterise different types of spaces.

At its minimum, the urban door, the urban foyer, the urban interior and the urban room forms a single system constituting these four elemental spaces. At its maximum, this can be expanded into multiple systems which connect to the relevant 'element' to create a network of public spaces beyond their location; to foster connectivity, activity and intensity of shared spaces in dense urban contexts.



Urban Door



Urban Foyer

Fig. 18 | Tier 1: Relational organisation
Platform that can be more formalised and structured over time.

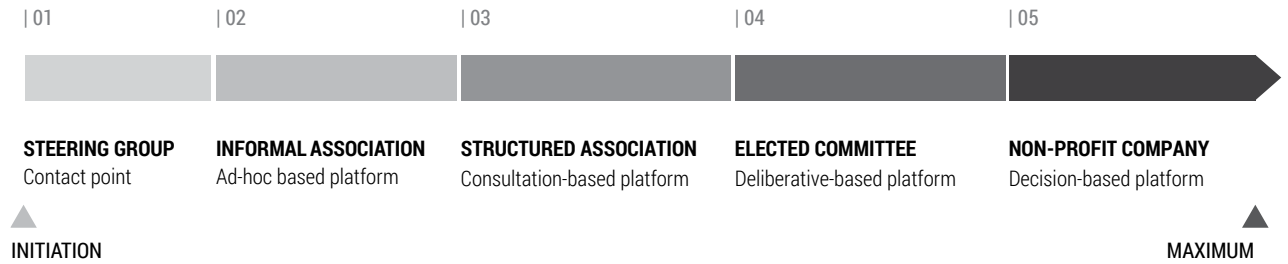


Fig. 19 | Tier 1: Relational economy
Centre that can grow in the provision of shared business facilities.

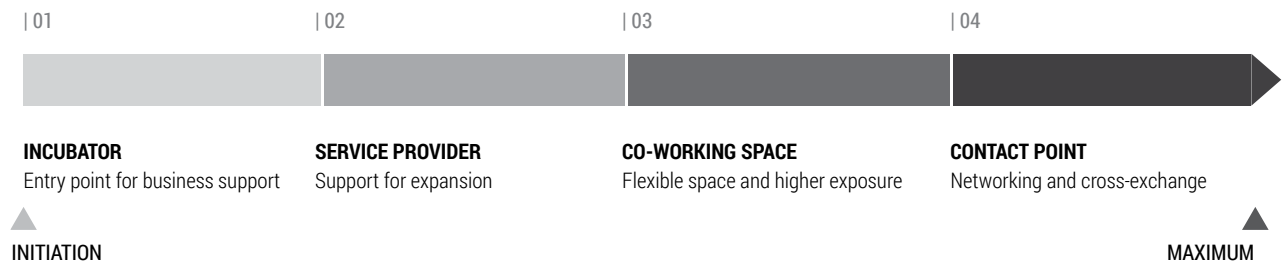
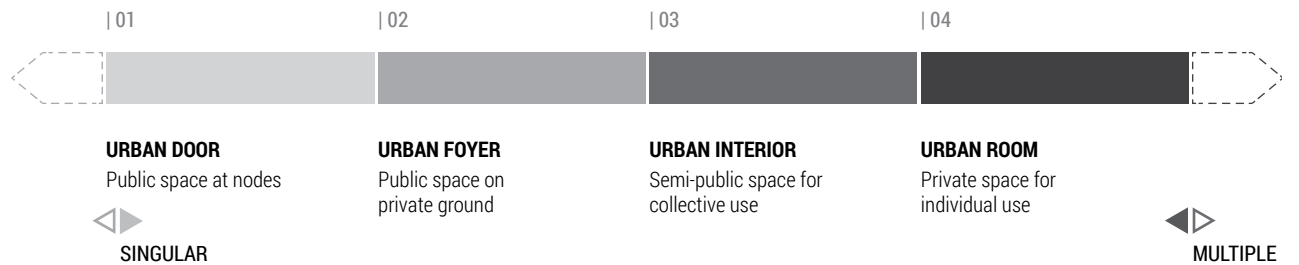


Fig. 20 | Tier 3: Relational publics
Above, below and previous page: Elemental public spaces belonging to a system that can be multiplied in order to create an accretive gradient of publicness.



Urban Interior



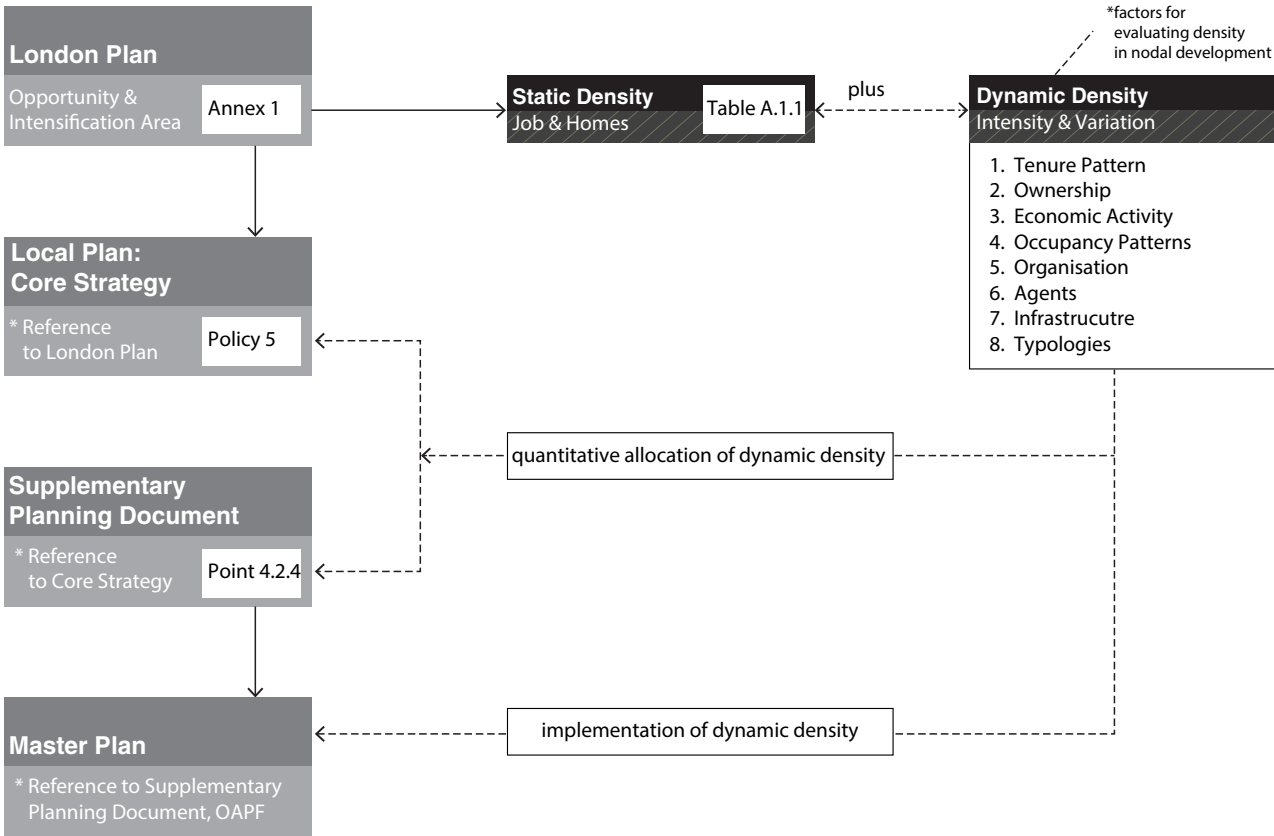
Urban Room

CITY SCALE

As aforementioned, current policies' quantitative approach to density is too narrow, and requires a more nuanced dimension; a dynamic density, particularly at nodal sites where relationality becomes a crucial resource. At the city scale, these principles of dynamic density should be incorporated into the London Plan's policies on Opportunity Areas and Intensification Areas, namely the need to take into account intensity and variation in terms of tenure, land ownership, economic activity, living profiles, organisation, agents, infrastructure and typology, and relationalities in organisation, economic and spatial dimensions, as identified from the typological study. This will create a framework to guide future densification in these nodal areas earmarked for major development in the coming years, from which local councils would formulate local planning policies to stipulate requirements for delivering masterplans tendered by both the public and private sectors. Additionally, this framework can be used to conduct both a post-mortem and pre-project

appraisal of projects to evaluate the extent to which a desired level of relational density is achieved. This would ensure that the framework for dynamic density is not just treated as suggestive and optional, but rather binding and compulsory where higher densities are delivered in mixed-use, fine-grained urban contexts. By going beyond measures of static density, these criteria for dynamic density would result in a relational grain that works rather as a resource for sustainable development at nodal sites.

Fig. 21 | The Toolkit
Principles of relationality and dynamic density. Singular tier of the city scale.



CONCLUSION

While density in its generality is widely recognised in policy and academic spheres for contributing to sustaining social and economic vitality in cities, it should not be centred around a singular quantitative articulation, nor a singular realisation. The recurring question throughout the narrative of the project has thus been: what type of density should be promoted in nodal areas like Elephant & Castle, in order for this density to be a resource for the city as supported by authors like Jacobs, Sassen, Glaeser and Sennett, amongst others.

The London Plan (2011:59) further identifies the strong 'growth potential' in such nodes, with high expectations for these opportunity areas to meet a significant proportion of the city's new residential, commercial and mixed-use developments. Yet, as argued of current policies in promulgating a narrow conception of density, meeting the need for densification through a static diversity alone perpetuates fragmentation in urban nodes, particularly under the pressure of extensive private capital investment. To transform these fragmented boundaries into resourceful networks, the project sought a re-conceptualisation of density as dynamic density, which takes into account nuanced and qualitative facets often neglected in conventional definitions through an understanding of relational attributes. The project also proposes the relational toolkit, informed by critical analysis and employed through strategic interventions. This three-tiered toolkit serves as a guide for policy and decision-makers to create multi-scalar relational organisations, relational economies, and relational

spatiality at nodes other than Elephant & Castle. The three tiers therefore are three relative tools, which should be applied comprehensively in mix-use nodal sites. Yet, the phasing for the toolkit is flexible, and the three tiers should be implemented according to the contextual conditions and specificity of the site. To cement these in practical application, it is critical for the factors of dynamic density to be inserted into London policy to inform ex-ante and ex-post evaluations of nodal developments experiencing densification.

If the dynamic density envisioned in the proposed toolkit is generated in an urban context, the efficient use of land for delivering density through tabula rasa approach becomes peripheral. What becomes critical then is to generate high levels of intensity and variation within fine grained urban contexts through a process of retrofitting. The manifestation is a relational grain, one which fosters stronger relationalities between fragmented parts of the city, which forms highly interlaced, networked urban areas which take advantage of the unused potential at nodal sites and as such creates an urban context that functions at its optimum capacity; and reconciles potential developments with existing urban conditions to promote economic sustainability and to stimulate social life. Dynamic density does not use, create or generate new urban attributes, but rather re-uses, re-creates and re-generates existing urban assets to foster a relational grain as a resource for the city.

Fig. 22 | Relational grain
Dynamic density creates relationality in the city grain.



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