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DIFFERENT ERAS OF COUNCIL HOUSING ESTATES AND THEIR NEIGHBOURHOOD FORMATION: THE CASE OF NOTTINGHAM

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ABSTRACT

This thesis investigates how council housing estates, developed during different historical periods, have influenced neighbourhood formation and the production of lived space. Using Lefebvre's spatial triad (conceived, perceived, and lived space) as a framework, the study reveals how large-scale social housing projects shape spatial configurations, social interactions, and community dynamics. It also assesses how planning and design decisions have contributed to neighbourhood formation, highlighting the role of housing policies in fostering social cohesion and neighbourhood vitality.

This research adopts a mixed-method approach to examine the spatial and social dynamics of council housing estates built in different historical periods. The study utilises space syntax analysis, observation and rhythmanalysis to investigate four distinct neighbourhoods in Nottingham. The spatial configuration of each area is analysed through integration and choice measurements, followed by field observations along the main integrated routes. Rhythmanalysis is applied to reveal the temporal and spatial rhythms of daily life, while census data is used to explore the socio-demographic characteristics of the communities.

The findings revealed that the interwar estate, though well integrated with the city, failed to foster social interaction due to low spatial integration and limited functional diversity at the local level, leading to social isolation. The late 20th-century estate exhibited a segregated structure in both spatial configuration and functional diversity. The postwar estate, despite being located on the periphery, encouraged more interaction among residents, owing to higher local integration, making it the most successful example in terms of urban qualities. Due to its central location, the high-rise period example provided important data on living in the city centre. Constructed as a mixed-use, modern residential structure in the city centre, the flats supported residents' direct access to city amenities while revealing how the streetscape changed due to the changing land use patterns in the surrounding streets with high integration values.

This study advances the understanding of urban spatial dynamics in council housing estates and provides an understanding of future urban planning policies to improve community cohesion and spatial design in suburban areas.

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INTRODUCTION

Background of the Study and Research Motivation

The United Kingdom was the birthplace of the Industrial Revolution, emerging in the last quarter of the 18th century, and it became the fastest-developing industrial capitalist nation during this period. Historian Eric Hobsbawm described the Industrial Revolution as 'the most important event in world history since the invention of agriculture and cities' (Hobsbawm, 1962). Cities were profoundly impacted by the material and social changes brought about by this revolutionary process. The rise of industrial capitalism dramatically increased the demand for labour, leading to a mass migration of the rural population to urban centres. As scholars have noted, the Industrial Revolution was a catalyst for unprecedented urbanisation, especially in cities across Europe (Benevolo, 1971; Giddens, 1990; Mumford, 1961).

By the mid-18th century, the processes initiated by the Industrial Revolution in England—population growth, intensified industrial production, and the mechanisation of production systems—were rapidly spreading to other European nations (Benevolo, 1971). This period saw a dramatic increase in urban populations as well as the physical expansion of cities, a trend closely tied to industrialization. As Lewis Mumford (1961) notes, the growth of urban areas was directly proportional to the increase in industrial activity.

This urban expansion was accompanied by significant changes in the physical and economic landscapes. The capitalist principles guiding industrial development led to the reorganisation of land use, with urban spaces being reshaped to accommodate

factories, warehouses, and housing for the growing workforce. Infrastructural developments followed suit, with the construction of new roads, canals, and railways after 1830 facilitating the flow of goods and people (Benevolo, 1971). The shift in energy production—from traditional sources to coal-powered steam engines—further solidified industry's dominance over agriculture and trade. This transformation gave rise to modern industrial cities, where the balance between rural and urban populations began to shift in favour of large cities by the end of the 19th century (Fishman, 1977). As cities grew, they became centres of economic, social, and political change, with the concentration of industry and population in urban areas fundamentally altering the urban-rural divide. This shift laid the groundwork for the sprawling industrial metropolises that would define the 20th century.

The spatial transformation of capitalism, which entered a new phase with the effect of industrialisation, has gained a prominent character, especially in the 19th century. Engels (1968) explained the spatial differences in the cities of England and the conditions of the cities in his work and that there were serious problems not only in London but also in other large-scale cities such as Manchester, Birmingham, Leeds, and Liverpool (Engels, 1968).

> *'Every great city has one or more slums, where the working-class is crowded together. True, poverty often dwells in hidden alleys close to the palaces of the rich; but, in general, a separate territory has been assigned to it, where removed from the sight of the happier classes, it may struggle along as it can. These slums are pretty equally arranged in all the great towns of England, the worst houses in the worst quarters of the towns; usually one- or two-storied cottages in long rows, perhaps with cellars used as dwellings, almost always irregularly built...'* (Engels, 1968, p.64)

The first response of the government in Britain to these conditions was to enact a series of public health laws (Balchin, 1998). However, regulations that did not directly address the housing problem were insufficient. The announcement of the Homes for Heroes program, which was seen as the beginning of the public's direct involvement in housing production immediately after the First World War, and the publication of the Tudor Walters report, which set the standards for council housing to be built, officially made the government the dominant producer of housing areas. These regulations were an important development that was to have a major impact on the development of the twentieth-century English city (Burnett, 1986; Ravetz, 2003; Hall, 2014).

At the same time, from the early twentieth century, urban areas began to experience modernist planning approaches that emerged from the Fordist paradigms, such as mass production, specialisation, and standardisation. To solve the problems brought about by rapid urbanisation resulting from industrialisation, architects and city

planners began to propose new schemes that had not been implemented until then. These modern-era approaches included solutions that resulted in urban sprawl, zoning, and weak connectivity. The modernist discourse, which significantly shaped urban planning during the early to mid-20th century, was both developed and disseminated by influential institutions such as the Congrès Internationaux d'Architecture Moderne (CIAM) and the Chicago School of Sociology. The policies that emerged during this period triggered the process of suburbanisation, reflecting decentralisation and the creation of more controlled, uniform layouts. Suburbanisation led to the development of extensive, segregated residential zones on the outskirts of cities, characterised by homogeneous land use patterns. These areas were often designed to accommodate specific socio-economic groups, reinforcing patterns of spatial and social segregation within the urban fabric (Irving,1993; Augé, 1995; Sandercock, 1998; Natrasony and Alexander, 2005; Hall, 2014).

Urban planners have proposed new urbanisation models to solve the problems society faces (Fishman, 1977). Ebenezer Howard, with his approach that promotes decentralisation and promotes healthy living environments through his 'Garden City' concept, has emerged as a pioneer among urban theorists of the twentieth century. The Garden City concept, which aimed to integrate the benefits of urban and rural living, spread worldwide as a model for addressing the housing and environmental crises of industrialised cities (Mumford, 1945). Mumford highlighted the importance of the 'Garden City' model as follows:

> *'At the beginning of the twentieth century, two great new inventions took form before our eyes: the aeroplane and the Garden City, both harbingers of a new age: the first gave man wings, and the second promised him a better dwelling-place when he came down to earth.'* (Mumford, 1945)

Although Mumford (1945) argued that it would be a significant mistake to evaluate Ebenezer Howard's concept of a city solely within the context of low-density settlement construction, Jane Jacobs strongly criticised Howard's Garden City approach in The Death and Life of Great American Cities (1961). Jacobs viewed Howard's idealised vision of a less dense, green-covered, organised, and controlled suburban lifestyle as fundamentally opposed to the dynamic, vibrant, and complex structure of city life.

With the Industrial Revolution, cities expanded rapidly to meet the increasing labour demands of industrial capitalism, and this rapid urbanization caused spatial segregation. During this process, densely populated slum areas in city centres needed renewal due to the unhealthy environments they provided. At the same time, the construction of social housing became one of the British government's priority policies to meet the growing population's housing needs. The construction of social housing areas, in particular, was greatly influenced by the suburbanisation process, which was

the dominant urban production form of the period. The council housing estates, as products of a top-down approach in urban production, reflect direct government intervention in shaping both housing and neighbourhoods. Their significance extends beyond their spatial characteristics; they provide important insights into government housing provision and neighbourhood formation policies. Therefore, these sites can be critically assessed for their spatial impact on everyday life and the wider socio-political impact of housing policy during the period.

Aim of the Study and Research Question

The primary aim of this research is to examine how council housing estates, developed during different historical periods, have influenced neighbourhood formation and the production of lived space, with a particular focus on Nottingham. By investigating four council housing estates built in different eras, this research seeks to understand the spatial, social, and functional outcomes of these developments and how they have contributed to the formation of neighbourhoods and the everyday experiences of the residents.

This research examines the critical role of housing areas in the shaping of urban neighbourhoods from a historical perspective and within the framework of Lefebvre's spatial triad (conceived space, perceived space, and lived space). It reveals how large-scale social housing developments affect not only spatial configuration but also social interactions and community dynamics. It analyses the lasting effects of council housing developments in different historical periods on urban neighbourhoods in Nottingham. It examines how planning and design decisions of these areas shape the ways in which residents interact with their environment. It assesses the effects of social housing policies and design ideologies on neighbourhood formation. This study investigates how spatial configurations that support social cohesion and neighbourhood vitality differ depending on the period in which they were built and how these processes resonate in contemporary urban structures using space syntax, observation and rhythmanalysis methods.

In this context, the research aims to address the following key questions:

Main research question:

- How do council housing estates, developed during different historical periods, influence neighbourhood formation and the production of space?

Sub-questions:

- Which era of council housing has had the best impact on urban qualities?

- How do the spatial configurations of council housing estates from different historical periods affect neighbourhood integration within the broader urban fabric?
- What is the relationship between conceived, perceived and lived space in the context of the council housing?
- Which period produced more integrated or isolated areas in terms of spatial configuration?
- Is spatial configuration measurement result decisive for the intensity of social interaction?
- Are there places where social interaction is lacking despite being integrated? or vice versa?

Definition of Case Study

In this research, four distinct case study areas within the city of Nottingham have been selected to investigate the spatial production of council housing estates across different historical periods. These cases serve as a comparative framework to explore how council housing, constructed in various eras, has influenced contemporary urban qualities, such as spatial configuration and everyday life. As a case study, four estates were examined: Aspley Council Housing Estate, Clifton Council Housing Estate, Victoria Centre Flats, and Top Valley Council Housing Estate (Figure i).

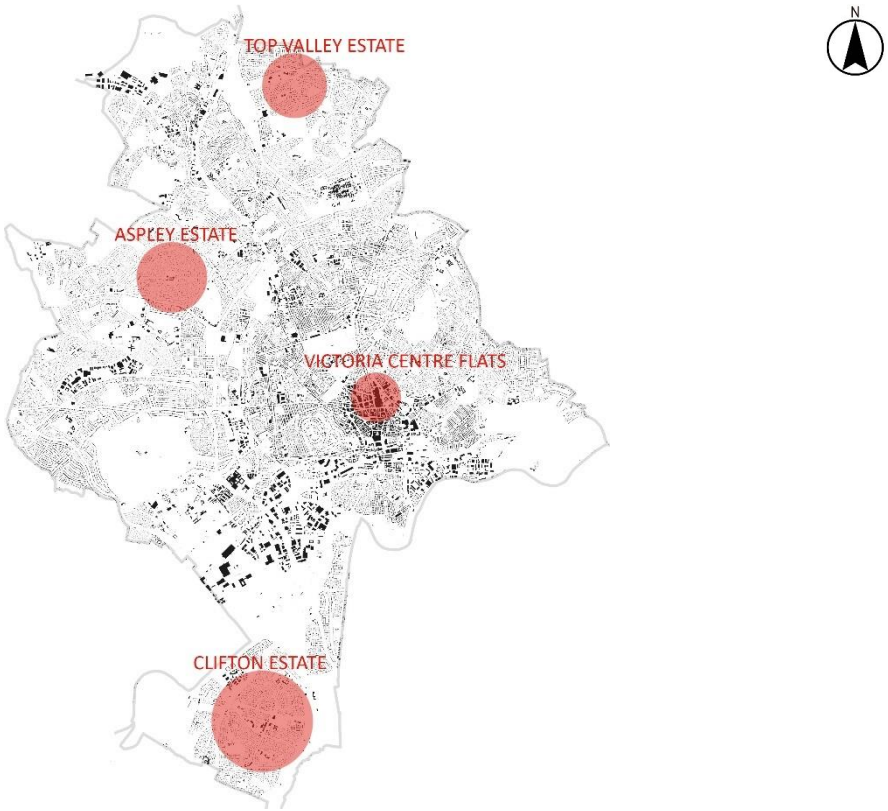


Figure i Case studies in Nottingham

As a mid-size city in England, the city of Nottingham presents a diverse spatial layout of council housing estates, making it an ideal context for applying methodologies such as space syntax, observation, and rhythmanalysis. Like other cities in the UK, before the First World War, Nottingham had many problems with residential slum areas. An unexpected increase in population was observed between the years of 1780-1871 due to national population growth and the impact of the industrial revolution in the city. The delay in the local authority's intervention in expanding the city boundaries laid the foundations for future problems. Then, the impact of the First World War and post-war developments made council housing the primary solution to the city's housing problems. Like the rest of the country, Nottingham experienced a significant increase in council housing production and became a city praised by the authorities for the number and quality of homes built (Bryson, 1974; Giggs, 2006; Broxholme, 2013). In this context, the city's strong legacy of council housing provides important examples for evaluating and discussing.

Each case study represents a specific phase of council housing development, offering valuable insights into how political, social, and design decisions from different periods have shaped urban form and function. Moreover, all the case studies represent important thresholds in the context of the city's development, and each of them has different integration values, according to the results of the space syntax analysis. Reflecting the approach of the interwar period, the Aspley estate is also the city's first largest estate after World War I. The Clifton estate, selected from the post-war council housing legacy, is the city's largest housing estate, which was built as a result of the expansion of the city's borders in the south direction. The third one is the Victoria Centre flats, an example of the high-rise housing construction period in the council housing legacy. It is one of the city's important housing blocks that is still in use, unlike other high-rise buildings built in the same period and then demolished due to various social and physical reasons. Victoria Centre Flats constitutes another field study of the research with its location in the city, its construction together with the shopping centre, the change it caused in the city's silhouette, and its dominant image. The last field study is the Top Valley estate in the north of the city, constructed in the late 1970s. Similar to the Aspley and Clifton estates, this is dominated by two-storey detached housing and is an example of a return to the low-rise, low-density housing construction period after the failure of the high-rise building period.

Research Methodology and Data Collection

This study adopted a pragmatist approach using a combination of quantitative and qualitative methods to examine four distinct council housing areas built in different historical periods. The research methodology is structured in three main steps.

The first stage involves a detailed analysis of the spatial configuration of the case study areas using the space syntax methodology. For this purpose, initially, the existing road centreline map covering an area of 8 km radius of Nottingham city was prepared. Then, spatial configuration of the city was examined by integration and choice analysis at both local and global level. After the city scale analysis, the selected areas were discussed in detail.

Field studies were then conducted to capture the daily life experiences in these areas by conducting on-site observations. These observations were conducted along the main integrated routes identified in the space syntax analysis, aiming to reveal the impact of spatial logic on daily life. The observation results are explained in detail in a phenomenological manner with the help of photographs collected during the fieldwork.

The third step of the research involves the adaptation of the rhythmanalysis method to the research using quantitative and qualitative methods to reveal a layered narrative. Among the observed routes, the route that most strongly reflects the rhythm of the neighbourhood is visualised with a layered approach based on Henri Lefebvre's rhythmanalysis methodology. Based on the fact that rhythm is both a temporal and spatial phenomenon, how these rhythms shape urban experience, the embedded knowledge of spatial configuration and the multi-layered structure of the lived experience is revealed by relating observations.

Additionally, demographic data from the UK Census 2021 was used to complement the spatial analysis to provide a deeper understanding of the communities living in these areas. The data obtained in this context were used to compare areas; in addition, the effects of demographic data such as age profile and ethnic group on space and place use were also discussed.

Consequently, this mixed-method approach provides a comprehensive framework for investigating the main question of the research: how council housing estates built in different periods offer spatial experiences today.

Thesis Outline

So far, the background of the research, research questions, and case studies have been introduced. The methods used in the research towards the objectives determined within the scope of the thesis and the scope have been explained, and general information has been provided. Following this, the thesis is organised into three main parts. Part I details the thesis's phenomenon, theoretical background, and methodological framework. In *Chapter 1*, the historical development of council housing estates in the United Kingdom is discussed in the context of its political, historical, social, and spatial consequences in four separate eras. This part reviews the

historical literature on council housing, the dominant form of production that characterises the housing areas of UK cities. *Chapter 2* presents the theoretical background of the research. Since council housing estates will be examined in terms of space production and neighbourhood formation, this section discusses these concepts in the literature and outlines the theoretical background of the research. *Chapter 3* introduces the qualitative and quantitative methods used in the research methodology and provides data sources and background. This chapter begins by outlining the research design and strategy and concludes by outlining the limitations of the research. Part II of the thesis consists of two chapters. *Chapter 4* discusses the spatial development of the city of Nottingham, which is the main case study of the research, and its spatial growth in the context of council housing. In addition, this section includes the comparison of the spatial growth and development of Nottingham city by analysing maps belonging to four time periods. In this way, an exploration of urban morphology is provided, and the results of the city's growth over time are given in the context of housing areas. The chapter concludes by identifying the housing estates that will be examined in detail. *Chapter 5* includes four subtitles that are organised in the same way. Four council housing estates built in different periods are discussed, and the original research data is presented. In this chapter, the subsection belonging to each estate starts with historical development, space syntax analysis results, and population information. Then, it continues with the observation results and the section where the rhythm of the area is discussed. Part III is the last part of the study, which includes the discussion and conclusion sections. *Chapter 6* consists of the comparison and discussion of the results obtained from case studies examined with different methods. The conclusion, *Chapter 7*, starts by summarising the primary motivation of this research and concludes by presenting the results obtained in the context of different perspectives (Figure ii).

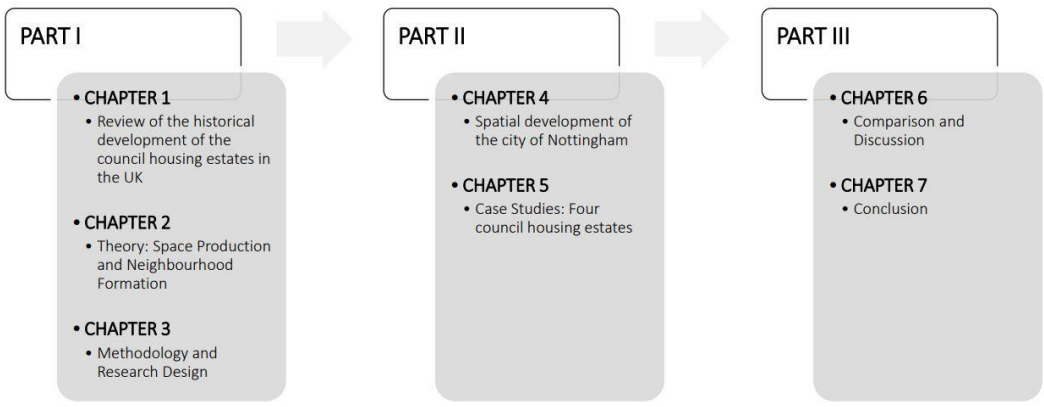


Figure ii Thesis structure

PART I

CHAPTER 1 COUNCIL HOUSING ESTATES IN THE UNITED KINGDOM

CHAPTER 2 THE THEORY OF SPACE PRODUCTION AND NEIGHBOURHOOD FORMATION

CHAPTER 3 RESEARCH METHODOLOGY

1

COUNCIL HOUSING ESTATES IN THE UNITED KINGDOM

1.1. Introduction

United Kingdom faced a continuous housing supply problem throughout the entire twentieth century. The government implemented various policies to manage this. The housing supply, which had roots in politics and ideology, had spatial and social consequences. This research focuses on council housing areas to better understand the results of a multi-component process and to provide insights into the housing areas that will be constructed in the future. The purpose of this chapter is not to give a comprehensive overview of the history of council housing in United Kingdom but rather to provide context for discussing the reasons and outcomes of constructing the four selected estates in the case study that served as the basis for the research.

This chapter offers an understanding of the legacy of the council housing in the United Kingdom. It specifically explains the spatial transformation that occurred, together with the historical, social, and political dynamics of the period. As the main concern of the thesis is to develop a new approach for a multi-faceted understanding of the current lived space of council housing, this chapter aims to explain council housing in a wider framework, with its different components. Historically, council housing estates have been produced from the top down, having a significant impact on the urban pattern of cities and the lives of people. These estates were built by the local authority

according to the government's policy, so there is no natural process of development on these estates. To understand the effects of these estates on cities, it is necessary to explain the production of council housing as a spatial phenomenon due to the form of production, the number of units, and the direct connection with the political intentions of the government.

1.2. Legacy of Council Housing in the United Kingdom

This section reviews the historical, political, and social background of the legacy of council housing estates and explains the effects of dynamics in different periods on the spatial character of the housing estates and city.

During the Inter-war period in England and Wales, over four million houses were constructed, and more than one million of them were built by local authorities. By 1975, council houses accounted for almost a third of the country's housing stock (Ravetz, 2003). Council housing estates are one of the main urban components in UK cities and provide a way of understanding how urban settlements are affected by political, social, and economic conditions.

This section provides an overview of the chronological development of council housing over four distinct periods: Inter-War, Post-War, High-Rise, and Late 20th Century. The historical, political, and social dynamics affecting the spatial character of council housing in each period will be examined.

1.2.1. Inter-War Period *from 1918 to 1939*

Despite the government's involvement in addressing the housing problem throughout the mid-19th century due to the Industrial Revolution, by 1914, only 1% of the housing supply was constructed by the public sector. During the interwar period, however, more than a million council houses were built in England and Wales, almost a quarter of the total housing stock in that period (Merrett, 1979). By 1939, local authorities had built 10% of the entire housing stock. These newly developed residential areas, built in line with the concepts of garden suburbs, created a new life pattern for millions of people (Burnett, 1986). The government's role in housing development and the significant rise in housing production have directly impacted the spatial pattern of cities. The aim of this section is to discuss the legacy of the council housing during the interwar period.

1.2.1.1. The Historical-Political Narrative of Inter-War Council Housing

The political origins of council housing estates can be attributed more to the working class's actions in 1915, when they protested rising house rents, than to pre-war Liberal reform (Ravetz, 2003). These wartime protests, which not only disrupted the housing system but also potentially indicated social unrest, were a much more serious issue than during peacetime (Orbach, 1977). The extreme increase in house rents forced the government to adopt rent control, and housing had finally become a political issue. The Increase of Rent and Mortgage Interest (War Restrictions) Act, published in 1915, established a legal rent restriction. It has been contended that the private sector, which had been facing difficulties since 1905, may have had the opportunity to recover if this legislation had not been enacted (Dainton, 1984). However, the ultimate effect of this law, though neither foreseen nor intended, affected the English housing system (Ravetz, 2003).

In July 1916, the Local Government Board prepared a plan that had the initial official suggestion for subsidised municipal housing. This proposal emphasised the significance of the housing shortage that would arise after the war and could not be entrusted to the private sector (Merrett, 1979). On the other hand, the housing campaign was a way to give the people a sense of confidence, and the social unrest and fear of revolution after the war necessitated the essential of state intervention in the housing problem (Swenarton, 1981). Furthermore, the public utilities that the government relied on were no longer as strong as they had been in the pre-war period. It was too limited to address the housing shortage that would arise in the post-war period. For this reason, local governments were seen as the only solution (McKenna, 1986). Richard Reiss, author of the highly influential book *'The Home I Want'*, also emphasised that even for people who believed in private enterprise, no policy other than the appointment of local authority after the war would be sufficient (Reiss, 1918). Based on these developments, the emergence of the council housing era in England can be attributed to social crises, the implementation of new Act restrictions, and the government's foresight of a housing shortage after the war.

Immediately after the Armistice was signed, in December 1918, Lloyd George made the historical statement *'habitations fit for the heroes who have won the war'*, which would become the slogan *'homes for heroes'* (Ravetz, 2003). The post-war housing conditions were underwhelming, particularly for heroes returning from war (Merrett, 1979), and this effort aimed to demonstrate to the state's working class that living standards would be far better in the future (Swenarton, 1981). The post-war housing programme served as a means to *'legitimise the existing organisation of society'*, beyond addressing the housing crisis (Daunton, 1987). In other words, the state viewed the council housing construction as a strategic tool to avert a crisis and, at the same time, demonstrate the resilience of the existing order in meeting the demands of the people.

In 1919, the Housing and Town Planning Act was published based on the Tudor Walters Report, which had been prepared and presented two years earlier. This report contained the recommendations of the committee established in 1917 to evaluate the problems of housing construction for the working classes. Tudor Walters, who also played an important role in the Rent Act debate in 1915, and Raymond Unwin, famous for his early Garden City at Letchworth and the Hampstead Garden Suburb, were members of the committee (Burnett, 1986; Ravetz, 2003). This report had one of the most powerful influences on the development of the twentieth-century English city (Hall, 2014) and was even the *'Bible'* of council housing estates (Ravetz, 2003).

With the Housing Act of 1919, the government accepted the aim of constructing 500,000 houses in three years (Murie, 1976). Despite the rapid increase in construction costs by the end of 1919, not a single house had been completed yet (Ravetz, 2003). Although this act produced council housing, which had very high standards in terms of space, the government could not reach the number of houses it targeted. By 1921, contracts had only been made for 170,000 houses, causing the government to discontinue the housing programme (Bowley, 1944). When the government's economic policy is examined during this period, it can be argued that economic conditions had an impact on the halting of this act. On the other hand, according to Swenarton and Merret, the government abandoned the housing programme because the working-class protests had subsided, and there was no longer a need for *'insurance against revolution'* (Merret, 1979; Swenarton, 1981). The Housing Act of 1919, also known as the Addison Housing Act, was shaped by the then Minister of Health, Christopher Addison, who played a prominent role in this legislation. The buildings belonging to the housing contracts signed within the framework of the Addison Act continued to be built until 1923. Addison became one of the important individuals of this period by adopting an approach that transformed the housing of the working class into a social service rather than just a capitalist enterprise (Ravetz, 2003). Despite all these difficulties, it can be argued that this act was a remarkable development in that it involved the government in the housing industry and led to the production of low-density suburban social housing as a new phenomenon, which dramatically changed the physical and social environment of British cities.

In 1923, the Chamberlain Act, which included subsidies to encourage the private sector to build working-class houses, was published by the Conservative government. While this act was still in force, in 1924, the Labour government introduced the Wheatley Act, which once again encouraged local authorities to build housing. Both acts, like the Addison Act of 1919, had the objective of building a maximum number of new houses (Liepmann, 1937), but during the interwar period, the greatest number of houses were built under the Wheatley Act (Ravetz, 2003).

Until the 1930 Housing Act, slum clearance was addressed under additional plans. However, the complete physical elimination of slums was finally made a central part of this housing policy by Minister of Health Arthur Greenwood (Liepmann, 1937; Ravetz, 2003; McKenna, 1986). The law's focus on clearing the slum areas had two main effects on council housing. Firstly, the quality of council housing estates has decreased in comparison to the previous period due to the adoption of a more economical approach to space and standards. Second, there was a notable change towards building flats as an alternative to traditional cottages (Burnett, 1986).

In conclusion, the inter-war period resulted in policies that significantly affected the legacy of council housing, both successes and failures. The government had finally intervened in the housing shortage that started in the mid-19th century due to the impact of industrialization. The housing shortage caused by industrialization was triggered by the destruction caused by the war, making state intervention necessary, and as a result, a marked pivotal change emerged. Some writers argue that the government did not expect council housing to become a permanent policy (Murie et al., 1976); however, the inter-war period and subsequent developments show that council housing was recognised as a significant political initiative profoundly shaping British cities and people's lives. The next section focuses on the social and spatial consequences of the political changes in council housing in the inter-war period.

1.2.1.2. The Social and Spatial Patterns of Inter-War Council Housing

This section will provide a summary of the social and spatial consequences resulting from the housing policies implemented during the interwar period and the council housing that was built during this time. The government's interwar house-building programme resulted in the construction of over a million new houses, but for whom and how? Alison Ravetz explained the multifaceted outcomes of this legacy, which reveals the housing pattern of today's cities, as follows:

> *'The era of mass provision of council housing, which began in 1919 and lasted to around 1980, has left a large legacy, not only in bricks and mortar but in certain social outcomes, the implications and problems of which are still becoming manifest.'* (Ravetz, 2003, p.8)

After the war, expectations regarding housing changed. Not only were there expected to be many more homes, but new houses were also expected to meet standards of design, comfort, and convenience previously only available to a minority. For this aim, the Tudor Walters report was published in 1918 (Burnett, 1986). In this report, under the influence of Raymond Unwin, one of the advocates of the Garden City movement, estates with very low density with plenty of open space and green areas, where each house had its own garden, were recommended (Swenarton, 1981). This report mainly

advised suburban development with a maximum of twelve houses per acre in towns and eight per acre in rural areas. The report also recommended the construction of semi-detached houses instead of long, monotonous terrace houses with access from the back street (Burnett, 1986). As a result, more than a million houses with gardens were built on the peripheries of the cities between the two wars (Hall, 2014). Consequently, the distinct urban settlement pattern of England started to emerge. According to Swenarton (2002), Britain experienced an unprecedented suburban explosion before or after this period (Swenarton, 2002).

Burnett (1986) emphasises that the Tudor Walters report was not utopian, but innovative and creative (Burnett, 1986). For the first time, it has been shown that the cost of construction can be reduced by improving the quality of housing design. This was demonstrated by revealing that a low-density estate design with the use of light roads and cul-de-sacs, which reduces the number of houses per acre, can also reduce the costs of road works in this report (Unwin, 1913; Swenarton, 1981). Aside from ideological considerations, the government's aim was to produce the largest number of housing units in the shortest time. Therefore, economic circumstances had to be taken into consideration.

The report also suggested constructing houses without decoration in order to decrease the first expenses of construction and minimise subsequent maintenance costs. However, it has been focused on preventing monotony and thus emphasising the importance of well-designed mass and opening ratios. In addition, the 'Homes Fit for Heroes' programme aimed specifically at providing housing for the working class, labourers, and artisans, as evidenced by the report recommending different types of houses for various categories of users (Local Government Board, 1919). Furthermore, the report specifically contains warnings about ‘covering large areas with houses all of one kind, accommodating tenants all of the same social class’. (Burnett, 1986). However, Unwin's advice regarding the construction of pleasant streetscapes featuring short terraces and semi-detached residences was disregarded. Local authorities desired the popular semi-detached house idea among the public and often did not follow this advice (Swenarton, 1981). The conflict between ideological objectives and practical preferences hindered the complete execution of the report.

Ebenezer Howard's Garden City concept (Figure 1.1), which aims to bring together the advantages of urban life and the countryside, has been widely discussed throughout the 20th century and has had a unique impact on mass housing production practices (Howard, 1902).

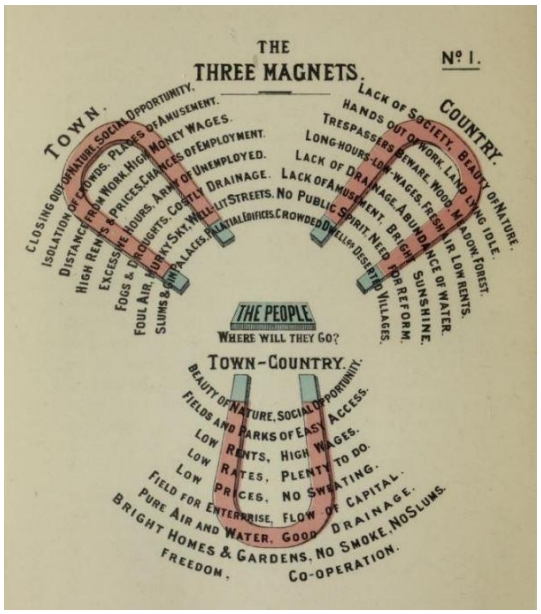


Figure 1.1 The Three Magnets from Garden Cities of Tomorrow (Howard, 1902)

The primary objective of this concept was to provide well-built houses of different types, industrial zones separated from residential areas, large recreational areas, and transportation facilities, and to surround this area with agricultural lands (Figure 1.2). Ebenezer Howard conceived the garden cities to accommodate up to 32,000 people on an area of 400 hectares (Howard, 1902).

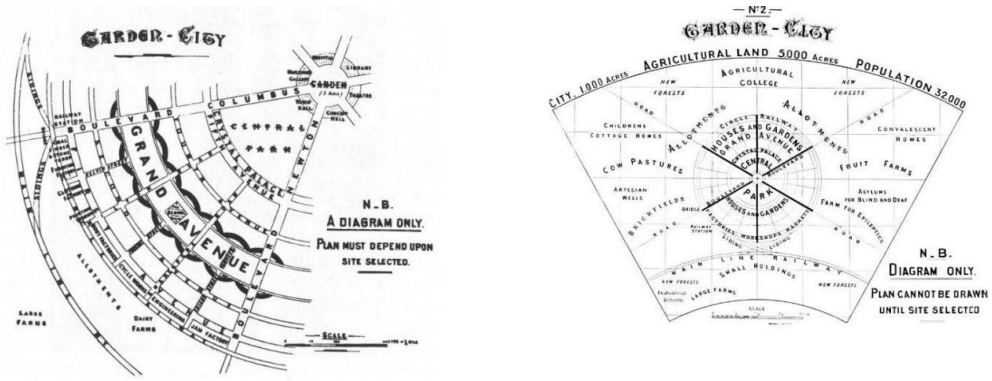


Figure 1.2 Schemes of the Garden City theory (Howard, 1902)

According to Howard, this size is large enough to be a real community with employment areas, public buildings, and educational and cultural opportunities, but it is also ideal not to have sprawling cities devoid of identity and separated from the countryside (Figure 1.3) (Howard, 1902; Hall & Ward, 1998; Burnett, 1986). Moreover, Howard demonstrated that the Garden City concept is not merely a utopian vision but a practical strategic proposal. This is evident in the emphasis he placed on its administrative and economic dimensions and the comparisons he drew using real-world data and figures to support its feasibility (Howard, 1902).

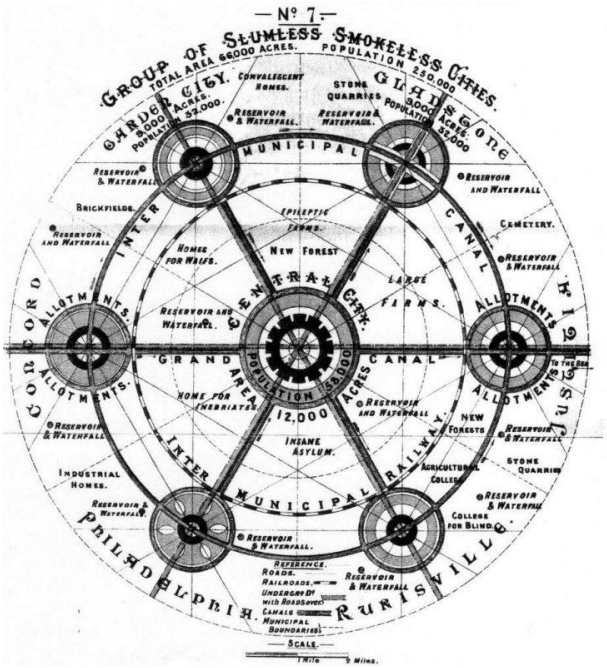


Figure 1.3 Howard's diagram of a series of satellite garden cities limiting the growth of each and connecting to the Central city (Source: Howard, 1902)

The Garden City Model is, on an intellectual basis, a direct response to the increase in urban problems after industrialization. Two important examples of this model, which encourages the construction of low-rise housing outside the urban area, are the Letchworth Garden city (Figure 1.4) and Welwyn Garden city. However, Letchworth designers Raymond Unwin and Barry Parker avoided directly imitating the mechanical space organization scheme. Instead, they preferred an organic spatial design approach instead of symmetry and linear lines. Apart from these, Howard's holistic approach and solution to rural and urban problems could not be fully implemented, and it influenced the government's policies at an eclectic level (Mumford, 1961; Hall, 2014).

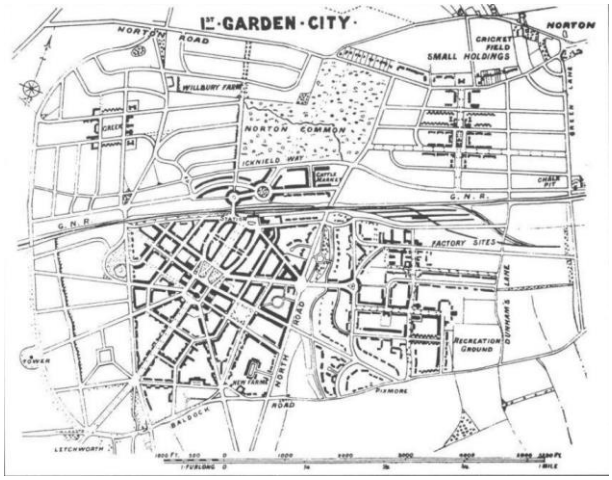
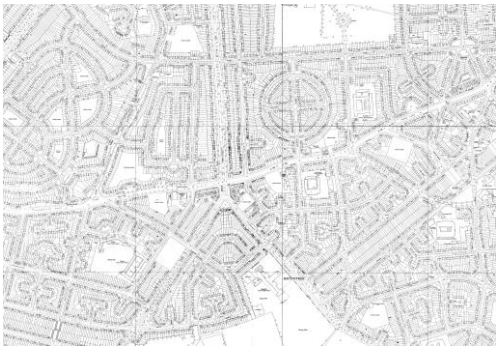


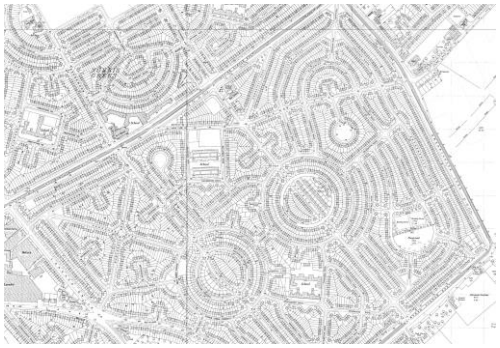
Figure 1.4 Preliminary design of the Letchworth Garden City (Source: Miller, 1978)

According to Ravetz, Howard did not take a direct interest in council housing (Ravetz, 2003), and many interwar suburbs were built in the opposite direction of Howard's vision, embodying neither the urban nor the rural advantages (Burnett, 1986). On the other hand, Howard's model, which represents a top-down process with design limitations, has been criticised, especially in the works of urbanism pioneers Jane Jacobs and Christopher Alexander, who argue that society builds bottom-up processes and challenges urban planners (Jacobs, 1961; Alexander, 1964). To summarise, while council housing is a political initiative taken by the government as a solution to urgent housing problems based on providing affordable housing to those in need, the Garden City movement is an ideal that undoubtedly influenced this movement but has not been fully realised.

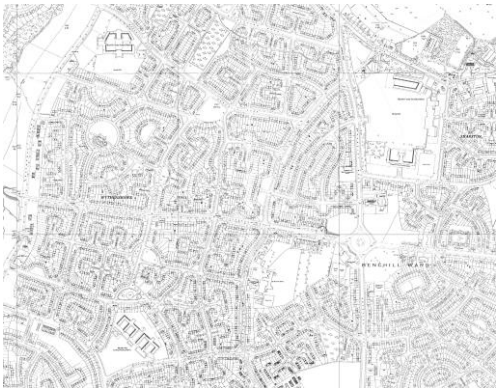
Eventually, council housing estates with similar layouts were built in different cities all over the country. Becontree Estate in London, Larkhill Estate in Liverpool, Wythenshawe Estate in Manchester and Wollaton Estate in Nottingham are among the important examples reflecting the spatial characteristics of this period. Morphologically, curved street corners instead of angled, open green areas, roundabouts, and islands, low density and low-rise housing, which constitute the characteristic urban forms of the interwar period (Carr & Whitehand, 2001), are similar features of the four selected different sizes of examples (Figure 1.5).



Becontree Estate (London)



Larkhill Estate (Liverpool)



Wythenshawe Estate (Manchester)

Wollaton Estate (Nottingham)

Figure 1.5 Examples of council housing estates of different sizes from different cities (Source: DigiMap)

Becontree/Dagenham, which has nearly 18,000 homes east of the city, deviated from town planning principles by lacking vital social amenities like schools and hospitals. This posed challenges for residents, necessitating long commutes and leaving families in what could be termed a 'non-place' (Clapson, 1998). However, a pre-World War II survey on working-class homes revealed higher satisfaction in housing estates compared to privately rented old houses. Desired homes featured modest sizes, gardens, two living rooms, separate bedrooms, and modern amenities like bathrooms, with a separate living room and bathroom as significant social indicators. Even in seemingly unremarkable suburbs like Becontree, a majority expressed contentment with houses and neighbourhoods, indicating alignment between preferences and improved council housing features (Mass Observation, 1943).

The government tried to determine not only the physical form of council housing estates, but also its social and economic pattern (Malpass & Murie, 1994). Regarding the social aspects of council estates, the Tudor Walters Report highlighted the importance of viewing the site of new council estates not only as a physical space for housing but also as a future community that would be involved in different industrial activities, each with distinct requirements beyond just housing (Tudor Walters Report, 1918). However, it was once again seen that the ideological approach did not coincide with the practical, and most of the new estates built did not go beyond providing housing. Failure to provide basic education, transportation, shopping, and recreation facilities (McKenna, 1989) caused the estates to be described as suburban dormitories (Burnett, 1986). Such public facilities, which would encourage social interaction between residents, were considered very important for the development of the community. Unwin emphasised the necessity of developing main and subsidiary centres containing social facilities such as churches, libraries, laundries, and hotels, depending on the size of the estate (Unwin, 1913). However, according to Branson and Heinemann, local officials were reluctant to provide these opportunities (Branson and Heinemann, 1971). Local governments prioritised finding solutions to the cities' urgent housing and slum problems as soon as possible rather than the ideals of the central government. Although council housing has significantly contributed to urban development, these estates have frequently struggled to integrate with their surroundings and develop into 'normal neighbourhoods' (Power, 1997).

In addition, suburbanisation was encouraged by the 1919 Housing Act. Suburban urbanism not only represents low-density settlement but has also been defined by many researchers as a particular state of mind (Burnett,1986; Richards,1973; Clapson, 2003). Ravetz (2003), also, defines the suburb as a culture that is conceptually and physically isolated from the city and public space and where a new life pattern dominates based on houses (Ravetz, 2003). Moreover, the designs of the estates also segregated residents from each other and caused the emergence of a new community culture. Olechnowicz (1997) emphasizes that the width of streets and pavements, the

fenced gardens, and the lack of courtyards opening directly to the street create a barrier to communication between residents (Olechnowicz, 1997).

Another main concern of the government's housing policy is defining who lives there. Determining the housing policy involved making important decisions regarding which specific segment of the working class would have access to the newly constructed houses. This decision also affected the housing type and rent amounts. The 1919 Housing Act set the rent amount at a level that the aristocratic working class could afford (Swenarton, 1981). As a result, the policy focused on producing housing for the working class was becoming appealing to a more limited social segment. Thompson (1990) described these estates as 'housing deserts devoid of oases of community'.

1.2.2. Post Wars Period *1940s-1950s*

This section will summarise the policies developed for council housing production after the Second World War and their spatial consequences.

1.2.2.1. The Historical-Political Narrative of Post War Council Housing

After the end of World War II, Britain faced a greater housing shortage compared to 1918. During the war, all construction activities almost stopped, and many houses became unusable. The population increased by 1 million, and the total housing shortage rose to approximately 1.5 million during this time (Balchin, 1998). On the other hand, compared to 20 years ago, the people's expectations regarding housing standard had increased with the influence of council housing built between the wars (Ravetz, 2003). Housing was undoubtedly a top priority for the government during this era, and it was seen as part of the welfare state established during this time (Malpass, 2004). While the political strategy of this era was largely similar to the interwar years, the most notable distinction was the state's intervention in the housing crisis without hesitation. In this context, the state's first regulation of council housing was to improve standards (Burnett, 1986).

In 1944, the Dudley Report was published by the Ministry of Health, and this report provided the frame for post-war housing legislation. Although this report reiterated the basic principles of the Tudor Walters report (Ravetz, 2003), it included some important planning, layout, and design changes that would distinguish the housing estates to be built in this period from those of the Inter-War period. This report included spatial recommendations such as residential density, mixed development, and specification of service areas within estates, as well as recommendations for complete communities rather than the development of purely residential sites for a single social class (Dudley Report, 1944).

The government had continued to provide financial support to local governments with the 1946 Housing Act. In the same year, the government decided to build new settlements, especially around London, and for this main purpose, the New Towns Act 1946 and the Town and Country Planning Act 1947 were published (Burnett, 1986). The New Towns Act is of critical importance as it may cause the redistribution of the population to create communities by building new houses in areas outside the city. This act was formulated based on the ideological principles outlined in the Beveridge Report of 1942, which emphasised the importance of achieving a balance between work and living conditions. Additionally, it drew upon the practical recommendations put forth in the Reith Report of 1946, which provided guidance for the implementation of the Greater London Plan (Cullingworth & Nadin, 2006).

After two years, with the Housing Act of 1949, the obligation of local governments to house only the *'working-class'* had been removed (Housing Act, 1949). This historic decision had important consequences for the social structure of council housing (Ravetz, 2003). During this period from the Second World War to the 1970s, with the emphasis on the welfare state under the Labour Party, housing became the government's priority issue. Consequently, housing policies were successful, and the construction of more than 1 million houses was completed between 1945 and 1951, approximately 90% of which were social housing for rent (Balchin, 1998). Similar political approaches continued from 1951 to 1954. However, with the Housing Act 1956, the state's financial support distribution was reorganised, slum clearance was emphasised again, and local authorities were provided with high financial support only for the multi-storey blocks and houses they built as part of these clearance operations (Burnett, 1986).

As a result, it can be argued that this period marked a paradigm shift in housing, affecting the social structure and preparing the new developments for the future legacy of council housing. The following heading will discuss the social dynamic effects of the especially the Dudley report, 1949 Housing Act, and the New Towns Act's effects on the spatial character of council housing estates.

1.2.2.2. The Social and Spatial Patterns of Post-War Council Housing

Although the council housing building programme that continued immediately after the Second World War resembled the interwar period in some respects, the consequences of the housing that was constructed previously were now beginning to be experienced, and the necessity of making some critical regulations became evident. According to Burnett (1986), local authorities now needed to approach housing development more deliberately due to strong opposition to the further expansion of amorphous social housing, such as suburban dormitories (Burnett, 1986).

In 1944, the Dudley report was published, which included significant improvements over interwar standards for the design of post-war houses. The report included recommendations regarding spatial diversity and the size of units, especially in house interior design. During the process of making these improvements, the user's requirements were considered, and their opinions were consulted (Burnett, 1986; Dudley Report, 1944). This shows that awareness has emerged in the context of designing for user needs. The report also supported the high density of urban centres while recommending low density in new residential areas. This mixed-development model encouraged spatial and social diversity by allowing local authorities to adjust settlement density (Burnett, 1986). Accordingly, it included *'we suggest means for the erection of complete communities rather than the development of purely residential estates for a single social class.'* (Dudley Report, 1944). The new suggestion is the 'Radburn' planning, which, originating in the U.S. in the early 1950s, was inspired by English garden suburbs like Hampstead. This planning adapted key ideas, such as cooperative housing and cul-de-sacs, for the motor age. Radburn's distinctive feature was its pedestrian and car traffic separation, with houses arranged in "superblocks." Cars accessed houses via cul-de-sacs to back entrances, while the front faced private gardens and communal green spaces. This model was later adapted in Britain for council housing, with modifications: homes were built in short rows or terraces, and garages were placed in distant courts (Ravetz, 2003).

The report committee also advised the Ministry of Town and County Planning to establish a committee that specifically addresses council housing more comprehensively. This new committee prepared a report, outlining the essential principles for achieving a ‘complete community’ through the concept of 'neighbourhood'. The concept of the neighbourhood was associated with the concepts of 'social well-being' and 'social balance'. It was thought that the sense of community would be guaranteed with 'ideal' neighbourhoods that would be designed accordingly. The report emphasised that the housing issue cannot be resolved solely by supplying a large number of houses. It was underlined that no matter how well the units are planned, designed, and equipped, they need to be evaluated on a layout scale. In order to achieve the goal of creating a socially balanced society, it was proposed that housing units should be diversified not only by focusing on families with similar income levels but also by accommodating families with varying compositions. However, it was anticipated that there would be practical difficulties in bringing together residences belonging to different income groups indiscriminately, and as a solution, it was suggested that the neighbourhood be divided into areas with unique social characters depending on the housing types (Dudley Report, 1944; Reith Report, 1946). The committee's recommendation brought the housing debate into the context of 'social engineering' (Ravetz, 2003) dictating where and how the masses should live. In this era, the main concern is not only about creating a new healthy environment with

improved physical intervention but also about creating environments that are better socially integrated based on experiences from the past.

The New Towns Act of 1946 had also a significant impact on urban planning in the UK. The post-World War II housing shortage was addressed by creating new towns outside of existing urban areas through an Act. The New Town movement was in many ways a throwback to Ebenezer Howard's original garden city misapplication in the creation of suburban housing estates, respecting the aim of preventing further growth of existing cities, emphasising the importance of diverse social composition, and creating industrial areas that would provide employment for their residents (Burnett, 1986; Hardy, 1991; Cherry, 1980). This vision had a similar utopian context to Garden City. Relph (1987) argues that this *'offered a solution to the problems of decaying cities and a model for a new type of urban society'* (Relph, 1987). Nevertheless, this did not precisely align with Howard's vision. In contrast to the garden city concept, the idea of self-governing local welfare states was not proposed. Hall (2014) criticised this situation as *'top-down planning triumphed over bottom-up'* (Hall,2014).

From 1947, council housing estates also came within the scope of the Town and Country Planning Act regulations, which adopted the *'neighbourhood unit'* approach, an American concept. While the garden-city plan is still being used on certain estates, many new estates have been built in accordance with this planning, which encourages functionality and integration (Ravetz, 2003).

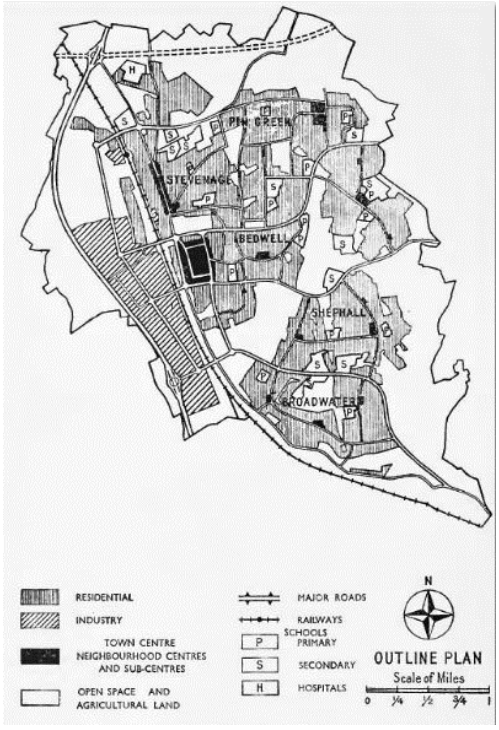


Figure 1.6 Stevenage New Town outline plan

Although the New Towns concept, which was examined chronologically and spatially in three different types, differed in terms of construction quality and local factors, they were generally successful results of post-war planning. However, after a while, architects have criticised them for their lack of urbanity, compactness, and sense of belonging (Aldridge, 1979). In terms of spatial character, designs that included fewer formal roads instead of strict geometric layouts, with each neighbourhood having its own centre and mixed-use development combining residential, commercial, and social areas, were planned as a reflection of the ideology of this era on the space (Figure 1.6).

The 1949 Housing Act included a significant change during this period. Local authorities would no longer be limited to providing housing only to the working class. This suggestion was considered a revolutionary approach, and it was suggested to use the phrase 'income groups' instead. This was an ideological change aimed at a classless society. The emphasis was placed on achieving targeted diversity based on personal distinctions, such as age and profession, rather than ideological categorisations, such as class differences (Day, 1988). This development was also part of creating a more diverse and integrated society. The government was now making large efforts to access a balanced society with all its policies.

Another significant act of this period was the 1956 Housing Act, which prioritised the clearing of slums and offered substantial subsidies for the construction of high-rise housing as a replacement. The high-rise building, encouraged by the government, was also recommended by the architects of the period as a representation of the modern era (Short, 1982). The overall impact of this circumstance resulted in a temporary *'boom in high-rise housing from 1958 to 1968'* (Ravetz, 2003).

As seen repeatedly, during this period, the emphasis was on building the highest number of houses as well as improving the quality of houses and creating improved environments. The initial phase of this era was characterised by efforts aimed at building more developed environments grounded in the lessons of the interwar period rather than radical changes. However, the latter half of the period marked the beginning of a new era, especially by encouraging the construction of high-rise housing.

1.2.3. High-rise Building Period *1960s-1970s*

The Housing Act of 1956 marked the beginning of a new era in council housing construction. This period is distinctly different from other periods in terms of its physical and social consequences for the council housing legacy. In this section, the period of high-rise housing buildings will be examined.

1.2.3.1. The Historical-Political Narrative of High-rise Building Period

By the 1960s, the government was now facing the consequences of the policy it had implemented in the preceding decade (Burnett, 1986), particularly those aimed at higher subsidies that had been given to the slum clearing programme instead of building more new houses. Although some of the cleared slum areas were redeveloped for industrial and commercial purposes, the primary objective of these areas was to build working-class housing. The housing built in these areas mostly consisted of high-rise apartments rather than the suggested mixed-development structures (Ravetz, 2003).

In 1963, The National Building Agency was established to promote industrial construction systems that reduce the need for skilled labour, speed up construction, and balance extra costs (Ravetz, 2003). Although one of the main aims of housing policies in the early 1960s was to improve housing standards, which had begun to decline in the 1950s (Ball, 1983), the government's encouragement of industrial systems that enabled the rapid construction of buildings resulted in lower-quality housing production compared to previous periods (Ball et al., 1989).

After the decline in housing standards, the state published the Parker Morris Report for new housing standards in 1961. This report diverged from its predecessors in emphasising the importance of understanding the needs of the 'New Patterns of Living' and building suitable housing, in addition to making physical enhancements (Burnett, 1986). However, the Housing Subsidies Act of 1967 found the costs of the suggested new standards were excessively high. Although these standards were made mandatory for local authorities in 1969, they had to be accepted as maximum standards (Short, 1982). As a result, housing production at the desired standards could not be achieved due to economic conditions.

Although the high-rise housing era reached its peak in 1966, accounting for 26% of the houses produced (Burnett, 1986), the most critical issue that signalled the end of the era was the Ronan Point disaster in 1968 when a block of flats in London partially collapsed because of a gas explosion (Cooney, 1974). After this incident, the government changed its policy, and subsidies for tower blocks were reduced with the Housing Act of 1969.

From the end of the Second World War until the 1970s, the construction of millions of council houses was completed through subsidies provided to local authorities, and the urgent housing need that emerged after the war was largely resolved. On the other hand, the 1970s were a period in which housing investments were generally reduced as a result of economic and political developments, and changes took place in rent and subsidy policies. This decade, which lasted until Margaret Thatcher's Conservative Party came to power in 1979, when much more radical changes were made that could

be considered a turning point in terms of housing policy, were the last years of housing policy with the social state approach.

1.2.3.2. The Social and Spatial Patterns of High-rise Building Period

After the Second World War, there was diversity in the way council housing was produced in the United Kingdom. Out of the housing built between 1945 and 1979, 64% consisted of low-rise houses in the suburbs, 20% consisted of flats in three- to five-storey blocks built in urban slum clearance areas, and the remaining 20% consisted of new flats in tower blocks of six or more storeys (Glendinning & Muthesius, 1994). Three basic forms of high-rise blocks emerged: point blocks, slab or linked slab blocks with corridor or balcony access, and deck access blocks (Bulos & Walker, 1988). Although all these over six-storey flats never constituted an overwhelming proportion of the houses built by local governments (Power, 1997; Ravetz, 2003), they represented a noticeable shift in image due to their distinct production style and increased density compared to earlier periods.

High-rise residences represented a significant breaking point in the history of council housing. According to Glendinning & Muthesius (1994), they were not just a solution to basic housing needs at the lowest cost but also a part of the collective modernization efforts of the period (Glendinning & Muthesius, 1994). The only solution to the paradox of increasing density in city centres and, at the same time, increasing open spaces, suggested by Le Corbusier, one of the pioneers of modernism, was to produce high-rise buildings with less ground area (Hall, 2014). Cooney (1974) argued that the high-rise apartment production method represented an architectural ideal. Under the influence of the modern movement, this type of production would replace the horizontal city, which was wasteful of land and was not ecologically defensible. Furthermore, high-rise buildings offered economic benefits compared to traditional structures due to their utilisation of industrialised construction techniques (Cooney, 1974). In addition to the influence of modernism, another reason for the spread of high-rise buildings was the increasing need for one- and two-bedroom houses due to the changing demographic structure (Burnett, 1986).

During this period, density increased to 200 persons per acre, and even up to 350 in some cases, in contrast to the low density recommended in the Tudor Walter report (Ravetz, 2003). One of the main reasons for this was to prevent agricultural lands from being used for more construction purposes, as low-density suburban estates caused urban sprawl (Power, 1993), while another was the desire of cities to keep populations in the centre instead of settling them in new towns due to increasing land costs (Cooney, 1974). On the other hand, approximately half a million slum units have been waiting for demolition since the 1930s. With the resumption of a slum clearance programme in the 1950s, Abercrombie also argued that high-density modern

apartment buildings were an inevitable solution to rebuilding these crowded neighbourhoods. As a result, the flats built between 1950 and 1970, which were in vogue then, were almost entirely located in inner-city slum clearance areas, and the only provider was local authorities (Power, 1993; Hall, 2014).

Although the end of this period was associated with the explosion in 1968 (Burnett, 1986), the public's dissatisfaction with high-rise blocks had begun to emerge since the 1960s. In addition to technical deficiencies and monotonous, repetitive concrete facades, there was an increasing reaction due to the social problems that arose in terms of security. The flats constructed to address the social and physical issues of slum areas were deemed vertical slums rather than horizontal slums due to their poor quality and unsatisfactory living conditions (Turner & Partington, 2015). Tower blocks, seen as an image of modernism, began to be also criticised by architects. In an article published in 1967, they complained about the possibility of more slums being built in the next five years than in the previous two decades (Taylor, 1967).

High-rise housing built in the United Kingdom during this period was evaluated as part of both meeting the housing needs of society and modernization efforts. However, technical, and social problems that have emerged over time have shown that these structures are not the idealised housing solution. Technical deficiencies, monotonous structures, and social problems led to dissatisfaction among the public, and high-rise apartment buildings were perceived as inadequate in terms of quality of life and social welfare. By the 1970s, modern houses were no longer considered adequate, both theoretically and practically. The image of high-rise housing, which was initially a symbol of optimism, was now seen as the cause of all the negativities that emerged. Due to technical and social problems, many high-rise buildings built in this period were demolished.

In addition to the worst examples, which lacked environmental opportunities and community, were hastily built, and could not go beyond serving as a shelter, there were also well-designed examples like Park Hill in Sheffield (Hall, 2014). The structure, which was designed in 1955, was linked by spacious, covered walkways above the ground, resembling Le Corbusier's Unité d'Habitation. Despite Park Hill's reputation for *'creating a completely different kind of place'*, the architects believed it was essential not to eliminate the more *'traditional'* way of life of the local working class (Carter, 2021). Social isolation, one of the main problems of high-rise buildings and deck access buildings, seemed to be solved in this example thanks to the design and location. In this respect, Park Hill (Figure 1.7) was one of the best examples that had the potential to bring people together (Ravetz, 2003).

Figure 1.7 Park Hill Estate, Sheffield

This period marks a significant shift in the council housing legacy, characterised by the construction of high-density buildings instead of low-density, high-rise structures instead of low-rise, city centre locations instead of urban periphery, and modern flats instead of traditional houses, in contrast to previous periods. Furthermore, it offers the benefit of having access to collective consumption, such as education, healthcare, and social services, which are already available in the city centre, different from the shortcomings of the previous era's estates. From the 1970s, many local authorities have initiated demolition programs to replace high-rise properties with low-rise, mixed-ownership projects or to repurpose land for other urban uses because of technical and social problems. Ravetz (2003) emphasized that during the reconstruction process after the demolition, most of the tenants preferred 'domestic vernacular' style houses, which were reminiscent of the garden houses of the Tudor Walter period (Ravetz, 2003). As Burnett stated, this form of construction, which is seen as the representative of not only a new living style but also a new life, was completed as an event that will not be tried again (Burnett, 1986), and this period led to a reconsideration of urban housing policies and architectural preferences. In conclusion, experiences with high-rise housing have highlighted the importance of diversity and inclusion in social housing production and offered important lessons to ensure that future housing projects are more balanced and sustainable.

1.2.4. The 1980s Turn ‘Thatcher's Impact on Narrative’

The radical transformation that started throughout the country in the 1980s also affected housing policy. *'Thatcherism has reduced the state-provided minimum, making market options seem far more attractive'* (Ball et al., 1989), and new decisions taken in the context of housing policy first came into force with the 1980 Housing Act. The primary innovation introduced by this law, which includes changes in many issues such as the subsidy system for council housing and rentals, was the 'Right to Buy' which regulates the sale of council housing. This regulation, which makes it easier for tenants

to buy houses, resulted in the sale of more than one million houses in ten years (Ravetz, 2003).

Another important consequence of the halt in financial support for council housing by the 1980 Housing Act is the gradual decline in housing quality. Until the 1980s, state intervention in housing production allowed for the regulation of standards. However, in 1981, the Parker Morris standards were abolished. In 1983, the *'Homes for the Future'* report, which included advisory standards, was published by the Royal Institute of British Architects (Burnett, 1986). Thus, housing standards, which first gained legal status with the 1918 Tudor Walters report, were once again left to free market conditions as before 1918.

When the housing policies between 1945 and 1980 are examined, it is seen that the main reasons for the state's withdrawal from housing production spread over the entire period. The fact that social housing was increasingly becoming a financial and administrative challenge, and especially the physical and social problems caused by multi-storey social housing blocks built in the 1950s and 1960s, were the main reasons why the government did not want to support this system (Pawson, 2006).

The decrease in the budget allocated to public expenditures and the gradual increase in the support provided to the private sector in housing production resulted in the state's withdrawal from social housing production (Ball, 1983). As a result of the reduction of subsidies to council housing due to economic reasons in the mid-1970s, declines began in newly built housing. This decline continued throughout the 1980s, and by 1990, the era of council housing buildings was effectively over (Pawson, 2006). The radical changes initiated by Thatcherism in the 1980s profoundly shaped housing policy in the UK. Council housing was no longer a solution tool to solve the problems faced by the government in this period but was a system that was seen as a problem itself.

With the launch of the Right to Buy programme, changes have occurred in the social housing stock, homeownership rate, and social characteristics of residential areas in the country. After this period in the council housing literature, gentrification, residualisation, marginalization, displacement and social exclusion were discussed (Malpass & Murie, 1994; Brown and Sessions, 1997; Peach & Byron, 1994; Burrows, 1997). Within the framework of this thesis, these discussions were excluded from the scope of the research. This study aims to provide a thorough understanding of the living spaces offered by the physical environment. For this reason, while this chapter discusses the periods of active council housing production in detail, this period is briefly summarised in the context of a radical development that was the official end of council housing production.

1.3. Chapter Conclusion

This chapter presented the historical background of the council housing legacy within the phenomenological context of the thesis. A chronological explanation of each period's unique political and ideological development is examined, and its spatial suggestions are investigated.

The history of council housing is a state intervention top-down housing production model shaped by various policies and ideologies. It was initially produced as a solution to the poor housing conditions of the working class, and over time, it continued to be produced until individual ownership and private sector provision in the 1980s were brought to the fore as a representation of social welfare state principles. In the spatial context, political decisions have undergone significant transformations over time, influenced by urban planning paradigms, utopian approaches, and changing demographic structures and needs. The spatial character of council housing settlements has undergone significant transformations over time, including low density with the garden suburban settlement, slum clearance and rebuilding, new towns that emphasise the neighbourhood unit, and experimentation with high-rise housing. Despite their varying designs and locations, council housing has left a significant mark on the built environment. Although in each era, there have been political reflections of deep-rooted social intentions to eliminate housing inequality and promote social balance and diversity, the difference between theory and practice has produced undesirable consequences in the social context.

2

THE THEORY OF SPACE PRODUCTION AND NEIGHBOURHOOD FORMATION

2.1. Introduction

This chapter will provide an overview of the research's theoretical background. Before discussing Henri Lefebvre's theory of space production, which forms the basic theoretical framework of the research, an overview of philosophically important perspectives in urban sociology will be presented. This chapter will continue to explain the production of space theory, which is based on Lefebvre's triad spatial theory (conceived, perceived, and lived space). Then, the concept of neighbourhood formation will be discussed in the context of space production.

2.2. Foundational Perspectives in Urban Sociology: A Brief Review of Key Theories from Major Thinkers

This section offers a review of influential theories and key theorists who have shaped the field of urban sociology, focusing on the development of ideas about the city and space. The aim here is not to delve deeply into each theorist's framework but to provide a general overview of how thinkers like Karl Marx, Friedrich Engels, Max Weber, Louis Wirth, Manuel Castell, and David Harvey have contributed to our understanding

of urban life. This provides the foundation for the field before the next chapter, which examines Henri Lefebvre's approach.

Urban studies on modern cities, which emerged alongside industrialisation, date back to the late 19th century. Karl Marx and Friedrich Engels pioneered the earliest analyses of urbanism, situating the development of cities within the broader framework of economic, social, and cultural processes. Marx and Engels (1968) conceptualised the city as a spatial manifestation of capitalist relations, where the dynamics of private property, class struggle, and the modes of production were most visibly enacted. They did not treat the city as an isolated social phenomenon but rather as a critical site through which to interrogate the broader structures of power and inequality. For them, the urban environment was not merely a physical space but a crucial component in understanding the reproduction of class relations and the capitalist system itself. This foundational approach laid the groundwork for future urban sociology, highlighting the city's centrality in the material and ideological transformations of society under capitalism (Sengul, 2001).

Engels (1968), in his pioneering book 'The Condition of the Working Class in England' published in 1845, critically presented the impact of industrialisation on urban life in Manchester through 'The Great Towns' chapter. He emphasised the striking spatial distinction between the bourgeoisie and the working class, as well as the condition of the overcrowded, unhealthy neighbourhoods in which the poor lived. He demonstrated the physical division of the city into classes, the use of space to render poverty invisible, and the reproduction of relations between different classes based on inequality.

> *'...The villas of the upper classes are surrounded by gardens and lie in the higher and remoter parts of Chorlton... The upper classes enjoy healthy country air and live in luxurious and comfortable dwellings which are linked to the centre of Manchester by omnibuses which run every fifteen or thirty minutes. To such an extent has the convenience of the rich been considered in the planning of Manchester that these plutocrats can travel from their houses to their places of business in the centre of the town by the shortest routes, which run entirely through working-class districts, without even realising how close they are to the misery and filth which lie on both sides of the road.'* (Engels, 1968, p.55)

Max Weber is another important figure in urban sociology. Weber's main contribution to urban sociology is his book *'The City'*, in which he examined the historical development of cities. Weber's analysis of cities focused on their role as centres of economic, political, and social power. He argued that cities are distinct from rural areas not just in terms of their size but in their social organization, particularly the development of rational bureaucracy and economic markets. According to him, definitions of the city have only one element in common: *'namely that the city consists*

simply of a collection of one or more separate dwellings but is a relatively closed settlement' (Weber 1958, p.65). The city is a rational phenomenon specific to Western civilisation, where craftsmanship rather than agriculture is practised, and citizenship rights emerge (Weber, 1958).

While Marx, Engels, and Weber contributed foundational ideas to the field of urban sociology, the first comprehensive and systematic urban sociology theory was developed by the Chicago School in the 1920s. According to Louis Wirth (1938), a key figure of the Chicago School, the city represents a distinct way of life shaped by its large population, density, and heterogeneity. Wirth emphasised that although cities bring together diverse social groups in close physical proximity, social ties are often weak and superficial. As urban populations grow and become more diverse, personal relationships tend to become more impersonal and fragmented. While the physical continuity of urban life exists, Wirth argued that social cohesion weakens as people navigate a more complex and heterogeneous social environment.

Manuel Castells and David Harvey are two other pioneers of the field who consider the city to be a direct reflection and product of capitalist dynamics. According to Castells (1977), the city serves as the spatial unit where collective consumption and the reproduction of the labour force occur. Cities are not merely locations for economic activity but spaces where essential collective consumption needs, such as education, healthcare, and housing, are provided—these are critical for the reproduction of labour power under capitalism. These elements of collective consumption are organised to facilitate the daily lives of all social groups. Castells emphasizes that the state plays a crucial role in regulating and providing these services to ensure the reproduction of the labour force, often intervening by supplying public goods and services such as housing, infrastructure, and public health (Gottdiener, 1984). According to Castells, housing, schools, transportation services, and leisure activities are the primary ways through which people consume the products of modern industrial society. Furthermore, government institutions have a direct influence on many aspects of urban life, intervening by constructing roads, developing public housing, and planning green spaces, among other activities (Castells, 1978). Castell, akin to Lefebvre, considers space as a product of social formation (Ghulyan, 2017).

> *'To consider the city as the projection of society on space is both an indispensable starting point and too elementary an approach… Space is a material product, in relation with other material elements — among others, men, who themselves enter into particular social relations, which give to space (and to the other elements of the combination) a form, a function, a social signification. It is not, therefore, a mere occasion for the deployment of the social structure, but a concrete expression of each historical ensemble in which a society is specified. It is a question, then, of establishing, in the same way as*

> *for any other real object, the structural and conjunctural laws that govern its existence and transformation, and the specificity of its articulation with the other elements of a historical reality… Urban space is structured, that is to say, it is not organized randomly, and the social processes at work in it express, in specifying them, the determinisms of each type and of each period of social organization.'* (Castells, 1976, p.115)

David Harvey's urbanisation model is rooted in analysing the movements and crises of capital accumulation. Urbanisation, as a process tied to the reproduction of labour within the capital accumulation framework, often leads to social conflicts. This is a process that begins with the rural population being drawn into especially newly developing industrial regions as cheap labour. As the working classes settle in cities, they face the growing costs of urbanisation, and after a while, this turns into conflict (Harvey, 1985). Harvey strongly critiques these issues in his main works, such as 'Social Justice and the City' (1973) and 'The Urban Experience' (1989). According to Harvey, urbanisation is a key mechanism through which advanced capitalism organises space, structures the physical environment, and manages social relations (Gottdiener, 1994). Harvey was also influenced by Henri Lefebvre's analysis of urbanisation and space production. On the other hand, Harvey contributed substantially to the discussion of the second circuit of capital, a concept Lefebvre briefly introduced but did not fully develop (Ghulyan, 2017).

Henri Lefebvre, on the other hand, approached the urban problem from a holistic and fundamental perspective and presented his fundamental views on urbanisation, the production of urbanisation, and its evolution in his two main works, *The Urban Revolution (1970)* and *The Production of Space (1974)*. According to Lefebvre, the production of urban space necessarily includes the reproduction of the social relations that are connected to it. In this context, the production of urban space includes the production and reproduction of all aspects of urban life rather than just the planning of the physical space of the city (Wiedmann and Salama, 2019).

2.3. The Theory of Space Production: Lefebvre's Approach

(Social) space is a (social) product.

Henri Lefebvre

Henri Lefebvre is one of the important philosophers of the 20th century who approached space from a social perspective. In his book *'The Production of Space'*, published in 1974 (*originally La production de l'espace*), Lefebvre discussed the phenomenon of space with time without separating it from other variables. He also emphasised that understanding space can be influenced by historical and social processes beyond its physical properties. According to Lefebvre (1991), space is not an

abstract static container; space is conceptualised as a historically situated and dynamic lived construct.

Henri Lefebvre's dialectical approach synthesises key elements from the philosophical frameworks of Karl Marx, Friedrich Hegel, and Friedrich Nietzsche to construct a comprehensive understanding of space. Drawing from Marx's dialectical materialism, Lefebvre conceptualises urbanisation as a response to growing human needs and the dynamics of productivity. Hegel's dialectical idealism informs Lefebvre's recognition of space as a product of human thought and intellectual frameworks, where the built environment reflects broader systems of ideas and societal recognition. Nietzsche's aesthetic dialectic of the 'Apollonian' and 'Dionysian'—the interplay between order and chaos—further enriches Lefebvre's understanding by introducing the subjective and experiential dimensions of space, emphasising its aesthetic and emotional aspects. Through this integration, Lefebvre advances a dialectical conception of space that encompasses the physical (material needs and economic forces), the mental (intellectual and ideological structures), and the subjective (personal and aesthetic experiences) (Wiedmann and Salama, 2019).

2.3.1. Periodisation of Space

Lefebvre's argument that *'(social) space is a (social) product'* involves a complex understanding of its historical development. He distinguishes the production of space from a simple chronological or structural interpretation.

> *'If space is produced, if there is a productive process, then we are dealing with history... The history of space, of its production qua 'reality', and of its forms and representations, is not to be confused either with the causal chain of 'historical' (i.e. dated) events, or with a sequence, whether teleological or not, of customs and laws, ideals and ideology, and socio-economic structures or institutions (superstructures). But we may be sure that the forces of production (nature; labour and the organization of labour; technology and knowledge) and, naturally, the relations of production play a part - though we have not yet defined it - in the production of space.'* (Lefebvre, 1991, p.46)

Based on this, Lefebvre suggested an important periodisation of space. Lefebvre called the social space produced in the past, based on the direct interaction of people and their environment, *'absolute space.'* According to him, the origin of absolute space is *'a set of places named and exploited by peasants, or by nomadic or semi-nomadic pastoralists.'* (Lefebvre, 1991, p.234). The fundamental characteristic of absolute space is that human life is in close relationship and harmony with space that has not yet broken away from nature. Therefore, in societies where absolute space is produced, no matter how much human activity tries to transform this space and attributes a

different quality and character to it, *'This space is 'lived' rather than conceived, and it is a representational space rather than a representation of space; no sooner is it conceptualized than its significance wanes and vanishes.'* (Lefebvre, 1991, p.236). Over time, this space became dominated by political and religious authority, leading to the end of absolute space as the urban planning and decision-making centre gained control over it (Lefebvre, 1991).

Abstract space is a space that has violence at its core and nature, where differences are homogenised. In other words, it is a *conceived space*. This space reduces and divides spatial aspects into functional and geometric forms, allowing for more efficient structures. As a product of violence and war, it is political; instituted by a state institution (Lefebvre, 1991). Gottdiener (1994) states that Lefebvre defined the abstract space as opposed to the social space by referring to the two-dimensional, instrumental space of state intervention and capitalist exploitation. Shields (2005) describes this spatialization as '*dominated by a fundamentally visual logic, which transforms (1) solids into images and simulations, (2) 'dwelling' into 'habitat' (housing), and (3) finally reduces space to the object of 'planification' (planning and 'urbanism').'* (Shields, 2005, p.177) referring to Lefebvre's work.

Contradictory space has all the characteristics of abstract space, but the contradictions specific to abstract space have deepened even more with the developments brought about by capitalism. Thus, abstract space appears before us with a new attribute, the attribute of contradictory space, in terms of quantity and quality, and with a series of contradictions that are sharper and more visible than in the past (Lefebvre, 1991). Space has become more fragmented under capitalism. With the progress of urbanisation, power within the city becomes increasingly centralised. This process leads to the social segregation of cities and the formation of isolated social ghettos with a hierarchical structure. At the same time, the morphology of cities is reshaped by expanding suburbs, and urban areas become more fragmented (Shields, 2005). In this context, Lefebvre (2003) critiques the modern paradigm for promoting a rigid, top-down approach to urban development that prioritises centralisation, uniformity, and the suppression of diversity.

Following this periodisation within the historical evolution of social space in general, the definition of *differential space* is related to the future. Lefebvre argues that the solution to the increasing urban conflict is differential space, which will result in society's proactive participation. Any conflict that arises is no longer between the city and the countryside. The fundamental conflict has shifted to the urban phenomenon itself (Lefebvre, 1991; Lefebvre, 2003). Boer (2015) formulated differential space as *'future space revaluing difference and lived experience'* (Boer, 2015, p.123).

After discussing the space corresponding to each mode of production and their basic characteristics, Lefebvre's other main contribution is the spatial triad presented for space analysis, which will be discussed in the next part.

2.3.2. Spatial Triad Approach

Lefebvre proposed the spatial triad conceptual framework to understand the production of space and its social consequences. These three spaces, consisting of mental, physical, and social spaces, interact with each other. Lefebvre's spatial triad framework has a multi-layered structure (Figure 2.1). These three definitions also explain it by identifying it with three separate moments: the conceived space, related to representations of space; the perceived space, referring to spatial practice; and the lived space, which he identifies as representational space (Lefebvre, 1991). Each dimension of the spatial triad can be defined as networks that interfere with each other and represent different moments that are intertwined and effective in producing each other.

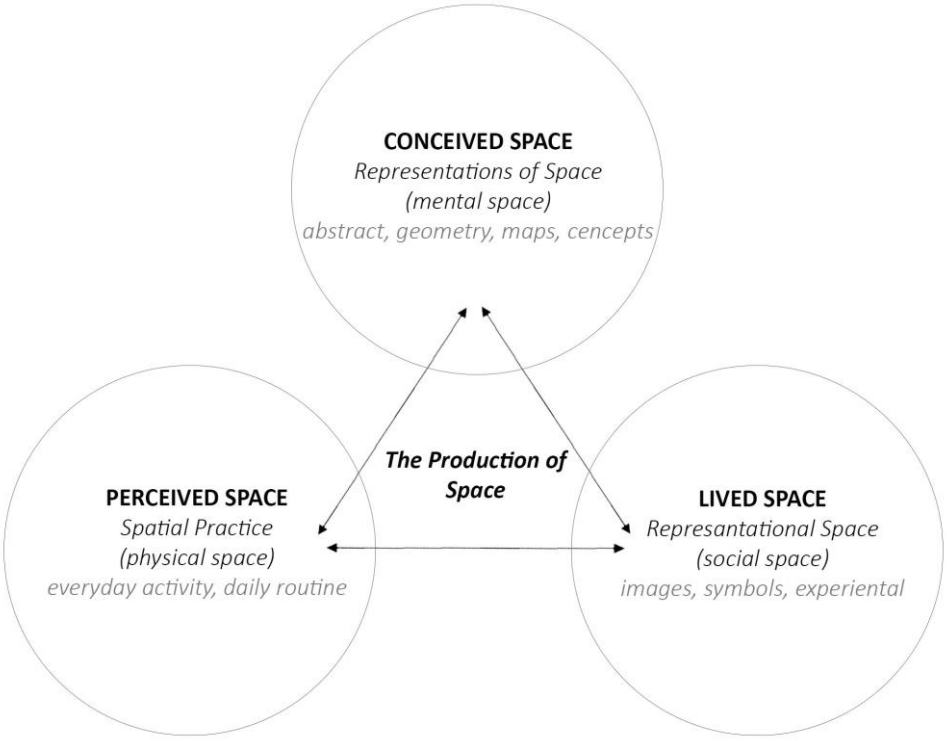


Figure 2.1 Lefebre's spatial triad
(Prepared by the author based on Lefebvre's approach)

Merrifield (2006) describes these elements as *'These interpenetrations, many with different temporalities, get super-imposed on one another in a present space, different layers of time are inscribed in the built landscape.'* (Merrifield, 2006, p. 105).

These dimensions are not independent, these are linked to each other because the production of material (conceived space) framed the production of knowledge (perceived space) and meaning (lived space) (Schmid 2014). Lefebvre also highlights *'A triad: that is, three elements and not two. Relations with two elements boil down to oppositions, contrasts, or antagonisms. They are defined by significant effects: echoes, repercussions, mirror effects.'* (Lefebvre, 1991, p.39)

Lefebvre (1991) criticises the literature's view of space as a geometric form and defines it as a liveable organism. With the spatial triad, he argues that space has the potential to shape human behaviour and activities and that, because of people's relationship with space, space has been shaped by society. In parallel with this, Kevin Lynch emphasises in one of his important works, 'A Theory of Good City Form' (1981), that while defining the form of human settlements, it includes more than physical structures. He asks whether this should include living organisms, human actions, social structures, economic systems or sensory and symbolic aspects of space. Finally, he states that all these concepts are related and defines settlement form as 'the spatial flows of persons doing things, the resulting spatial flows of persons, goods, and information, and the physical features which modify space in some way significant to those actions, including enclosures, surfaces, channels, ambiences, and objects' (Lynch, 1981, p.48).

When evaluated from a design perspective, Lefebvre's approach supports urban space where everyday perception, spatial theory, and lived space merge (Shields,2005), but his studies focus on a more historical perspective. According to him, each urban space should be regarded as a historical outcome resulting from the interaction between society and its surrounding environment (Lefebvre, 1991). According to Stanek (2011), although Lefebvre proposed terms for the spatial equivalents of these three dimensions, he did not collaborate directly with architects and urban planners in the 1970s. Despite Lefebvre's emphasis on the impact of users' daily activities on shaping the space in his writings, this approach remained in theory for a long time. The architects and planners of the period did not immediately make it functional (Stanek, 2011).

Following Lefebvre's theory, prominent scholars of urban sociology have also extensively studied this theory (Soja, 1996; Shields, 2005; Elden, 2004). Soja's studies (1996) are especially important in developing the concept of the Lefebvrian spatial triad. He defines the spatial trio as the first space, second space and third space. His definition is slightly different than Lefebvre's order. According to Soja (1996), the second space aligns with Lefebvre's conceived space. He considers the second space as the initial phase of spatial production that can be further explored and refined through conceptual drawings and figures (Soja, 1996).

Furthermore, Cihanger (2018) reformulated Lefebvre's triple space theory within the scope of the urban design perspective. She defined the conceived space as 'spaces for people', the perceived space as 'spaces with people', and the lived space as the 'space by people', based on the relationship between space and people.

Each moment of Lefebvre's spatial triad approach, which determines the theoretical background of the study and also the strategy of the research methodology, will be explained in detail below.

2.3.2.1. Conceived Space

Conceived space, defined by Henri Lefebvre as the place of architects, planners, and technocrats, is the dominant place in society. Defined as also *'representations of space'* in a spatial context, this reflects the dominant ideologies, power relations, and socio-political agendas prevalent in a particular society or historical context, thus having a direct impact on the production and shaping of space. Information is essential in the conceived space, and space representations emerge as a reflection of information. In this context, it is objective and abstract (Lefebvre, 1991). Undoubtedly, architectural plans, city maps, drawings and visualisations belong to this space.

According to Lefebvre (1991), *'representations of space'* are the responsibility of certain individuals, such as architects, who aim to produce a specific type of space associated with a particular ideology. These representations are influenced by the economic and social conditions of a specific time and location (Lefebvre, 1991). In general, conceived space is a space that contains symbols about the designer's intentions, suggesting *'how people might live'* (Milgrom, 2008).

Representations of space affect and change spatial patterns shaped by knowledge and ideology. Hence, 'Representations of space must therefore have a substantial role and a specific influence in the production of space' (Lefebvre, 1991, p.42). Within this scope, representations of space are spaces that are organised and produced according to the logic of the established order, that is, the political power, the dominant ideology (or discourse) and the dominant economic order, and are *'part of the history of ideologies'* (Lefebvre, 1991, p. 116).

Since this space arises from direct or indirect associations with the government, it contains principles of the dominant ideology. Therefore, when examining today's spaces in the context of the conceived space, it is important to investigate historical conditions and policies in space production practices. Especially in top-down approaches, the individuals who will ultimately experience the space are not included in this process; the space is designed by professionals for their use without sufficient consideration of their engagement.

2.3.2.2. Perceived Space

Perceived space refers to individuals' *spatial practices* and experiences within a particular environment. This is a moment of material product; thus, it is also physical space (Lefebvre, 1991). Perceived space is centred around experiential activities in which the user actively engages. Space is no longer abstract but has taken on a physical form. According to Lefebvre (1991), *'…spatial practice embodies a close association within perceived space, between daily reality (routine) and urban reality (the routes and networks which link up the places) set aside for work, 'private' life and leisure'.* This space, which can be evaluated empirically, can be defined as *'by the daily life of a tenant in a government-subsidized high-rise housing project.* (Lefebvre, 1991, p.38).

Therefore, it is possible to comprehend the perceived space by observing daily experiences in urban environments. When discussing the concept of perceived space, Lefebvre employs the analogy of the *body,* and he says: '*as the relationship to space of a 'subject' who is a member of a group or society implies his relationship to his own body and vice versa.., social practice presupposes the use of the body: the use of the hands, members and sensory organs, and the gestures of work as of activity unrelated to work. This is the realm of the perceived (the practical basis of the perception of the outside world, to put it in psychology's terms'* (Lefebvre 1991, p. 40).

Spatial practice embraces '*production and reproduction, and the particular locations and spatial sets characteristic of each social formation'* (Lefebvre, 1991, p.33). Shields (2005) explained this moment as *'Through everyday practice, 'space' is dialectically produced as 'human space'* (Shields, 2005, p.162).

In parallel, Soja named this space the *'first space'* and defined it as a space that could be understood through the human senses of sight, hearing, smell, taste, and touch (Soja, 1996). In other words, the individual has started to form their own subjective understanding and interpretation of the space.

Cihanger (2018) similarly defined this space, following Lefebvre's original approach, as a *'spaces with people'* drawing on Habraken (2005)'s concept of 'fields' encompassing both the physical environment and its inhabitants (Cihanger, 2018). Therefore, this concept encompasses the relationship between daily reality and urban reality. Consequently, observing daily experiences in urban environments is important to understanding perceived space.

2.3.2.3. Lived Space

Lefebvre defines lived space as *'directly lived through its associated images and symbols, and hence the space of 'inhabitants' and 'users,' but also of some artists and*

perhaps of those, such as a few writers and philosophers, who describe and aspire to do no more than describe' (Lefebvre, 1991, p.38-39).

Lived space is a *representational space* that includes experience, symbols, and images beyond what is designed. This does not need rules of consistency or cohesiveness because it is abstract and alive (Lefebvre, 1991). Elden (2004) defined this space as the modified in everyday life (Elden, 2004). Similarly, while Soja (1996) describes this space as the third space, he explains it as a symbolic space where various social, cultural, and physical elements intersect on the basis that it contains many possibilities (Soja, 1996). Shields (2005) defines it as the 'discourses of space', 'space as it might be, fully lived space' (Shields, 2005). Cihanger (2018) redefines this space as *spaces by people*, where the spaces are shaped by their everyday users on conceived space (Cihanger, 2018).

The lived space, constituting the last dimension of Lefebvre's interrelated trilogy, covers all lived experiences, including routine and non-routine occurrences within the temporal continuum, and is heterogeneous in this context. Although the distinction between conceived and perceived space may be unclear, lived space covers both, and it is complex and distinct. One of the most important reasons for this is that the representational space is subjective; that is, it is the concrete space of 'everyday activities of users' (Lefebvre, 1991, p.362), the space of *subjects* not of calculations, 'in the history of a people as well as in the history of each individual belonging to that people' (Lefebvre, 1991, p.41), therefore it has inherent complexity compared to conceived spaces and spatial practices that involve calculations.

Lived space is equivalent to *social space*. In this space, where the user is active, unplanned situations can occur spontaneously. The formations in the mental phase in the conceived space find physical counterparts with spatial practices and then reveal a heterogeneous experience over time. This is the experiencing body's reproduction of space. Thus, the lived space can become an image or memory for people (Lefebvre, 1991). This space, the third of the spatial triad, is equipped with symbolism and meanings that represent less formal and more local forms of knowledge (Elden, 2004). In this context, space is transformed into something more than just pure space; it now holds meanings, emotions, memories, and symbols. In other words, theoretically, it is the transformation of space into *place.*

2.4. The Theory of Neighbourhood Formation

The neighbourhood is not only a unit defined by certain physical or administrative boundaries but is also a dynamic structure that can be reshaped by its inhabitants in different perceptual dimensions. The neighbourhood concept is associated with many concepts, such as belonging, attachment and satisfaction. In this context, concepts such as place, place attachment, place identity, place meaning, sense of community

and even image play a critical role in understanding the perceptual and experiential dimensions of the neighbourhood. Each of them contains deep meanings that reveal the richness of the relationships established by individuals and communities with urban space, and each of them is a subject that deserves a detailed discussion on its own (Green, 1999; Lund, 2002; Canter, 1977; Merrifield, 1993). However, the aim of this section is not to provide a detailed explanation and discussion of these concepts. After explaining the neighbourhood concept, the section will continue by highlighting the studies that emphasise the requirements for social interaction in the context of the neighbourhood and urban dynamics concept. In parallel with Lefebvre's approach, which constitutes the theoretical context of the study, the effects of physical space on social interaction and activity will be explained in the context of neighbourhood formation.

2.4.1. The Concept of Neighbourhood

The notion of neighbourhood as a physiological concept is related to both cognitive and spatial dimensions. The boundary of the neighbourhood depends on the residents' perception of its boundary (Gifford, 1997). According to Park (1915), neighbourhoods are the most fundamental form of association in urban life, grounded in proximity and neighbourly contact. He argues that local interests and associations foster local sentiment, which is crucial in shaping community dynamics. In systems where residence determines participation in governance, neighbourhoods serve as the foundation for political control.

Mumford (2000) defines the neighbourhood as an important organ of urban life in which people are bound together. Hallman (1984) also emphasises that the neighbourhood is a sub-territory of a larger area where people live and interact with each other. Martin (2003) defines the neighbourhood as a place where social reproduction occurs, indicating that it is a space where human activities, including political and economic commitments, occur and social interactions occur. Park (1915) further emphasises that in the social and political organisation of cities, the neighbourhood functions as the smallest local unit. Gifford (1997) emphasises that neighbourhood type is based on the strength of social networks and social cohesion. He suggests that neighbourhoods range from close relationships among residents, with active participation in community activities and a strong attachment to the local area, to more isolated neighbourhoods where weak social ties and minimal interaction are observed.

The concept of the neighbourhood should not only be considered as a physical structure but also as a unit of social organisation where individuals' social, economic and political relations are shaped. Neighbourhoods provide their residents with a

sense of local belonging and play important roles at both individual and societal levels as areas where social ties are established, and participation in local politics is encouraged. Successful neighbourhoods play a key role in place-making processes, and their design and form have a direct impact on the coherence and continuity of the area in which they are located. In this context, the physical design of neighbourhoods plays a critical role in shaping their social fabric, ensuring social harmony and strengthening neighbourhood dynamics.

2.4.2. The Impact of Urban Design on Neighbourhood Dynamics

The physical layout and design of a neighbourhood influence its social dynamics, functionality, and overall quality of life. Urban design elements, such as street layouts, housing types, and public spaces, play a crucial role in shaping how residents interact with their environment and with each other. Calthorpe (1995), while defining the basic physical elements of a neighbourhood, emphasises three basic elements: 'walkable streets', 'human-scale blocks', and 'usable public spaces'. These three elements are critical for the formation of identity and a sense of belonging at both the neighbourhood and city scale.

Jane Jacobs '*The Death and Life of Great American Cities (1961)'* is one of the seminal works in the field. In this work, she critically examines the impact of suburbs, which emerged as a result of horizontal development strategies, on the city and society. In her studies, Jacobs (1961) outlines four key criteria for neighbourhood planning. Initially, streets should be fostered lively and interesting. Secondly, the street texture should be designed as a network with as much continuity as possible. Thirdly, social areas such as parks, squares and public buildings should be designed in an integrated manner with the street fabric. These areas should not be isolated structures in the form of different usage islands. The last one is *'the functional identity of areas large enough to work as district'*, which can also emerge spontaneously depending on the first three criteria (Jacobs, 1961, p.129).

Jacobs's (1961) approach is consistent with an understanding that emphasizes the impact of the quality of the physical environment on social interactions. Indeed, high-quality physical environments lead to more activity and, therefore, more social interaction. Environments that bring residents together and provide face-to-face contact foster positive relationships. According to Gehl (2011), life between buildings is a self-reinforcing process; as people come together, they will bring more people together. In this context, it is important to provide environments that people do not just use as a transition but also where they linger. In his book *Life Between Buildings* (2011), Jan Gehl examined activities in outdoor spaces and their relation to the physical environment. Gehl (2011) identifies three types of activities related to the quality of the environment: necessary activities, optional activities, and resultant activities (social activities). Necessary activities are largely compulsory, such as going to school or work,

shopping, waiting for a bus, running errands, etc. These are tasks in which individuals must participate to some degree. Everyday tasks and most walking-related activities fall into this category. Since these activities are required, they are only minimally influenced by the physical environment. They occur year-round, in almost any conditions, and are mostly unaffected by the exterior surroundings, as participants have little choice in their engagement. On the other hand, optional activities are quite another matter. This is directly related to what people want. This type of activity refers to those people engage in by choice, depending on time, mood, and favourable conditions, such as taking a walk, relaxing, or sunbathing. This is also highly dependent on the quality of outdoor spaces. While in poor-quality environments, only necessary activities occur, and people tend to leave quickly, in high-quality environments, necessary activities may take longer, and a wide range of optional activities can occur as people feel encouraged to stay, relax, and engage in various social or recreational pursuits. Social activities often arise as a result of necessary or optional activities, as people naturally interact when sharing the same spaces. That's why this activity relies on the presence of others, like children playing, conversations, greetings, and passive interactions, such as simply seeing or hearing others (Figure 2.2).

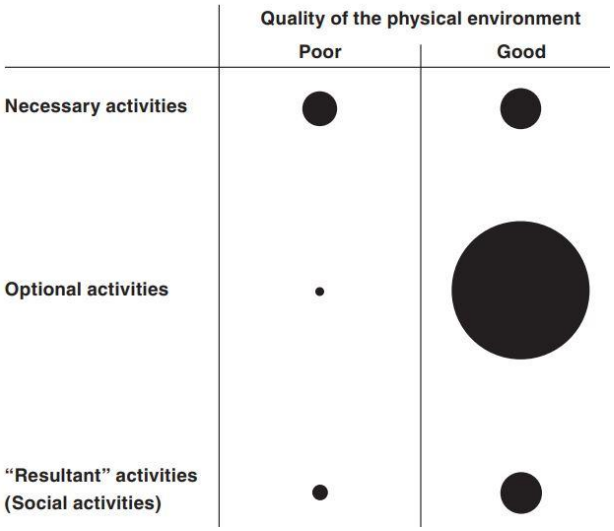


Figure 2.2 Relationship between the quality of outdoor spaces and the rate of occurrence of outdoor activities (Source: Gehl, 2011, p.11)

All these types of activities can indeed be seen as integral parts of the rhythm that Lefebvre (1991) defines as everyday life. According to Lefebvre (2010), everyday life is composed of repetitive cycles, patterns, and actions that unfold within urban spaces. These activities—whether they are necessary, optional, or social, as described by Jan Gehl—represent different layers of the rhythms that shape urban life. Each activity type contributes to the continuous flow of daily experiences that define how space is lived and perceived. As Gehl (2011) mentioned, well-designed spaces encourage people to stop, think, play, relax, see, talk, walk, sit and enjoy, which are part of everyday life.

Jacobs (1961) argued that maintaining urban vitality requires meeting four primary and two secondary conditions essential for fostering urban diversity. Diversity is characterised as a 'multidimensional phenomenon' (Turner et al.,2001) that fosters additional beneficial urban features, such as increased variety in housing types, building densities, household sizes, ages, cultures, and income levels (Jabareen, 2006). Jacobs (1961) emphasises that the vitality of cities relies on four essential conditions: *mixed land use, small block sizes, a mixture of old and new buildings,* and *high development density*. Jacobs (1961) believed that mixed land use is crucial for maintaining diverse activities at the street, district, and city levels, allowing various functions such as residential, commercial, and recreational uses to coexist, fostering continuous street life. She criticised the division of the city into residential, recreational, and commercial areas. According to her, this modernist approach destroyed social life and the city's complex connective strength. Montgomery (1998) expands this discussion by identifying three key conditions necessary for mixed-use environments to operate effectively. He argues: *'For mixed-use to operate successfully, three further conditions must be met: people must use the same streets and spaces, people must use at least some of the same facilities, and activity must not be concentrated into a particular time of the day'* (Montgomery, 1998, p. 104). These conditions emphasise the importance of overlap in how people interact with urban spaces. Successful mixed-use areas are characterised by continuous activity across different times of the day, ensuring that public spaces remain lively and safe. In addition, when various user groups share the same facilities—such as parks, cafes, or transit hubs—these spaces foster opportunities for social interaction and enhance the sense of community.

Parker (1994) also states that mixed-use or heterogeneous planning allows land uses to be located in close proximity to each other, thus reducing travel distances between activities (Parker, 1994). Small blocks encourage pedestrian movement by creating more intersections, reducing walking distances, and decreasing vehicle speeds, contributing to a more walkable environment. She also argued that the coexistence of old and new buildings supports socio-economic diversity and creativity, as older buildings typically accommodate a variety of enterprises and lower-cost spaces. Lastly, high development density brings enough people into an area to support urban activity, but Jacobs insisted that density alone is insufficient; it must be complemented by other conditions. Additionally, Jacobs (1961) identified two supplementary factors: accessibility to parks and transit stops, which promote continuous use of public spaces, and mitigating border vacuums, which refer to preventing large, single-purpose structures that disrupt pedestrian flow and create isolated areas (Jacobs, 1961).

Parallel to these urban discussions, Lefebvre also critiqued modern urbanisation for its monotony and fragmentation of space. Lefebvre (1991) argued that separating spaces into distinct zones as spaces of labour and space of leisure disrupts the natural rhythms

of urban life, leading to disconnected experiences and a lack of vibrancy. Both thinkers opposed functionalist city planning, prioritising order and efficiency over human experience. Lefebvre emphasised the importance of *'lived space'*, where everyday practices shape the urban environment. Jacobs (1961) and Lefebvre (1991; 2003) advocated for diverse, integrated spaces that encourage social interactions and reflect the complexity of urban life, rather than rigid, compartmentalised zones.

Similarly, Salingaros (2000) references Jacobs (1961) by emphasising that residential clusters should be designed to integrate with commercial areas as much as possible. He argues that although many residents view the separation of residential and commercial zones as beneficial, this division ultimately undermines the cohesion of the neighbourhood. Over time, the creation of isolated commercial areas increases car dependency as these spaces become accessible only by vehicle. Furthermore, Salingaros (2000) highlights the importance of commercial nodes—which include spaces with mixed functions, such as shops or daycare centres—for maintaining urban integrity. These nodes play a key role in fostering connectivity within the neighbourhood, ensuring that various functions complement each other to create a coherent urban fabric rather than disconnected and car-dependent developments.

The emphasis on integrating residential areas with commercial areas is essential not only for spatial integrity but also for the security of public spaces and social control. Safety is one of the important concepts for pedestrian activity and walkability. Jacobs' (1961) *'eyes on the street'* emphasises the importance of having active, engaged residents who oversee public spaces simply by going about their daily lives. Her definition is also parallel to Hanson et al.'s (1987) concept of 'natural policing', which reveals the self-control mechanism of society. This concept is defined as the product of spatial pattern, which has in its structure the features of 'co-presence' and 'co-awareness' (Hanson et al., 1987). Reeve (2019) also emphasizes that *'surveillance is an inevitable condition of public space'* and examines the complex relationship between public and private spaces, discussing the role of surveillance within the theory of social-spatialisation in public spaces. Surveillance, according to Reeve (2019), is not only limited to technological tools like CCTV or architectural strategies such as window placement but also forms part of a broader urban framework that shapes the identity of a place through design elements and narratives (Reeve, 2019). Jacobs (1961) also argued that mixed land use and diverse activity in urban neighbourhoods naturally support this kind of surveillance, as they bring people out onto the streets at different times of the day. In addition, according to the Space Syntax Theory, it is possible to measure the correlation between spatial configuration and crime rate by analysing the structure of spatial connections. This theory evaluates the spatial structure of cities in terms of human movements and interactions and relates crime rates in certain areas to how the area is designed. Areas with limited spatial connectivity, i.e., areas that are not visually and physically integrated with other areas, with little passage and

observability, increase the probability of crime due to low human mobility and a lack of natural surveillance (Hillier and Hanson, 1984). In this context, it establishes a direct relationship with Jane Jacobs's concept of *'eyes on the street'* and furthermore demonstrates, on qualitative grounds, that spatial arrangements correlate with crime rates (Hillier & Shu 2000; Hillier & Sahbaz 2005; Van Nes & López 2010).

2.5. Chapter Conclusion

This chapter has established a theoretical framework for understanding the interplay between urban sociology, space production, and neighbourhood formation, drawing on key contributions from Henri Lefebvre and major urban theorists. The foundational perspectives provide a crucial framework for analysing urban areas as not only physical entities but also as products of social, cultural, and economic influences.

Lefebvre's theory of space production, centred on the triad of conceived, perceived, and lived spaces, is a fundamental element of this framework. Understanding the interplay between these spatial dimensions is crucial for assessing the successes and challenges of urban environments, particularly in the context of council housing estates.

In addition, the production of space within the scope of neighbourhood formation theory is discussed beyond its sociological basis in the context of urban design, emphasising the importance of socio-spatial dynamics that shape urban life. As discussed above, urban theorists also have highlighted that, in parallel with the concept of lived space, the neighbourhood beyond its physical boundaries is shaped by the social meaning and lived experiences of its residents. The physical structure of a neighbourhood, including its buildings, streets, and public spaces, provides only a framework. What truly defines a neighbourhood are the interactions, daily routines, and collective memories formed by the people who inhabit it. In this context, the lived space produces the neighbourhood.

In conclusion, the theoretical perspectives discussed in this chapter provide a comprehensive foundation for analysing urban spaces in the subsequent chapters.

3

RESEARCH METHODOLOGY

3.1. Introduction

This chapter introduces the research methods of the thesis. It describes a mixed-methods approach that combines quantitative and qualitative methods, including space syntax analysis, observational studies, and rhythmanalysis. These three methods constitute the main steps of the holistic approach developed to investigate neighbourhood formation in the context of space production of four residential areas built in different periods. In this section, the research design, strategy, and selection of case studies are discussed, followed by a background of the tools used and their applications to address the research questions. This chapter concludes by explaining some of the limitations of the methods used in the research.

3.2. Conceptual Framework

This study investigates the neighbourhood formations of council housing areas built in different periods in the context of space production. In the context of space production, Lefebvre's spatial triad theory has been determined as the conceptual framework. Henri Lefebvre's triad proposes that space is not a static entity, but a dynamic construct comprised of conceived, perceived, and lived spaces (Lefebvre, 1991). Lefebvre's spatial triad is used as a theoretical background to develop an analytical approach, and thus, how this theory can be investigated empirically is presented. Lefebvre (1991) emphasised that the triad of 'conceived-perceived-lived space' should not be seen as an abstract model. He argues that *'If it cannot grasp the*

concrete (as distinct from the 'immediate'), then its import is severely limited, amounting to no more than that of one ideological mediation among others.' (Lefebvre, 1991, p.40).

Stanek (2011) emphasises that Lefebvre's concepts have the potential to be reinterpreted and adapted to close the gap between theory and practice. In this way, he argues that important outcomes can be obtained from the social dynamics and lived experiences that shape spaces from a sociological perspective on urban design. However, despite Lefebvre's emphasis on the impact of users' daily activities on shaping the space in his writings, this approach remained in theory for a long time. The architects and planners of the period did not immediately make it functional (Stanek, 2011). Although the use of Lefebvre's approach in relation to concrete situations is limited in Anglophone academia (Carp, 2008), it has been applied as a conceptual background in studies that aim to develop a holistic approach in different fields.

Allen and Pryke (1994), Carp (2008), Leary (2009, 2013), McCann (1999) and Cekic, Aygun and Bilen (2023) have examined conflicts related to space and controversial urban initiatives using Lefebvre's spatial theory. As one of the primary sources, Soja (1996) has introduced the concept of '*Third Space*' by expanding Lefebvre's theory of space in his work '*Thirdspace: Journeys to Los Angeles and Other Real-and-Imagined Places'*. Sin (2003) used Lefebvre's ideas about how social space is created to investigate how dominant views of space are formed and how they affect the daily lives and behaviours of people in these spaces in his study of ethnic integration and housing policy in Singapore. Watkins (2005) introduces Lefebvre's holistic approach to space in the field of organisational analysis and argues that it offers a series of meaningful and illuminating discoveries in the analysis of spatial structures. Furthermore, Carp (2008) also proposes an approach that acknowledges socio-spatial differences and explores how they are interconnected by interpreting Lefebvre's conceptual triad. Similarly, Salama, Thierstein, and Wiedmann (2012) argue that a Lefebvrian approach can be used as the basis for a framework that integrates analyses of all the various factors affecting urban development. Moreover, Wiedmann and Salama (2019) proposed an integrated approach to sustainable urbanism, combining Lefebvre's theory with the concepts of efficiency, diversity, and identity. In her study, Savas (2020) also presents the heterogeneous and dynamic spatial structure of Istanbul Taksim Square by enriching Lefebvre's spatial triad theory with the theories of Michel De Certeau and Henri Bergson. Wang, Dubois and Lu (2024) developed the home triad as a theoretical framework for exploring the meaning of home for people living with dementia based on Lefebvre's spatial triad.

In this research, Lefebvre's spatial triad approach was reconsidered and applied as a conceptual framework to develop a holistic understanding of residential areas. Firstly, the primary motivation for the construction of residential buildings is the existence of the housing problem. Throughout the urbanisation processes, the housing problem

has found a place on the agenda of political authorities along with various social and economic crises. Especially in the modernisation and post-war period, housing has become a policy tool with the need for shelter. In this context, the construction of residential buildings can be considered in the context of conceived space, which is shaped by the will of the political authority and the aesthetic and functional concerns of architects and planners. According to Lefebvre (1991), the conceived space is the place architects, urban planners, professionals, technocrats, and artists have imagined in their minds. It is designed with certain techniques, measurements, mathematics, and geometry symbols.

The perceived space is the place where movement and interaction occur, as well as where networks develop and materialise. This space is based on spatial practices that shape our habits and connect our daily routines (Lefebvre, 1991). While some housing estates are designed to include various social spaces, there are also neighbourhood that focus solely on residential functions. The relationship established or not established between the city's business and social areas and these buildings can be associated with the perceived space dimension. Perceived space focuses on how users experience the space within the functioning of daily life, the functionality of the space and its social meaning (Soja, 1996). The presence or absence of social spaces surrounding residential buildings is one of the elements directly affecting the integration between these structures and urban space. Housing projects that include elements such as social facilities, parks, and commercial units can increase integration with the city and enrich the urban experiences of residents (Gehl, 2010; 2011). In contrast, buildings designed solely for housing purposes can function as a 'dormitory', isolated from urban life, and can cause deficiencies in the perceived dimension of the space.

Lastly, lived space is directly lived through associated images and symbols, and it also contains conceived and perceived space. This space reproduces itself through experience, and hence the space of *'inhabitants'* and *'users'* (Lefebvre, 1991). That is why it is subjective and has its own rhythm. Lived space emerges over time through daily rhythms and is, therefore, temporal. The lived space, with its comprehensive and complex structure, is characterised by Carp (2008) as the most difficult dimension to reveal. Lived spaces are not *'an accident of conceived space'* (Augoyard, 2007), and nor is it always the result of dualities and spatial conflicts (Cihanger, 2018). Merrifield (2006) gives an example from the vibrant spaces of social life in defining the lived space *'... the café on the corner, the block facing the park, the third street on the right after the Cedar Tavern, near the post office'.* This study examines the lived space within the framework of the ordinary daily routines and rhythms of that space that come together.

This chapter will continue with a detailed discussion of the research design, following the conceptual framework explained, followed by an in-depth discussion of the methods used.

3.3. Research Design

This section provides an overview of the overall research strategy and explains the framework developed to achieve the research objectives. It begins with an introduction to the case study approach and a statement of the field study selection criteria, followed by a research strategy outlining the mixed methods approach. It then provides a summary of the type and method of data collected, providing the basis for further explanation of the selected research methodologies.

3.3.1. Case Studies and Selection Criteria

Case studies are critical to research because they provide in-depth and contextually rich insights. In the literature, Creswell (1998) and Yin (2014) extensively discuss the importance and contribution of case studies in research. According to Yin (2014), a case study is an empirical investigation that examines contemporary phenomena in real-life situations rather than entirely historical. Case studies are especially valuable when the research seeks to answer *'how'* and *'why'* questions. Because these questions typically necessitate comprehension of the fundamental processes, mechanisms, and context that generate certain outcomes (Yin, 2014). Some scholars view *'the case'* as an object of analysis (Stake, 1995 in Creswell, 1998), while others perceive it as a methodology (Merriam, 1988 in Creswell, 1998). This method is the investigation of one or more cases regarding an event, activity, process or individuals within a *'bounded system'* or within a specific time period (Creswell, 1998). This needs detailed data with documentation, archival records, interviews, direct observations, participant observation, and physical artefacts (Yin, 2014).

According to Creswell (1998), the first step is to consider the type of case study that will be useful for the research. Depending on the purpose of the research, this can be single or collective, multi-sited or within-site. At this point, Yin (2014) also emphasized the importance of conducting multiple case studies that enable comparative analysis between different case studies (Yin, 2014). Although the richness of multiple case selection is emphasized, Creswell (1998) recommends no more than four case studies so that the depth of the research is not diminished and is not reduced to the number of cases alone. This is crucial for researchers to consider, particularly in qualitative research, where profound, contextually rich insights are frequently more significant than broader generalisations (Creswell, 1998).

This study used a comparative multiple case study method based on the documentation, archival records, and observation to examine the research questions comprehensively. This method allowed for a systematic exploration of the similarities and differences between four separate council housing estates built in different time periods. In the context of the research, four case studies from the city of Nottingham were selected in order to understand the spatial consequences of the council housing production and its effects on neighbourhood formation and daily life.

Several factors are considered when selecting case studies. For this study, Nottingham City was chosen as the primary case area, and four council housing estates were identified as the specific case of investigation. Nottingham, and then four cases are selected because of the following reasons:

- The City of Nottingham is one of the leading producers of council housing in the country, with council housing estates built over a range of periods. In this context, the city offers historical and spatial diversity (detailed in Chapter 4).
- The four selected areas represent council housing projects built in different periods and enable a comparative study by revealing different approaches to the production of space.
- The fact that each case area has different levels of integration in the space syntax analysis reveals how these areas are located in the urban pattern and how their spatial accessibility is related to social practices.
- Each case represents significant turning points for Nottingham's spatial growth and development.

3.3.2. Research Strategy

A mixed methods approach and a comparative case study were chosen to test quantitative results with qualitative results and to understand how patterns work both qualitatively and quantitatively. The mixed-method design combines the strengths of one approach to compensate for the weaknesses of the other while recognizing that each method has its strengths and weaknesses (Johnson and Onwuegbuzie 2004). To prevent the potential limitations of using one approach, qualitative methods, such as observations and rhythmanalysis, were used alongside the quantitative method of space syntax. The study aimed to analyse the selected areas in both an objective and subjective manner.

According to Creswell, mixed methods research has three basic procedures: sequential, concurrent, and transformative. The sequential procedure involves elaborating the findings of one method with the help of another method. In the concurrent procedure, qualitative and quantitative data are collected simultaneously,

and these data are combined to interpret the overall results. The transformative procedure has a more comprehensive theoretical framework that includes quantitative and qualitative data and combines sequential and concurrent data collection strategies (Creswell, 2003).

This research involves a combination of sequential and concurrent procedures. The research first starts with the sequential procedure and then continues with the concurrent approach. After analysing spatial configurations with space syntax within the scope of the sequential procedure, the findings obtained are detailed with qualitative observations to understand the daily life and rhythms in these areas more deeply. This transition from quantitative to qualitative is critical for the research's reliability, depth, and comprehensiveness. On the other hand, all the data collected concurrently with quantitative and qualitative methods are brought together and presented as a layered analysis to understand an area's rhythm (Figure 3.1).

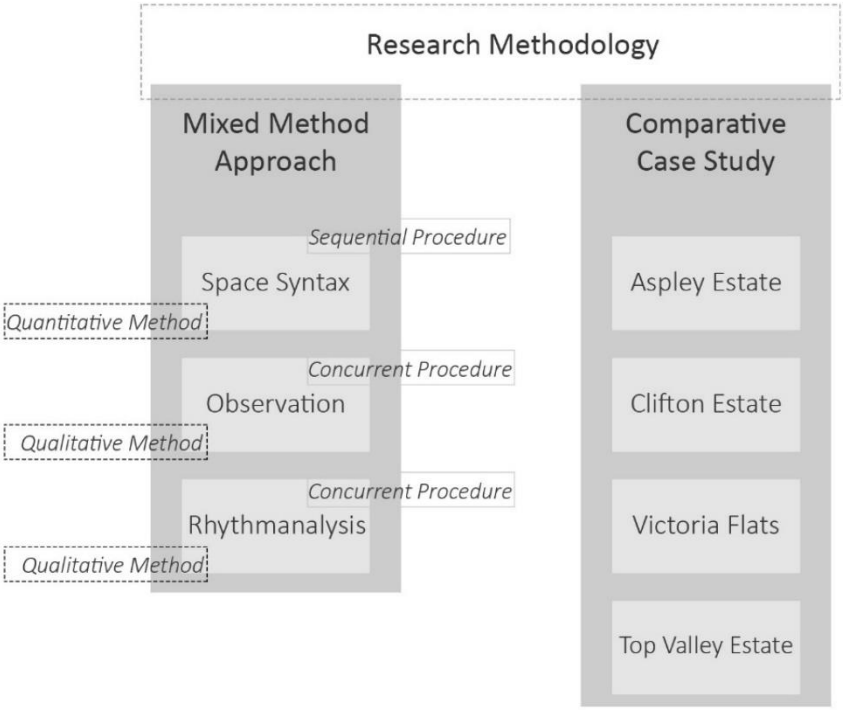


Figure 3.1: Research design model

3.3.3. Data Collection Types

The process of collecting data for research is divided into two categories: primary and secondary. The selection of the data type is based on the research objectives, available resources, time limitations, and the researcher's skills. Primary data is original material gathered directly by the researcher for the first time, whereas secondary data is pre-existing data that has been collected, evaluated, and documented by other researchers. Primary data is collected directly from the source through observation,

survey, and interview methods, whereas secondary data is gained through techniques such as literature review, investigation of archive data and historical records, and interpretation of statistics (Given 2008; Kumar 2011; Walliman, 2011).

This research has been carried out using both primary and secondary sources. Direct observations, space syntax analysis results and phenomenological diagnoses based on observations are the primary sources of the research. On the other hand, literature reviews on the history of council housing and the research's theoretical framework about space production constitute the research's basic secondary sources. In this context, the existing literature was examined comprehensively to strengthen the research's theoretical background and relate the findings to current academic discussions. In addition, archival records and census data were also used as secondary sources, enriching the research's historical and demographic context. This research used qualitative and quantitative methods to collect and process both data types. The chapter will continue with detailed discussions of the methods used in the research.

3.4. Space Syntax Theory and Method

The research uses space syntax, a quantitative method in the methodological framework of the approach, to analyse the housing estate in terms of its spatial components. Space syntax is a set of theories and methods for analysing architectural and urban space developed by Hillier and Hanson in the 1970s. This method is a way to understand how cities are structured, how they function, and the social impacts of spatial configurations in the built environment. As Hillier and Hanson emphasise in their book *'The Social Logic of Space'*, the relationship between space and society and their effect on each other is questioned with space syntax theory (Hillier and Hanson, 1984). This section will provide an overview of the theoretical foundations of space syntax, and the definitions used within the scope of the study will be detailed.

3.4.1. Theoretical Background

The space syntax theory provides a comprehensive framework for understanding the relationship between spatial configuration and human behaviour within the built environment. At its core, space syntax is based on the idea that space is not a background for human activity but rather is intrinsic to it. The theory argues that space actively influences and determines social dynamics (Hillier and Vaughan, 2007).

Space syntax is *'a model for representation, analysis, and interpretation'*. The method aims to understand how buildings come together in the built environment to form a harmonious system (Hillier et al., 1987). This method, which mainly focusses on the relationship between urban structure and social features, aims to reveal the spaces

between these physical objects and their connection with all other areas rather than the shapes of physical objects (Hillier et al., 1987; van Nes & Yamu, 2021). The method's theorists, Hillier and Hanson, as well as Henri Lefebvre (1991), Jane Jacobs (1961), and Jan Gehl (2011), are also pioneer urban theorists who emphasised the importance of the mutual influence of the relationship between social structure and space (Çil, 2006; van Nes & Yamu, 2021). Çil (2006) also emphasised that Hillier's approach also has common ground with Christopher Alexander (1977). Alexander equates *'living place'* with successful design. Alexander and Hillier see the value of architectural design in its potential to make individuals understand their collective as social beings. (Forty, 2000). According to theory, if we examine the local, we can understand the global better (Hillier and Hanson, 1984). From this point, Can (2012) explains that *'pattern/local is crucial for appreciating the whole language/global'* (Can, 2012).

According to space syntax theory, buildings and cities are defined as configurations from a spatial perspective. Hence, the spatial configuration of the built environment refers to the spatial relationships that constitute buildings and cities, taking on a certain size and form (Hillier and Hanson, 1984). According to Hillier, human space is beyond individual spaces and simple connections. This structure embeds more complex relationships and is the whole of 'relations that account other relations' (Hillier, 1996a). Consequently, human activity/movement and configuration are the two fundamental components of the method.

Examining the street network as a configuration with the space syntax method is based on the theoretically defined movement theory. Hillier and Hanson (1984) emphasised that the spatial configurations of cities influence people's movement patterns within them. In this regard, Hillier suggested two key points about the relationship between movement and configuration. Firstly, he argued that configuration determines movement distribution and spatial encounters. Accordingly, movement is defined as a way that makes it possible to predict how people will use space. Furthermore, in this context, it is proposed that street configuration not only impacts the movement of pedestrians but also has an influence on the organisation of different land uses (Hillier et al., 1993). The second one is based on the *'movement theory'*. According to this theory, the distribution of urban functions such as residential space, commercial space, and many different land use patterns is based on the relationship between movement and urban pattern. The spatial configuration, which encourages more pedestrian movement, consequently causes an increase in retail and other functional diversity in this area, which depends on pedestrian traffic. As a result, the functional diversity leading from accessibility increases the pedestrian volume again, culminating in a collective increase (Hillier, 1996b).

Based on the two interrelated movement theories described above, the method uses street networks to identify integrated spaces that are easily accessible from the urban

environment and segregated spaces that are defined as more isolated compared to these spaces (Hillier, 1999; Hillier and Vaughan, 2007). Many studies have been conducted to reveal this relationship between pedestrian and vehicle movement and the spatial configuration of the street network, and it has been demonstrated that accessible streets have higher pedestrian movement potential (Hillier et al., 1993, 2012; Chang and Penn, 1998; Hillier and Iida, 2005; Hillier et al., 2007; Peponis et al., 2007; Kubat and Ozer, 2007). In this sense, the method makes it possible to reveal existing potentials or to determine opportunities by evaluating areas with potential together with their current uses (Czerkauer-Yamu and Voigt, 2011; Karimi, 2012; van Nes et al., 2017).

So, how is this theory used as a qualitative tool in the analytical framework? In this context, cities are modelled as a continuous network of spaces where the street network is represented by minimum lines. This model, which allows the city's street network to be examined with syntax methods, is a spatial system that allows movement to all parts of the city. The analysis focusses on the relationship of a street segment to all other street segments and measures how accessible each street is. There are three different definitions of distance measurement within the method framework: topological, metric, and geometric. These three concepts are used to calculate two basic measures defined as integration (closeness) and choice (betweenness) (Hillier and Hanson, 1984; Hillier, 1996a). The mathematical calculations and formulas of these methods will not be discussed. The analysis method and measurements used in this study will be discussed, along with their definitions.

3.4.2. Application of Space Syntax

The analysis of the spatial configuration of the city is basically based on the axial mapping method. The axial map displays the city's street network as straight lines, representing the shortest and longest connections between streets (Penn, 2003; Turner et al., 2005). With axial maps, streets and roads are represented with the longest and fewest lines of sight while also presenting direction changes in terms of visibility with breaking points (Hillier and Hanson, 1984). After the limitations of the axial mapping method were addressed (Peponis et al., 1997; Dalton, 2001), new techniques for representing the street network were developed, and thus, the use of segment lines became widespread. The analysis method called segment angular analysis, which started to be used for accessibility measurement, is based on a principle similar to that of the axial line. However, differently, each axial line is divided into segments at the intersection of the axial lines (Turner, 2000, 2007; Turner et al., 2005) (Figure 3.2).

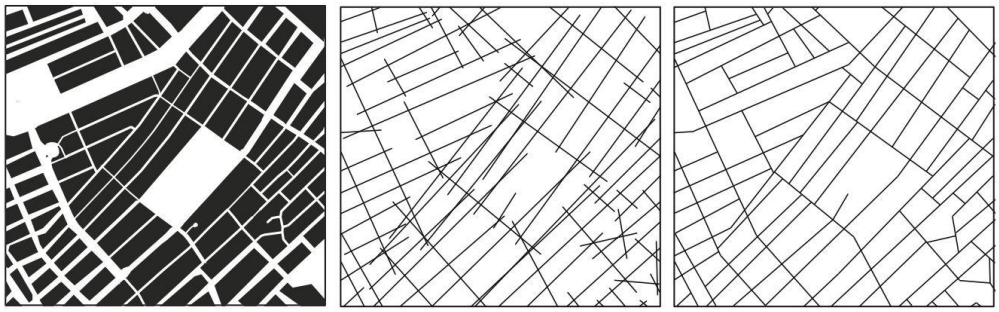


Figure 3.2 Representation of the Ferdinand Bolstraat area in Amsterdam (Source: van Nes & Yamu, 2021*)*

This new segment angular analysis is based on Dalton's (2001) research findings. According to Dalton, 'people tend to conserve linearity through their routes with minimal angle deviation' (Dalton 2001). For this reason, especially when curved roads were represented with an axial map, each direction change was expressed with a different line, which was treated as a junction in the analysis (van Nes & Yamu, 2021). When the street configuration of the city and the case areas examined in this research were considered, it was determined that the angular segment analysis method would be more appropriate. These analyses were performed using the Space Syntax toolkit, developed within QGIS as a plug-in based on Turner's DepthmapX software.

3.4.3. Spatial Accessibility: Integration and Choice Measurements

Space syntax literature describes measuring movement potential in street networks by considering two types of movement in every trip: choosing a destination from the starting point—defined as a 'to-movement' and selecting the route to travel there—defined as a 'through-movement' (Penn et al., 1998; Hillier, 1999; Hillier et al., 2007; Hillier and Iida, 2005). Based on these two main movement types, integration and choice measures are defined by Space Syntax. On the one hand, the measure of integration defines the closeness and calculates the ease of reaching one site with respect to another. On the other hand, the measure of choice refers to betweenness and measures the probability of how one can move from one location to another throughout the entire urban system (Hillier, 1996a; Hillier and Lida, 2005).

Integration measures how many turns are needed to reach all other locations in the urban network from a starting point. It is a good predictor of an area's potential to become a popular destination within a defined radius. Thus, high integration has the potential to attract high movement. Choice measures how often a street segment is passed when using the shortest route between different places in an area. Therefore, the choice measure identifies the streets most likely to be chosen as a potential route

by pedestrians (in a low metric radius) or by vehicles (in a high metric radius), or both (Hillier and Lida, 2005).

Integration and choice measurements can be applied at both local and global scales. Local-scale analysis focusses on the immediate surroundings and measures accessibility to local amenities and sub-centres that impact everyday activities. For example, if the 400-meter radius, estimated as a 5-minute walking distance at the local scale, is analysed, only segments within this area will be calculated. The optimum value for measuring local movement distance has been defined as a radius of 800 meters, commonly equivalent to a 10-minute walking distance. On the other hand, the global scale can be used to determine larger-scale urban movements and main route choices in the context of planning. On this scale, without any radius restriction, the 'n' value can be used, which means reaching all other segments. However, the appropriate radius can be determined in accordance with the purpose of the study without being bound by any restrictive norms (Hillier and Lida, 2005; Turner, 2007; Hillier et al., 2007). In this research, angular segment analyses were performed, and the measurements for integration and choice for different metric radii were applied as 4000 m and n for the global scale and 800 m for the local scale city-wide.

In space syntax, a colour spectrum represents street integration and choice values in map representation. Streets that are most integrated and require fewer directional changes to connect with other streets are highlighted in red and orange, indicating higher accessibility. Conversely, more segregated streets, which necessitate more turns, are shown in cooler tones like blue/green and are often found on the city's edge. This colour coding helps visually distinguish between high and low accessibility within the urban grid, with central areas typically appearing red due to their higher integration and edge areas appearing blue due to their segregation.

Moreover, data obtained from spatial calculations can be correlated with each other. The intelligibility values that define the correlation between local and global integration levels are the most frequently used. Hillier defines the intelligibility value as *'the degree to which what we can see from the spaces that make up the system - that is how many other spaces are connected to - is a good guide to what we cannot see, that is the integration of each space into the system as a whole. An intelligible system is one in which well-connected spaces also tend to be well-integrated spaces. An unintelligible system is one where well-connected spaces are not well integrated, so that what we can see of their connections misleads us about the status of that space in the system as a whole'* (Hillier, 1996a: 94). This explanation means that with a sufficiently strong correlation, the global can be understood from the local. On the other hand, a weak correlation means that the area is segregated from the rest of the city and has a fragmented network of streets. Unlike the results of other measurements, this value is shown not on a map but on a scatter plot (van Nes & Yamu, 2021).

3.4.4. Criticisms of the Space Syntax

The Space syntax method is criticised based on the interpretation process and simplifying complex relationships. According to Osman and Suliman (1995), despite the simple and analytical procedure of the method, the interpretation phase is not that simple. The complexity and subjectivity in the interpretation process of the data obtained as a result of the analysis have been criticized. According to Osman and Suliman (1995), the Space syntax method's simplification of the existing or non-existent connection between spaces in the coding and the visual, auditory, and olfactory connections that may exist between spaces is deficient. Furthermore, the analysis criticises the difficulty in applying the method by stating that furniture is used as a boundary instead of walls in modern houses regarding the interior uses of the analysis (Osman and Suliman, 1995).

Another criticism is that the method does not include the third dimension of space in its analysis. (Ratti, 2004). This fundamental criticism is based on the analysis's simplification of the urban environment's complexity by ignoring building heights and street dimensions. Ratti (2004) also criticizes the analysis's consideration of topological distance rather than metric distance. However, these criticisms have been developed over time with new metric analysis methods added to the method (van Nes & Yamu, 2021).

However, all these criticisms can be developed and improved by working together with other methods, and the method has a strong structured theoretical background beyond the mere analysis tool. Since the 1970s, the theory that investigates the relationship between spatial systems and society has investigated spatial structures at different scales, from housing to cities (Penn et al., 1998). Many researchers in the field of social sciences today use it extensively as a quantitative method due to its objective and repeatable nature.

In this study, the space syntax method was chosen because it is evidence-based and provides rich insight into understanding complex spatial relationships. In this way, different spatial configurations were examined comparatively. As van Nes et al., (2021) points out, space syntax analyses spatial structures, not spatial patterns. Therefore, it is necessary to use other sources and methods to measure other aspects of space, such as place identity and place character, and to develop a comprehensive understanding (van Nes & Yamu, 2021). For this reason, as discussed in the following sections, observation and rhythmanalysis methods were also used as qualitative research methods.

3.5. Observational Method

> *'…please look closely at real cities. While you are looking, you might as well also listen, linger and think about what you see.'*
>
> *Jane Jacobs*

Observation is a fundamental tool for examining public life in urban areas. The observer watches carefully and documents people's behaviour without intervening. In this way, the subtleties of the ordinary and temporary image of daily life are discovered (Gehl and Svarre, 2013). The use of observational methods to capture the relationship between people and urban space is a well-known approach based on studies by William Whyte and Jan Gehl. Whyte (1980) observed how people used streets, public spaces, and sidewalks to understand the reasons for the varying levels of sociability in his study. Gehl (2011) also emphasises through his studies the importance of observing how people interact with spaces and designing buildings and cities that encourage social interaction and support various activities (Whyte, 1980; Gehl, 2011). Observational studies are also important for understanding the identity of place. As Yi-Fu Tuan highlights, since spaces become places when people use them, activities are a major component of place identity (Tuan, 1977). Jacobs (1961) also emphasised the importance of observation for understanding the dynamics of urban life in her seminal work. Although the sense of sight is primary during observation, she also suggests being aware of the surroundings carefully without ignoring the other senses.

Observational studies can be reductive and quantitative, as well as inductive, experimental, and richly descriptive. The type of observation to be determined depends on the scope and objective of the research and can also be carried out in controlled or uncontrolled and structured or unstructured forms (Byrne, 2021). This study primarily emphasises a qualitative and descriptive approach rather than relying on quantitative data.

Structured observation involves recording activities in a controlled and systematic manner within a defined framework of variables such as time, location, and season. On the other hand, unstructured observation is a more flexible and subjective approach. This method accepts the researcher's personal history and biases (Byrne, 2021). From this perspective, the observation conducted in this research can be characterised as a semi-structured observation. The routes and time periods for observation were predetermined; however, a less rigid observational study was carried out, allowing for greater flexibility. Furthermore, the observational explanations are written in a phenomenological way without including any personal interpretations.

The fieldwork in Nottingham lasted almost five months. Four case areas were visited twice before the observation routes were defined. After observation routes were determined and maps were prepared, each case was visited at least four more times

and observation studies were carried out in detail (Table 3.1). Daily life observations were made using photographs, video recordings, and field notes along predetermined routes. One of the most important tools is photographs taken during the observation. Gehl et al. (2013) suggest that *'photographing and filming can also be a good tool for fast-freezing situations for later documentation and analysis. By later studying photographs or film, it is possible to discover new connections or to go into detail with otherwise complex city situations that are difficult to fully comprehend with the naked eye.'* (Gehl and Svarre, 2013, p.31). In this context, the photographs are presented with detailed phenomenological descriptions, and thus, an in-depth narrative is attempted.

Each area was evaluated on its own, and route lengths were determined according to the size of the area and the diversity of the analysis results. The primary purpose here is to gain a general understanding of the types of activities and users that reveal the daily life patterns of the estates. Within the context of the ordinary and spontaneity of daily life, a non-interventional observation method was preferred. This approach allowed for examining spontaneous daily routines and social dynamics without the artificial explanations or biases that interviews or surveys could introduce.

	Aspley Council Housing Estate	Clifton Council Housing Estate	Victoria Centre Flats	Top Valley Council Housing Estate
Visit date	May'2022 March'2023	May'2022 May'2023	June'2022 May'2023	May'2022 May'2023
	2 Weekdays 2 Weekends	3 Weekdays 2 Weekends	2 Weekdays 3 Weekends	3 Weekdays 1 Weekend
Condition	Mostly warm days, no extreme weather condition			

Table 3.1: Selected visit dates and conditions

The university's ethical guidelines specify that studies with a risk of incidental findings must undergo ethical review. However, this research did not fall under such a category, as it involved no personal data collection or identifiable information. This research did not require official ethics approval, as it did not involve collecting personal or sensitive data from individuals. The observational studies did not include interviews, surveys, or direct observations of specific individual behaviours. Instead, the research focused exclusively on the built environment and the general spatial characteristic of public space uses.

3.6. Rhythmanalysis

At the end of Lefebvre's pioneering book, *The Production of Space*, he emphasised the importance of rhythmanalysis in discovering different spaces. Then, in his book *'Rhythmanalysis Space, Time and Everyday Life'* (original title Eléments de rythmanalyse: Introduction à la connaissance de rythme), published in 1992, Henri Lefebvre focuses on understanding and analysing the rhythms of urban spaces and the daily lives of its habitants. This perspective provides a way of analysing the interaction between daily activities and the spatial arrangements that accommodate them. Within the scope of the study, the rhythmanalysis method was applied to examine the patterns of lived space, which covers and overlays the conceived and perceived space. This section will provide an overview of rhythmanalysis, its theoretical background, its use as a tool and its adaptation to this research.

3.6.1. A theoretical Overview of Rhythmanalysis

Firstly, in order to understand rhythmanalysis, the concept of rhythm is to be considered. The dictionary meaning of rhythm is *'a regular, repeated pattern of sounds or movements'* (Cambridge Dictionary, 2024). According to Schelling (1989), rhythm is *'the music within the music'* (Schelling 1989 in Cihanger, 2018). According to Lefebvre, it is not possible to make a 'simple and basic definition' of rhythm. However, he explained rhythm as follows; 'Everywhere there is an interaction between place, time and expenditure of energy, there is a rhythm.' (Lefebvre, 2004, p.15). Instead of presenting a single definition of rhythm, Lefebvre presents some oppositions, such as *repetition and difference, mechanical and organic, cyclical and linear, and quantitative and qualitative* (Lefebvre, 2004, p.9), which describe the characteristics of rhythm in terms of time and space.

In his work, Lefebvre (2004) starts by criticising the way rhythm is understood, pointing out that it can *'easily confuse rhythm with movement, speed, a sequence of movements or objects'* (Lefebvre, 2004, p.6). From this point, he emphasises the concepts of beats and cycles, which refer to repeats, and categorises rhythm into two primary classifications: cyclical and linear repetitions. Although the two definitions are separated in rhythmanalysis studies, they interfere with each other in everyday life. The cyclical comes from the natural and is cosmic. On the other hand, the linear is human and social; the repeated actions and the created spaces are linear. There is a dialectical relationship between these two repetitions that measure each other (Lefebvre, 2004). He explains linear rhythm as *'monotony of actions and of movements'* (Lefebvre, 2004, p.8). This type of rhythm comes from social practices and human activities, and this linear repetition in everyday life is exhausting, frustrating and

tedious. On the other hand, cyclical rhythm belongs to nature and is explained with reference to the human body (Lefebvre, 2004).

> *'Cyclical processes and movements, undulations, vibrations, returns and rotations are innumerable, from the microscopic to the astronomical, from the molecules to galaxies, passing through the beatings of the hearth, the blinking of the eyelids and breathing, the alternation of days and nights, months and seasons and so on'* (Lefebvre, 2004, p.76).

Lefebvre (2004) also developed three definitions that explain the relationship between the rhythm of urban space and the rhythm of the whole: polyrhythmia, eurhythmia and arhythmia. Polyrhythmia refers to the simultaneous occurrence of two or more rhythms that work together without any conflict or disharmony. In order to understand the polyrhythmia, *'It suffices to consult one's body; thus the everyday reveals itself to be a polyrhythmia from the first listening.' (Lefebvre, 2004, p.16).* The term 'eurhythmia', which is a type of polyrhythmia, defines as 'creative interaction' between two or more rhythms in harmony. On the other hand, the term of 'arrhythmia' defines the conflict or dissonance between two or more rhythms.

The concept of rhythm provides a basic understanding of the repetitive patterns and temporalities that shape daily life. In his work *'Critique of Everyday Life'*, Lefebvre describes everyday life as a mixture of nature and culture, history and life, individual and social, reality and imaginary, transit and meeting place, intertwining and conflict point; that is, a level of reality (Lefebvre, 2008). According to Lefebvre (2004), urban space is an area where multiple rhythms in time and space overlap and where repetitive social practices form. At this point, he states that the analysis of urban everyday life, which consists of multiple layers, can only be analysed through a complex and interdisciplinary method. A rhythmanalysis method is a tool developed by Lefebvre to analyse the temporality of everyday life. Lefebvre claims that the interrelation between space and time shapes daily life practices and accordingly suggests rhythmanalysis to reveal the interaction between cyclical and linear rhythms (Lefebvre, 2004).

In conclusion, Lefebvre's rhythmanalysis is an important method that helps us understand the intertwined rhythmic structure of urban space and daily life. How this method is adapted to the research will be analysed below.

3.6.2. Adapting Rhythmanalysis as a Tool for Research

The fact that rhythmanalysis, explained in the theoretical context above, does not have any strict rules has caused it to be interpreted in different ways depending on the discipline and purpose of the study. This situation has sometimes been evaluated as

the potential of the flexibility of the method and sometimes as a limitation due to ambiguity (Merrifield, 2006; Chen, 2017). According to Edensor (2012), *'For rhythmanalysis is a useful tool with which to explore the everyday temporal structures and processes that (re)produce connections between individuals and the social.' (Edensor, 2012, p.2)*

Rhythmanalysis is a method used in different disciplines that is interpreted in different ways, depending on the possibilities it offers, as it is not a single tool with strict rules. Simpson (2012), for example, based his study on rhythm analysis, revealing the rhythm of a selected urban area in Bath, England, using the time-lapse photography method. Wunderlich (2008), on the other hand, emphasised the concept of rhythmanalysis in his study examining urban character by adopting walking as a temporal and rhythmic practice. Koch and Sand (2009) also explore rhythmanalysis as a method for understanding urban complexity, and they explain their aim as to develop rhythmanalysis as a mode, method and theory that focuses on natural, social, and cultural rhythms. In his study, Fen (2012) examined the perception of rhythm as a tool for studies on mobility spaces and emphasised that the rhythm analysis method could be one of the most effective tools in the field of new urbanism. Cihanger (2018) evaluated the data obtained from observation studies on daily life in one of the busiest pedestrianised streets in the city, a topic for fieldwork in her doctoral thesis, using rhythmanalysis and emphasising the concept of spontaneity. In addition, Brighenti and Karralhom (2018), in their study to contribute to developing the rhythmanalysis method as a tool, argued that rhythmanalysis could be enriched with the approach of territorialising them beyond the collecting and analysis factor.

According to Lefebvre's everyday life theory, the production of social space is dynamic and cannot be separated from time. Lefebvre proposed the method of rhythmanalysis to grasp this. Rhythmanalysis is more of an analysis of modern everyday life. In this context, Highmore (2005) defines rhythmanalysis as *'Rhythmanalysis is an attitude, an orientation, a proclivity; it is not 'analytic' in any positivistic or scientific sense of the term. It falls on the side of impressionism and description, rather than systematic data collection'* (Highmore, 2005, p.150).

As can be seen from the sample studies rhythmanalysis as a method has been widely adopted in sociology, geography, and urban studies. Within the scope of the research, the use of rhythmanalysis is a tool for presenting a layered narrative. During the observation studies, observations were made in a *'rhythmanalyst'* manner, in accordance with Lefebvre's description, without being involved in the events but by internalizing them.

> *'...we shall call the 'rhythmanalyst'. More sensitive to times than to spaces, to moods than to images, to the atmosphere than to particular events, he is strictly speaking neither psychologist, nor sociologist, nor anthropologist, nor*

economist; however he borders on each of these fields in turn and is able to draw on the instruments that the specialists use. He therefore adopts a transdisciplinary approach in relation to these different sciences. ' (Lefebvre, 2004, p.87).

As explained within the scope of the research strategy, this constitutes the final phase of the study, which was conducted concurrent. Among the observed routes, the one that most strongly represents the neighbourhood's rhythm was visualised with a layered analysis based on Lefebvre's rhythmanalysis approach. In the scope of the research, rhythms are explained by relating them to more concrete events to reflect an urban experience.

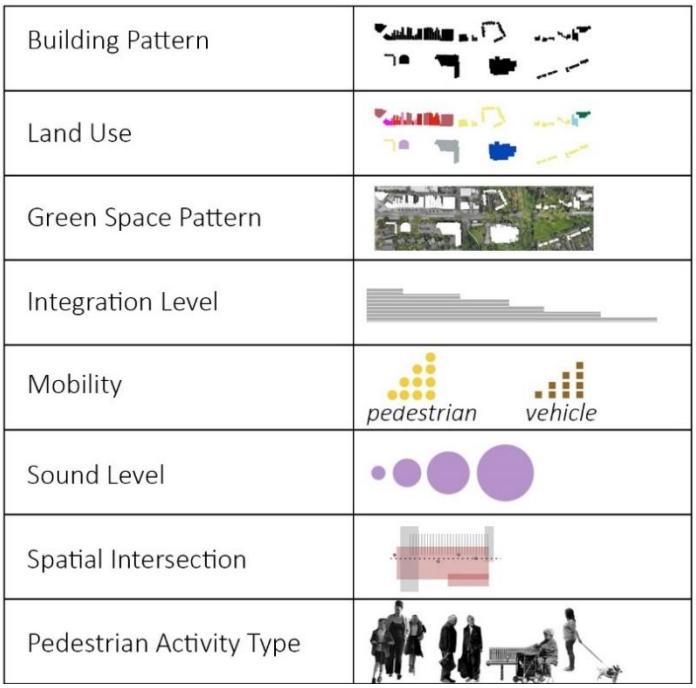


Figure 3.3: Layers of narrative

The details of the layered narrative are outlined in the figure above (Figure 3.3). In this context, spatial and visual analysis methods of the area are presented together with observations covering daily life. The building patterns, land use, green area patterns, and integration levels are identified through mapping and quantitative studies. Along with these, the pedestrian and vehicle mobility data recorded during the observations are also presented, as shown in the figure below. Sound recordings constitute another important layer of the narrative. The sounds recorded during the observation represent important data that further deepens the area's rhythm and reveals the flow of daily life. In order for the sounds to represent both spatial mobility and the intensity of social interactions in the area, they are included in the narration together with other layers by creating a pattern. In addition, the spatial intersections of the area are expressed in a graphical style. Finally, the movement patterns of pedestrians

encountered during observations are included in this layered narrative in order to provide clues about the patterns of everyday life of the case.

Each layer represents a part of urban space that is polyrhythmic in nature, as it contains various rhythms that overlap and interact with each other. However, whether there is a harmonious interaction between these rhythms or not provides data that will lead to the definition as eurhythmia or arrhythmia. Each layer is aimed at capturing the rhythm components of the zone that are not secret but can be heard if you pay attention. As Lefebvre (2004) also stated *'there are no secrets. Everything knows itself, but not everything says itself, publicises itself. Do not confuse silence with secrets!'* (Lefebvre, 2004, p.17). It is important to understand these various rhythms in the area and how they interact to create a harmonious street rhythm and to encourage a more productive urban environment.

3.7. Integration of SWOT Analysis within the Research Methodology

SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis is an analytical framework used to identify strategic directions for a subject of study. In addition to the three primary methods used in this research, a SWOT analysis was conducted to provide a comprehensive understanding of the characteristics of the chosen council housing estates.

The SWOT analysis method, a strategic planning tool developed in the early 1960s, aligns an organisation's internal factors with its external environment (Hill & Westbrook, 1997). Internal factors are assessed through strengths and weaknesses, while external factors are identified as opportunities and threats. While the SWOT analysis has been extensively applied in business, management, and education (Pickton & Wright, 1998; Salar & Salar, 2014), it has also become a valuable tool in the social sciences, particularly for assessing the environmental impacts of urban planning and sustainability research (Salar & Salar, 2014). For instance, Namini et al. (2021) employed SWOT analysis to formulate strategic approaches aimed at enhancing urban liveability in Tehran, thereby demonstrating its applicability in urban management. Furthermore, Soliman (2012) utilised SWOT analysis to investigate informal housing developments and urban integration strategies, offering insights into how governments can transition from being providers to enablers in the formalisation process. The effectiveness of SWOT analysis in urban renewal has been demonstrated in several other studies, particularly in revitalisation strategies for historic urban centres and neighbourhood evaluations (Doratli, Hoskara & Fasli, 2004). Similarly, Ruá et al. (2021) utilised SWOT analysis to identify key vulnerability factors in urban regeneration, supporting decision-making for prioritising refurbishment efforts in socially and structurally disadvantaged neighbourhoods.

In this research, the SWOT analysis approach will be used to systematically synthesise findings from four housing areas, interpreting the results through Lefebvre's theoretical framework. Lefebvre's spatial triad provides a comprehensive framework for understanding the complexity of space production. This triple model highlights the interdependence of spatial dimensions, reinforcing the need for a comprehensive approach to understanding space production. As explained in previous chapters, each dimension is an interrelated part of space production. Focusing on a single aspect in urban planning or renewal and evaluation projects will be inadequate. A more holistic approach to urban analysis and design can be achieved by considering together how a space is physically constructed, how it is designed in planning, and how it is experienced by its inhabitants. From this perspective, SWOT analysis serves as an effective tool for synthesising findings across these dimensions, enabling a comprehensive understanding of both the concrete and abstract complexities of space. By systematically integrating multiple layers of analysis, it provides a structured framework for examining the interplay between physical form, social dynamics, and spatial perceptions, thereby enhancing the depth and applicability of urban research.

Consequently, SWOT analysis not only combines research findings with Lefebvre's spatial triad but also allows for the identification of the strengths, weaknesses, opportunities, and threats associated with each dimension of spatial production. Thus, the research findings are placed in a multidimensional and relational structure in the context of spatial production processes rather than treated as individual data.

3.8. Limitation of the Research

The mixed methods approach and the comparative case study approach provide a useful strategy to increase the data accuracy by triangulating the research and benefiting from the strengths of different methods. However, a detailed examination of each method creates difficulties due to time and resource limitations.

There were some limitations regarding archival studies and the use of secondary sources. While more information and documents were available for the Clifton estate and the Victoria Centre, archival materials and secondary sources were limited for the Aspley estate, particularly the Top Valley estate. Although it was aimed to examine all cases at the same level and depth, the two cases had an advantage over the others in this sense.

Another limitation of the study is related to the timing and conditions of the observation studies. Due to various security concerns and time constraints, the observations were carried out only during the day and in the spring months. Observations made in different seasons and at different times of the day could have provided a more comprehensive portrait of daily life in the area and allowed for more

diverse data. In particular, different season observations could have allowed for a broader understanding of area use dynamics. However, the findings obtained in the current study are based on observations made in a limited time period, and this emerges as another factor limiting the scope of the results.

Finally, although the rhythmanalysis method is structured as a comprehensive research tool, it was used in this study only to examine the daily changes and differences in a specific area. While rhythmanalysis can be applied to a wider area, in this study, it was limited to a narrow framework and focused on daily changes in the observed areas and was limited as a tool to explain the results of these changes. While this meant that the full potential of rhythmanalysis may not have been used, it did provide important insights into the overall aim of the study.

PART II

CHAPTER 4 COUNCIL HOUSING SURVEY IN NOTTINGHAM

CHAPTER 5 CASE STUDIES

4

COUNCIL HOUSING SURVEY IN NOTTINGHAM

4.1. Introduction

This section aims to discuss the development of council housing estates in Nottingham. In this context, the history of council housing in the country, which was examined in detail in the first chapter, will be examined with a special focus on the city of Nottingham. Unlike Chapter 1, this chapter's main focus will be on spatial development rather than political and social issues. Hence, the development of housing estates within the city will be presented, and the main stages that shaped these developments will be highlighted. Then, a detailed space syntax analysis of the spatial configuration of the city in four separate years will be given, and changes in urban form will be shown. In this stage, the results of the analysis will identify the main spatial elements that affect the changing movement patterns with the growth of the city, especially the effects of housing estates on the spatial configuration of the city.

4.2. Overview of the Historical Development of Council Housing Estates in Nottingham

The city's rapidly increasing population from the end of the 18th century to the beginning of the 20th century effectively shaped Nottingham's urban pattern. In 1911, the city population reached 259,901. During the 20th century, the city population

increased by only 1.4%, reaching 263,522 in 1991 (Giggs, 2006). The effects of population growth, industrialisation, and urbanisation were among the most important determinants of the 20th century. Giggs (2006) summarises the transformation of this period as follows: *'If rapid population growth was one of the hallmarks of nineteenth-century Nottingham, suburbanisation has been its successor.' (Giggs, 2006, p.435).* This statement emphasises the pressure created by rapid population growth in urban development processes and the importance of the suburbanisation movement.

This unprecedented growth in Nottingham's population accelerated from the late 18th century onwards but was ended by the First World War. The war changed the dynamics of urban growth and halted this steady rise in population growth (Thomas, 1968; Giggs, 2006). Although there were around 5,000 vacant houses in Nottingham in 1914, under the conditions of the war years, all habitable houses were rented out by 1918. From 1915, the regulation of the closure of repairable houses was suspended, and by 1918, all demolition work had ceased because of the lack of alternative housing. In the pre-war period, over 7,000 working-class houses were reported to be in poor condition. By 1921, the housing problem had reached such a point that the closed houses were reopened, and only 114 houses were built between 1919 and 1922. This picture of the city's housing problem necessitated a stronger intervention by the state in housing policy (Hayes, 2006).

4.2.1. Inter-War Period

As a result of the rapid pre-war population growth, Nottingham, like many other British cities, had a housing pattern dominated by unhealthy slums. With the construction of council housing that began after the First World War, the city became one of the most important local authorities producing housing during the inter-war period. Although under the Conservative Council, which produced more market-oriented policies (Broxholme, 2013), the city's council housing production in this period witnessed significant developments, to the extent that Emrys Bryson ambitiously described it as *'pride of the empire'* (Bryson, 1974). A total of 17,095 council housing units were built in different parts of the city during this period (Matthews, 2019). With the residential area doubling in just twenty years (Giggs, 2006), the city was now characterised by council housing dominated by a suburban settlement pattern.

Raymond Unwin, famous for his Garden City in Letchworth and Hampstead Garden Suburb, praised the housing built in the city during this period. The city's housing schemes were recognised as a model and were cited not only in local but also in national government circles as a progressive example of the period (Broxholme, 2013).

Estate	Number of Dwellings	Year of construction
Stockhill Lane	224	1920-21
Sherwood	1087	1920-27
Gordon Road	212	1920-23
Highbury Vale	675	1921-27
Wollaton Park	1011	1926-29
Windmill Lane	222	1926-28
Lenton Abey	880	1926-28
Cardale Road	299	1927-35
Bulwell Hall	804	1928-30
Aspley	2838	1930-32
Colwick Hill	329	1932-33
Heathfield	564	1932-33
Whitemoor	584	1931-33
Bells Lane	922	1932-33
Southwold	311	1932-33
Sneinton Dale	489	1934-35
Edwards Lane	650	1936-37
Broxtowe	1908	1935-39
Bilborough	686	1935-37
Bestwood	1137	1937-39

Table 4.1 The Council Housing Estates Built 1919-1939
(Source: Matthews, 2019)

Table 4.1 above gives the council housing settlements built in the city during this period. As can be seen, many settlements of varying sizes were built. These settlements were constructed in accordance with the planning and design principles established within the Tudor Walters report. All estates are designed in accordance with garden city principles, with two floors, gardens, and low density.

The first estate to be built during this period was Stockhill Lane, a 224-house, which was built in 1919. Another important estate of the period was the Wollaton Park Estate, designed by city architect T.C. Howitt. Another important feature of this estate is its construction system. This settlement was built more quickly and at a lower cost, with concrete walls supported by a steel frame, and it is one of the most important achievements of the period (Matthews, 2019).

The designs of the houses have a single-plan type, although there are some differences. The radial road systems are apparent in the residential plans; regular geometric shapes such as circles or ellipses are also seen (Figure 4.1). These houses, which were constructed following the Tudor Walters report, are considered to be quite good compared to the old houses, despite many criticisms. Although most of the time

there are basic facilities to meet the daily needs of the users, these settlements have been segregated physically and socially from other neighbourhoods. In fact, the smaller-scale settlements of Sherwood, Highbury Vale, Windmill Lane, Gordon Road, and Stockhill Lane, which were built earlier during this period, were built as extensions of existing communities. However, later settlements such as the Aspley estate and Bilborough estate were physically and socially completely separated from the rest of the city (Thomas, 1968).

Lenton Abbey	Bells Lane	Broxtowe

Figure 4.1 Different estates' street pattern reflects the characteristics of the period with a distinct geometric form.

As a result, the construction of council housing in Nottingham in the post-war period caused the city to change dramatically. The housing estates built from 1919 onwards, combined with housing policies at both local and national levels, resulted in a more planned settlement pattern based on garden city principles, moving away from unhealthy slum areas. Although the houses built during this period had the facilities to meet basic needs, they were physically and socially isolated from other parts of the city. However, the fact that the city received praise for its architecture and planning during this period indicates the successful implementation of social housing policies of the period.

4.2.2. Post Wars Period

Regarding the post-war period, especially during the first 15 years, policies, subsidies, and mechanisms for council housing building continued similarly to the inter-wars period. As discussed in detail in Chapter 1, the Dudley Report, which determined the housing standards of this period, contained some fundamental differences in terms of planning scale despite being prepared within the basic principles of the Tudor Walters report (Ravetz, 2003).

Estate	Number of Dwellings	Year of construction
Bulwell	154	1945
Beechdale	565	1945-46
Gingerhill Road	100	1946
Rodwell Close	42	1946
Whitemoor	46	1946
Ainsley	228	1946-48
Aspley	262	1947-48
Bestwood	214	1947-49
Bestwood	166	1948-50
Broxtowe	374	1948-50
Bilborough	2881	1947-52
Firbeck	184	1947-49
Walker Street	201	1948-49
Clifton	6860	1951-59
Fernwood	384	1951-53
Strelley	686	1950-56
Bestwood Park	3057	1959-67
Denman Street	357	1960-67
Sandhust Road	210	1962-64
Sneinton	442	1964-67
Sherwood Station	180	1965-66
Willoughby Street	480	1966-68

Table 4.2 The Council Housing Estates Built 1945-1969
(Source: Matthews, 2019)

The table above lists the council housing built in Nottingham during this period. Among the settlements built in Nottingham during this period, it is possible to trace the New Towns planning principles in the last major housing areas of the city (Giggs, 2006), Clifton, Bestwood Park, and Bilborough council housing estates, especially in terms of their scale. The most obvious feature that distinguishes this period from the previous one is the limited spatial diversity in these areas, which are planned in less formal forms rather than the strict geometric forms of the settlements built in the interwar period. Southchurch Road in Clifton estate, Bracebridge Drive in Bilborough estate, and Flamsteed Road in Strelley estate are the main streets, with spatial diversity planned under the influence of this new arrangement (Figure 4.2).

Figure 4.2 Streets offering limited spatial diversity in Clifton, Bilborough and Strelley estates, respectively (Source: Google Earth)

4.2.3. High-Rise Building Period and Developments up to the 1980s

Following the construction of the city's last large-scale housing estates, such as Clifton and Bestwood Park, smaller-scale housing developments began. Furthermore, after the long and challenging process of boundary expansion required for the development of the Clifton council housing estate in particular, the Housing Department decided to focus on building within the existing boundaries of the city and began to consider high-rise buildings (Matthews, 2019).

In the 1960s, a new era of council housing construction began, marking a shift in both design and urban planning approaches. Like many other cities in the United Kingdom, Nottingham saw the rise of housing developments incorporating the architectural approach of this period. One of the most prominent architectural features of this period was the '*deck access*' housing style, where apartments were accessed via

elevated walkways rather than traditional street-level entrances. Ravetz (2003) notably critiqued the housing of this era, describing it as one of the least successful phases in council housing design. He characterized it with *'…peculiar horrors of interlocked dwellings, public walkways over domestic ceilings, and ground levels given to stores and parking space…'* (Ravetz, 2003, p.188). While innovative at the time, these designs soon revealed various technical and social challenges. Poor construction quality, safety issues, and community isolation meant that many of these developments quickly fell into disrepair (Ravetz, 2003). The Hyson Green, Basford Flats, and Balloon Woods (Figure 4.3) estates, built in Nottingham during this period, are prime examples council housing estates. These estates were built in the 1960s and then were demolished in the 1980s (Matthews, 2019).

Hyson Green *Basford Flats* *Balloon Woods*

Figure 4.3 The deck access blocks (Source: picturenottingham.co.uk)

As Matthews (2019) notes, a third of the houses built in Nottingham during this period were high-rise. Lenton Flats was one of the most important examples of tower blocks built in the city (Figure 4.4). The decisions made in the political and economic context, as well as successive housing acts, have directly shaped the city and its settlements. The 1956 Housing Act rearranged financial support for housing construction, announcing that high financial support would only be given for multi-storey blocks and one-bedroom houses resulting from slum clearance (Burnett, 1991). Under these conditions, efforts were initiated to address the inadequate housing conditions within Nottingham City's Lenton area. Following the clearance of the slum area, the area saw the construction of five multi-storey blocks (Oldfiled, 2003). In 1965, the construction of five tower blocks at seventeen storeys containing a total of 480 residences was started, and all blocks were completed in 1967 (Matthews, 2019). The Lenton blocks were an important example of Nottingham's post-war slum-clearing initiative. Once a source of pride for the city, however, it was one of the high-rise block estates that was decided to be demolished due to the technical and social problems and maintenance costs encountered over time. Another reason why this area is important is that after

the demolition of the high-rise housing, social housing was rebuilt in the same area in the 2000s. Thus, the area has been restructured twice. First, the process of slum clearance house area and replacing it with high-rise housing, then the demolition of these high-rise housing units, was completed in the 2000s with the construction of a new housing area supported by user-participatory design processes within the framework of sustainability principles. This process is notable in showing how council housing construction has evolved.

Lenton 1950s *Lenton 1977* *Lenton 2023*

(Photo source: author)

Figure 4.4 Housing estates in the Lenton area in three different periods (slum area, high-rise housing and today's mixed development)
(Source: picturenottingham.co.uk)

In addition to Lenton Flats, Victoria Centre Flats is also one of the important projects that changed the city's landscape during this period. It is one of the city's iconic structures thanks to being built together with a shopping centre and its central location. On the other hand, Woodlands Flats (formerly Radford High Rise), whose technical infrastructure was improved thanks to the renovation works carried out by the city council in the 1990s and whose social problems were overcome by the decrease in crime rates, stands out as another example of the period (Matthews, 2019). These buildings are important examples of the city's legacy of high-rise council housing that has not been demolished and is still in use.

From the 1960s onwards, increasing discontent with high-rise blocks, especially after the 1968 Ronan Point disaster, led to the end of the era of high-rise housing construction (Burnett, 1986). Nottingham's high-rise construction period, which had already continued at a lower rate compared to other cities such as Sheffield, Liverpool and Birmingham, thus ended (Matthews, 2019). The government's policies returned to a period of slum clearance and low-rise housing construction. In this context, after the area where the old Victorian houses were located was cleared, a settlement with a street structure that separated pedestrian access and driving paths following the planning approaches of the period was built in The Meadows area (Oldfield, 2003;

Alvarez, 2018). In the same period, one of the city's last large-scale council housing settlements, Top Valley Estate, was built. This site, situated north of the Bestwood area, stands out as one of the last examples of the council's housing policies (Giggs, 2006). It reflects the significant changes in housing policies that occurred in the 1960s and onwards, as well as the city's tendency towards north expansion.

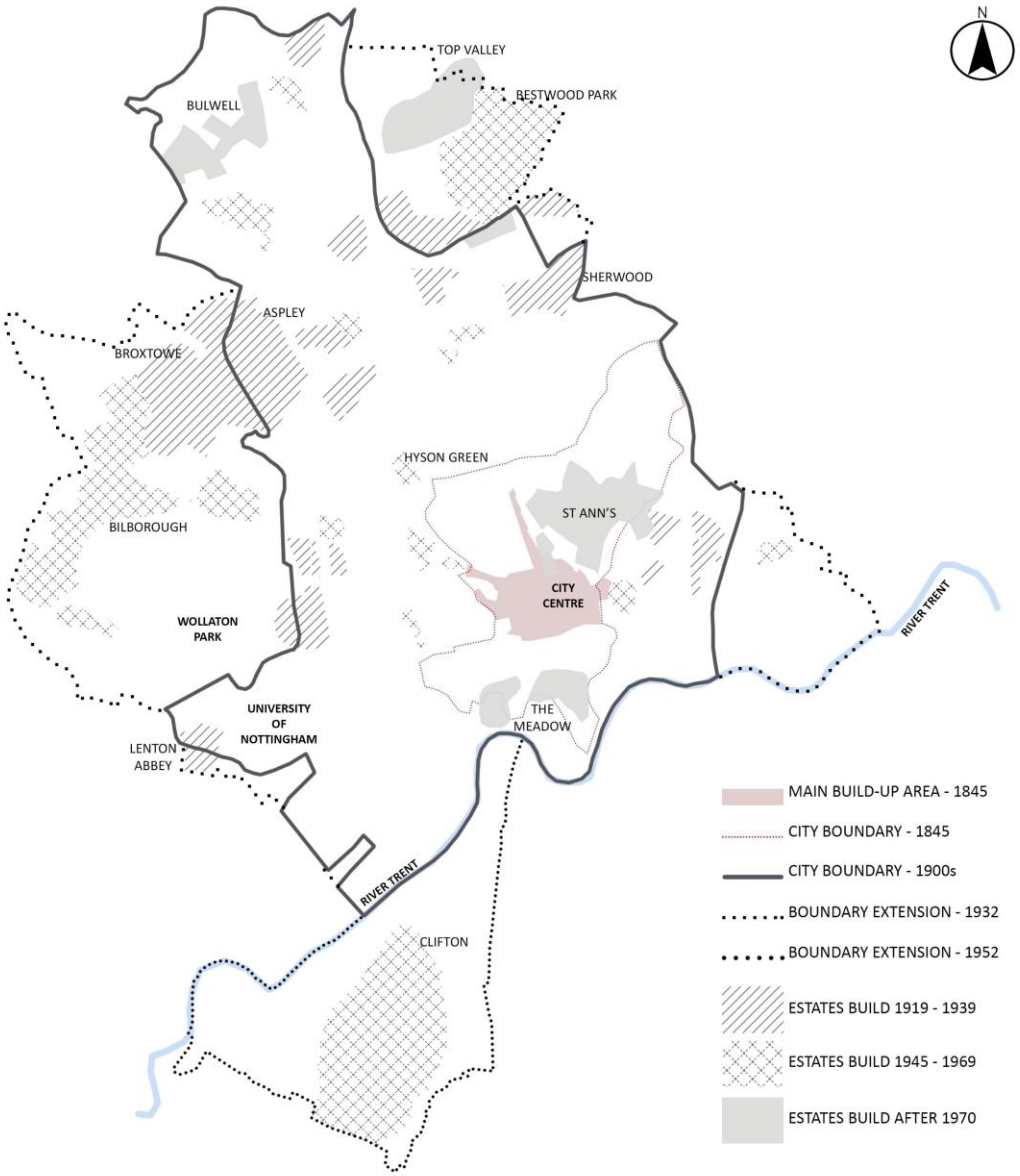


Figure 4.5 Council housing estates and expansion of city boundaries
(Drawn by the author using sources Thomas, 1968; Giggs, 2006; Beckett,2006)

As a result, 32,551 council housing units were built in the city between 1945 and 1981, and by 1981, 49.8% of the city's households lived in council-rented houses (Thomas, 1968; Giggs, 2006). The phenomenon of council housing, which has brought about such significant changes in the spatial pattern of the city and the lives of its citizens,

continues to shape people's lives today. These housing projects not only provided much-needed affordable homes but also played a critical role in urban expansion, particularly during the 20th century. The map above in Figure 4.5 illustrates the council housing areas discussed and the expansion of the city's borders to its present state. This figure highlights how the city's spatial development has evolved in relation to the construction of council housing estates. The clear correlation between the city's expanding borders and the development of council housing offers a way to understand the spatial changes that have shaped the city.

4.3. Spatial Analysis of Nottingham: Syntactical Growth Processes

Until this section, in the context of the history of Nottingham's urban development, the importance of council housing areas built from the 1920s to the present has been discussed in this chapter. Within the context of the city's street network history, the development of the city's spatial layout and council housing areas will be analysed with the space syntax method over three historical time periods and today's maps, and an analytical model will be discussed. This section has two main purposes: to understand the historical development of the city's street network and to examine how council housing areas have affected the spatial integration of the city over time. The city-scale analysis was performed across four periods: the 1900s, 1940s, 1970s, and contemporary (Figure 4.6). While the previous section discussed the development of council housing estates under three distinct headings, this section begins by examining a 1900s map. The aim is to explore the urban pattern before the construction of council housing and the extension of city boundaries in 1932. Each of these determined years marks periods of significant changes in terms of the growth of the city and the construction of council housing estates. Hence, four different maps over periods are evaluated with the integration and choice analysis results in different radii using the space syntax method.

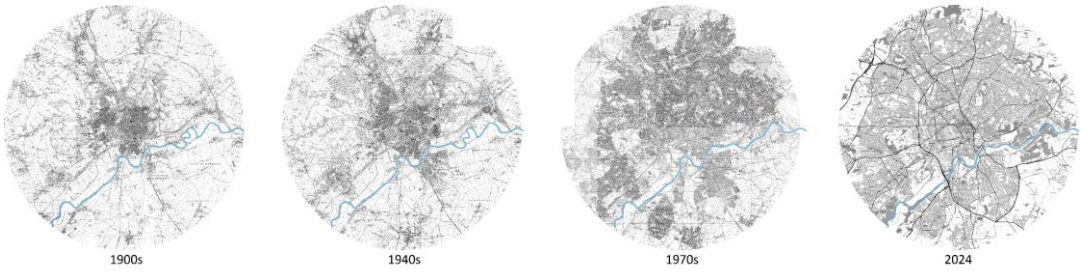


Figure 4.6 Spatial transformation of Nottingham from 1900s to 2024 (Source: DigiMap)

To perform spatial analysis of the city, first, the current road centre line map of the city was obtained from OpenStreetMap, and necessary cleaning works were carried out on

the map to indicate each street with a single line. Then, the maps of the determined historical years were downloaded from the Historic Digimap website, and the road network was drawn. After preparing the street networks, all maps were realised in the QGIS program using the Space Syntax toolkit, which was developed as a plugin based on DepthmapX software.

In the context of this study, the expansion of the administrative boundaries of the city is important for understanding the development of the council housing estate. However, in the context of understanding the spatial configuration and movement patterns of the city and its immediate surroundings, the boundaries are invisible. Therefore, in all historical years and the current situation analysis, the city and its surroundings are considered in line with the determined radius.

The current situation at the city scale is analysed using a model covering an 8 km radius of the city centre. It created a sufficient buffer zone to prevent edge effect problems and incorrect results. Hence, the city-scale analysis covers a model of 8 km (4 km + 4 km buffer zone) from the city centre.

4.3.1. Nottingham-1900s

During the 18th century, Nottingham encountered considerable difficulties in accommodating its expanding population due to the lack of available land for new housing. The surrounding lands were not included within the city's boundaries, resulting in severe overcrowding within a limited space. In 1841, approximately 52,200 people lived in the same area where 17,200 people lived in 1780 (Beckett, 2006) (Figure 4.7).

Figure 4.7 Nottingham, 1831 (Source: Matthews, 2019)

Figure 4.8 Typical terraced house layout and grid street configuration, Sneinton 1900 (Source: Historic Digimap)

This situation continued until the city expanded its boundaries in 1877. Sneinton, Lenton, Radford, Basford, and Bulwell, incorporated within the city boundaries in 1877, were developed with rows of terraced houses by the 1900s (Wilson, 1970) (Figure 4.8).

This situation can be considered a significant pivotal moment as it reshaped the urban landscape and determined the street configurations that would characterise the city in the 1900s.

The analysis in Figures 4.10 and 4.11 shows the segment map of Nottingham and its surrounding area from the 1900s. Both integration and choice analyses were performed at global and local scales (Rn and R800). The global integration analysis revealed that the historic city centre has very strong accessibility. On the other hand, within the city centre, which is clearly framed by Gregory Boulevard to the north, Radford Boulevard to the west, and Lenton Boulevard to the south, The Park Housing Estate, located in the southwest of the city centre, contrasts with its low density and low integration value within the most integrated area, shown in Figure 4.9. In addition, the Sneinton district in the east of the city, built after the extension of the city boundaries in 1877, has a much lower integration value than the Radford district despite having similar street configurations.

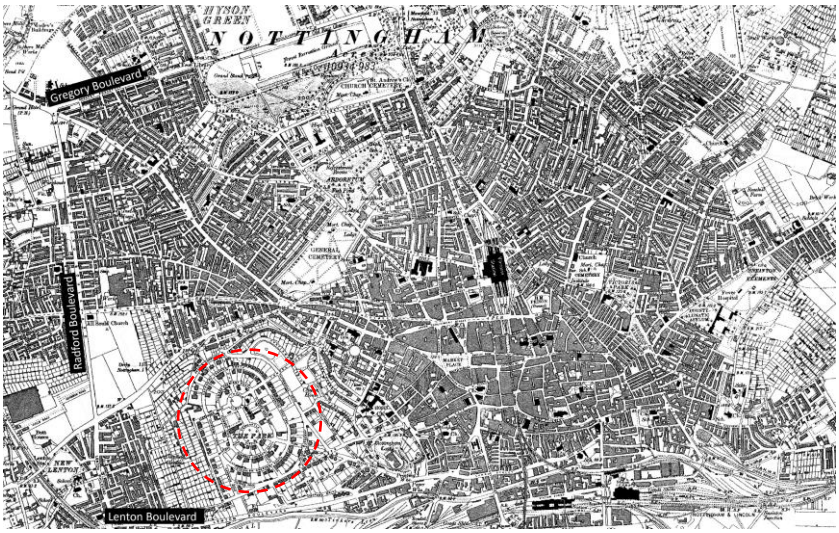
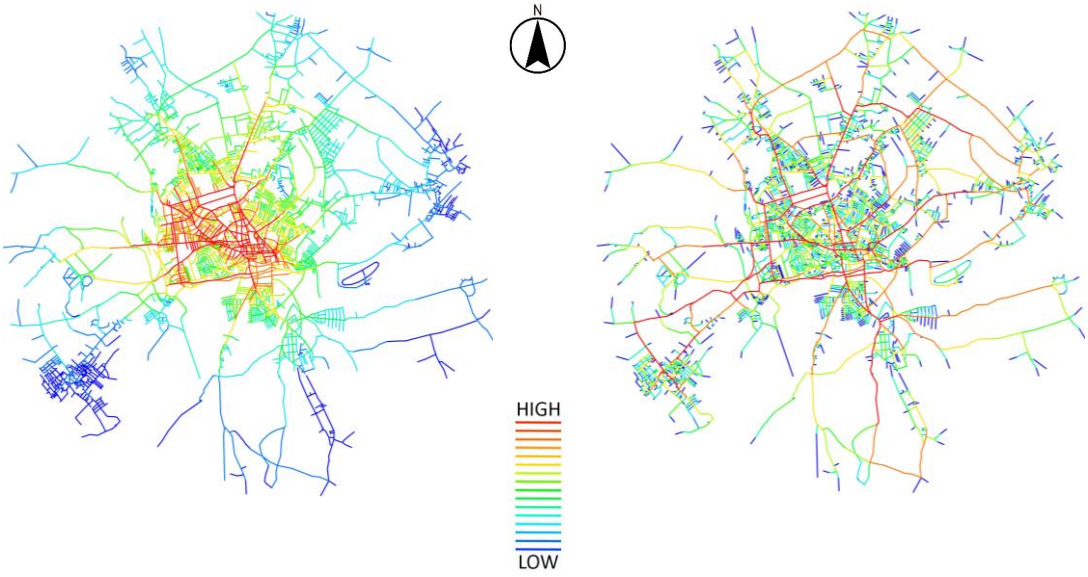


Figure 4.9 A highly integrated street network with a high-density area of the city centre of the 1900s - bounded by Gregory Boulevard to the north, Radford Boulevard to the west and Lenton Boulevard to the south (Source: Historic Digimap)

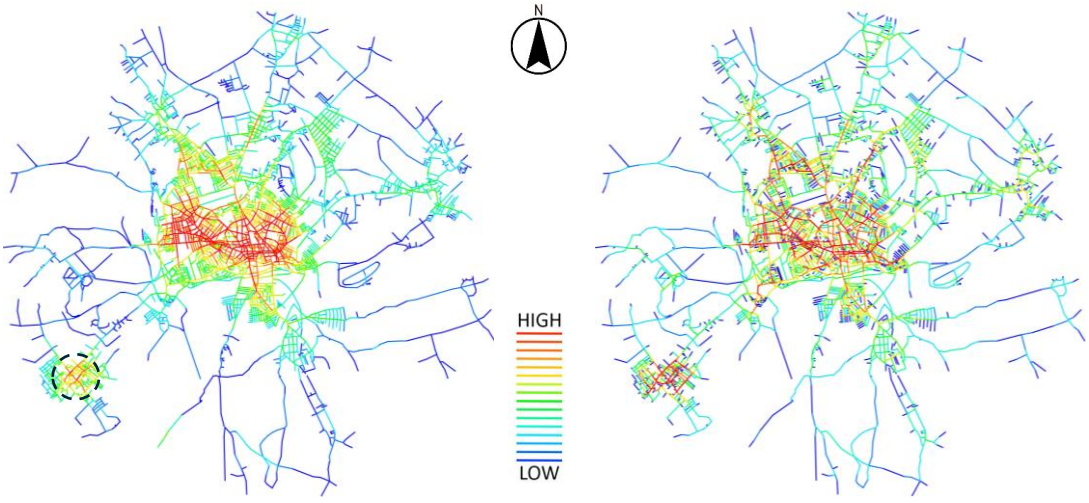
The results of the integration and choice analysis clearly show the city's growth direction. The global choice analysis shows the city's main roads with intense movement potential. As a result of both global measurements, Nottingham's city centre has a pattern of expansion mainly in the north, west, and northwest directions.



Global Integration *Global Choice*

Figure 4.10 Nottingham 1900s street network global analysis

On the local scale, it is seen that the city centre has a high integration value around a more linear axis running east-west, unlike the global scale. Besides the city centre being the most integrated area, in the southwest of the city, the Beeston region, outside this city boundary, differs from the rest of the city with its high local integration value. This area also draws attention to local choice analysis due to its well-connected street network and strong movement potential. In addition, in the north, red streets with high integration that have the potential to form a sub-centre can be seen.



Local Integration *Local Choice*

Figure 4.11 Nottingham 1900s street network local analysis

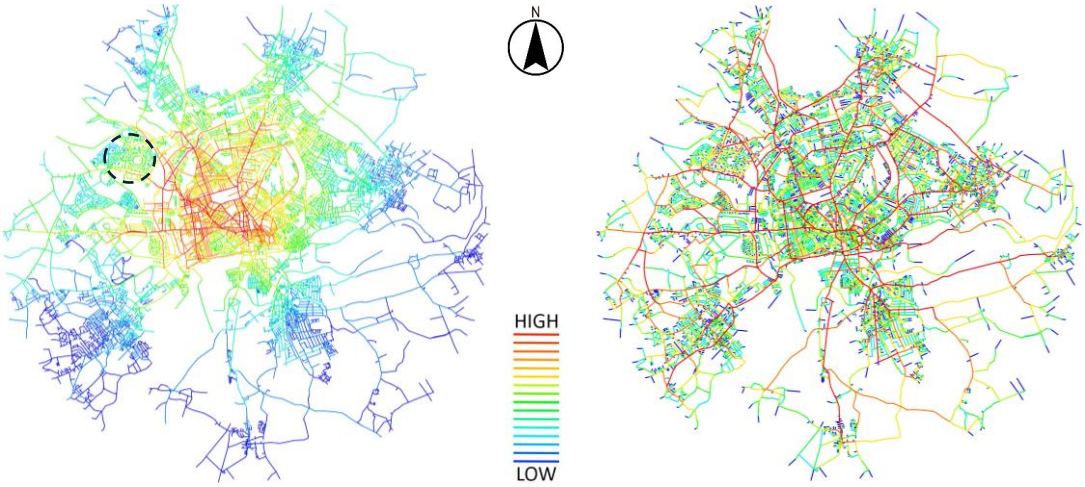
On the other hand, it is evident that the southern part of the city is more segregated than the northern part, both globally and locally. The literature states that transport infrastructures, such as railways and motorways, as well as natural barriers like canals

and rivers, can create physical divisions within urban systems, leading to reduced mobility and diminished social cohesion by isolating communities (Anciaes et al., 2016). In this context, it can be argued that one of the primary causes of this segregation is the city's boundaries and the natural barrier effect of the River Trent on urban development.

4.3.2. Nottingham-1940s

The street network of Nottingham changed with the expansion of the city boundaries in 1932 to construct council housing following the First World War. From 1919 to 1939, the city's residential area doubled in size (Giggs, 2006). In this context, the city's 1940s map was analysed to examine the effects of the council housing developments of the inter-war period on the city's street network.

When the analysis results made on the maps of the 1940s are examined, it is possible to say that the northwest-oriented integration model of the city has become more dominant. The northwest part of the city, which developed as a residential area with the inclusion of Aspley estate, Broxtowe estate, and its surroundings in the city borders to build council housing estates in the 1920s, is also compatible with the map indicating the direction of the city's growth in the global integration maps of the 1900s (Figure 4.12).

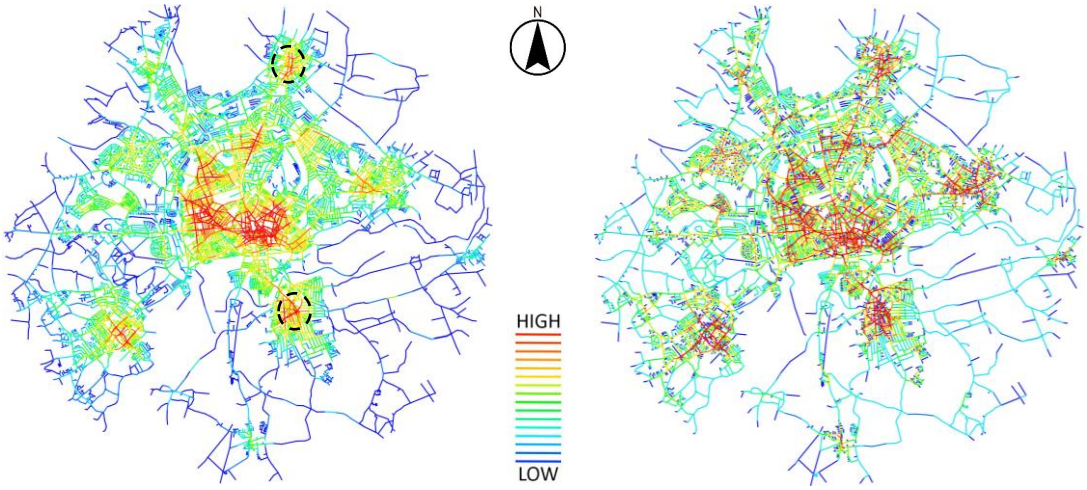


Global Integration *Global Choice*

Figure 4.12 Nottingham 1940s street network global analysis

Although the south of the city centre has a low integration value globally, the integration within a local radius of 800m (Figure 4.13), the West Bridgford area, has the potential to be defined as a strong sub-centre at the local level. Furthermore, based on the findings of the global choice analysis, strong main routes link this region to the city core. Like West Bridgford, the Arnold area, north of the Nottingham city

boundary, has high local integration. On the other hand, locally, decentralised growth is observed in the areas of low-density council housing in the north-west of the city. Although the main routes with high values in the global integration and choice analyses connect these areas to the city centre, the spatial configuration of these newly constructed areas shows that they are not sufficiently integrated with the rest of the city and do not have the potential to form a local sub-centre.



Local Integration *Local Choice*

Figure 4.13 Nottingham 1940s street network local analysis

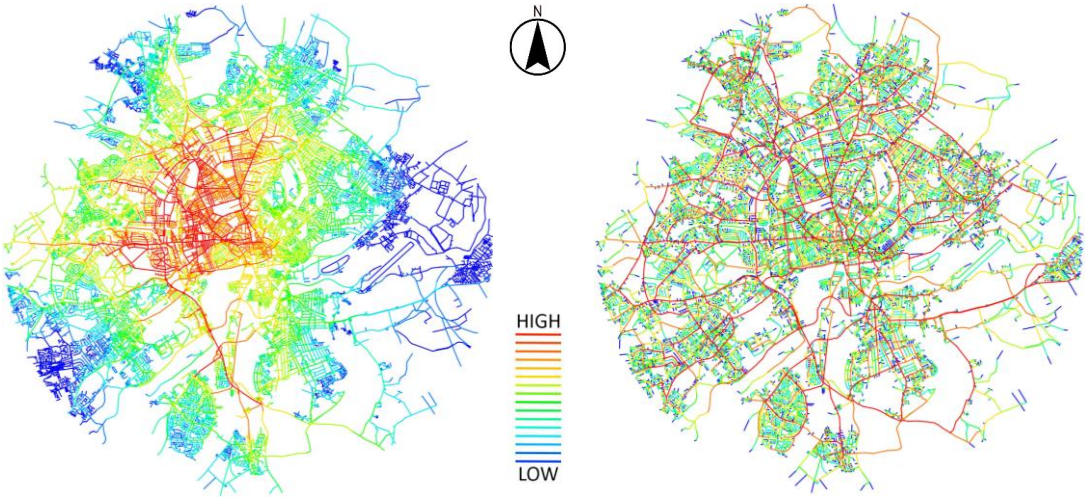
This new council housing estates' spatial pattern offers a more isolated living pattern away from the city centre. As Giggs (2006) stated, the city of Nottingham has experienced significant changes in its settlement layout and its people's living and working cycles since the 1920s. The city's once tight and connected structure has loosened due to the unpredictable growth of housing areas. Workplace-residence connections have differentiated and weakened.

4.3.3. Nottingham-1970s

By the 1940s, with the construction of council housing estates in the northwest of the city, it was clear that a rapid urban development process had begun in this area. However, increasing demands for the city to be expanded south of the River Trent began to put pressure on the municipality. In response to these demands, an application was made in 1948 to expand the city boundaries. However, this application was rejected by the Ministry because the municipality did not provide the necessary cooperation. After the necessary improvements and arrangements were made, an application was made again in 1950, this time expanding the city boundaries and including the Clifton-cum-Glapton agricultural lands south of the River Trent within the city boundaries for new housing development projects (Ewen, 2000; Matthews, 2019). As a result of this expansion, significant changes have occurred in the spatial configuration of the city.

Figure 4.14 Clifton Bridge, constructed in 1958 (Source: www.picturenottingham.co.uk)

The results of the analysis of the city map in the 1970s reveal significant spatial changes when compared to the analyses in the 1900s and 1940s. In contrast to the general integration structure of the city, a remarkable linear axis was formed in the spatial configuration of the city with the expansion of the southern borders in the 1950s and the construction of the Clifton Bridge (Figure 4.14) connecting this area to the city centre. According to the global choice results of the space syntax analysis, this axis has become one of the main transportation routes with high potential vehicle mobility. This situation shows that the spatial network expanding towards the south of the city increases vehicle mobility and access potential (Figure 4.15).



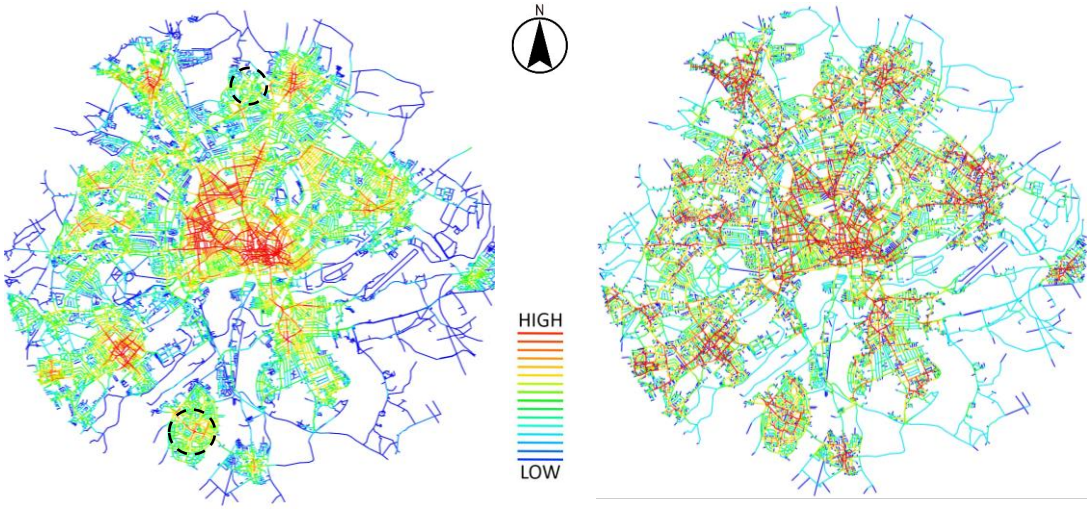
Global Integration *Global Choice*

Figure 4.15 Nottingham 1970s street network global analysis

The core integration centre of the city, as in previous periods, maintained its importance in the 1970s. However, with the expansion of the city, the integrated street networks connected to this central axis spread over a wider area. In particular, the

city's environmental development continued with the construction of large housing projects such as the Clifton housing estate in the south and the Bestwood Park estate in the north between the 1950s and 1970s. It is clear from global integration analyses that these areas are quite segregated in terms of global integration (Figure 4.15).

However, unlike the housing projects built during the interwar period, these new housing estates have higher values in terms of local integration (Figure 4.16). Local integration analyses show that these areas have the potential to have more active street networks, indicating that these areas can make significant contributions to daily life and local mobility. This indicates that the potential for social interaction and mobility in the expanding areas of the city supports the dynamism of urban life in a way different from previous periods.



Local Integration *Local Choice*

Figure 4.16 Nottingham 1970s street network local analysis

4.3.4. Nottingham-Contemporary

As the city boundaries remained and the construction of large residential areas gave way to smaller-scale areas within the city, street configurations changed less than in previous periods. In examining the city's current spatial configuration, the analytical results of the 1970 city map and the current map reveal similar integration patterns. The city's spatial structure appears to have retained certain foundational elements present during the mid-20th century. Moreover, despite substantial urban expansion and the development of new areas from the 1900s onward, the historic city centre has remained the primary focus of urban activity and spatial integration.

When the global integration map (Figure 4.17) of the city's current spatial organisation is examined, it is seen that the main roads extending from the city centre to the north, northwest, and west dominate global integration. As is clearly seen, the west of the city centre has higher integration at the global level than the east. This spatial

dominance highlights the Western Boulevard, which determines the border of the highly integrated areas of the city. Western Boulevard and the lines extending south and north draw an arc, indicating the border of a significant integration change. However, this sharp distinction in the west of the city is not seen in the east. The significant differentiation between the western and eastern parts of the city in terms of global integration reflects the historical and social processes that shaped the city's development. The eastern part, which is more deprived of connectivity and movement compared to the western part, continues to be less integrated; this may indicate differences in urban development, socio-economic factors, and investments in infrastructure over time. In addition, the Top Valley council housing estate and the Rise Park mass housing area (marked on the map), built in the north of the city after the 1970s, demonstrate their globally segregated structure.

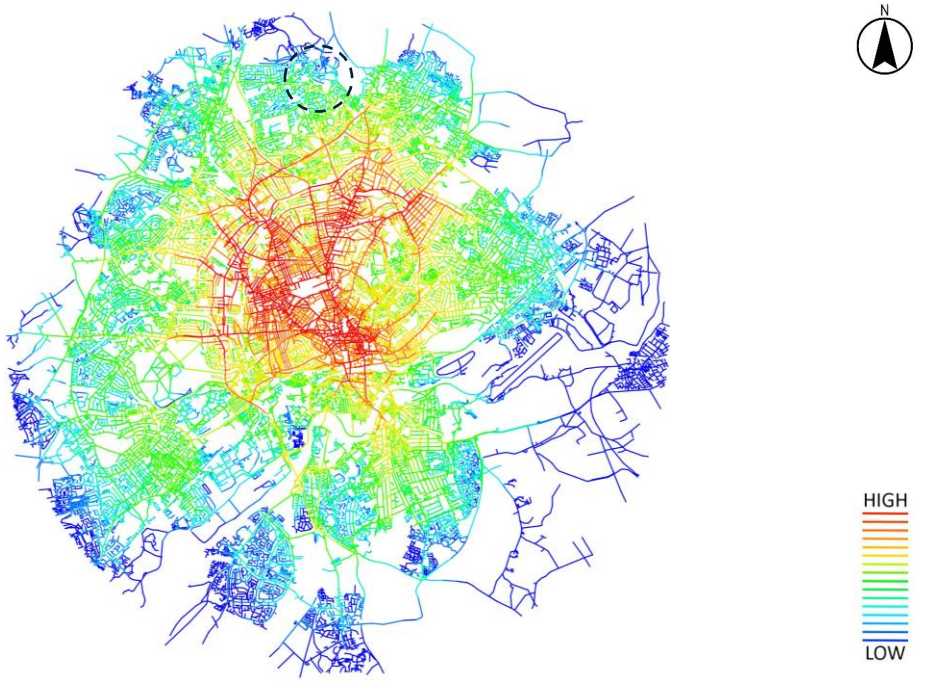


Figure 4.17 Global integration analysis (R4000)

A similar pattern to previous years continues locally (Figure 4.18). When the local integration analysis is repeated in terms of movement within a 5-minute walk within a radius of 400m (Figure 4.19), it is seen that the city centre still has high integration. The Victoria Centre, its immediate surroundings, and the pedestrianized area of the city are especially in the red range. In addition, the north-west of the city, where interwar housing areas are densely located, becomes more segregated as the radius decreases. This situation reveals that the northwest has a more isolated pattern on a local scale compared to the entire city, which can be considered a feature that can affect the accessibility levels of the area in the social and spatial context.

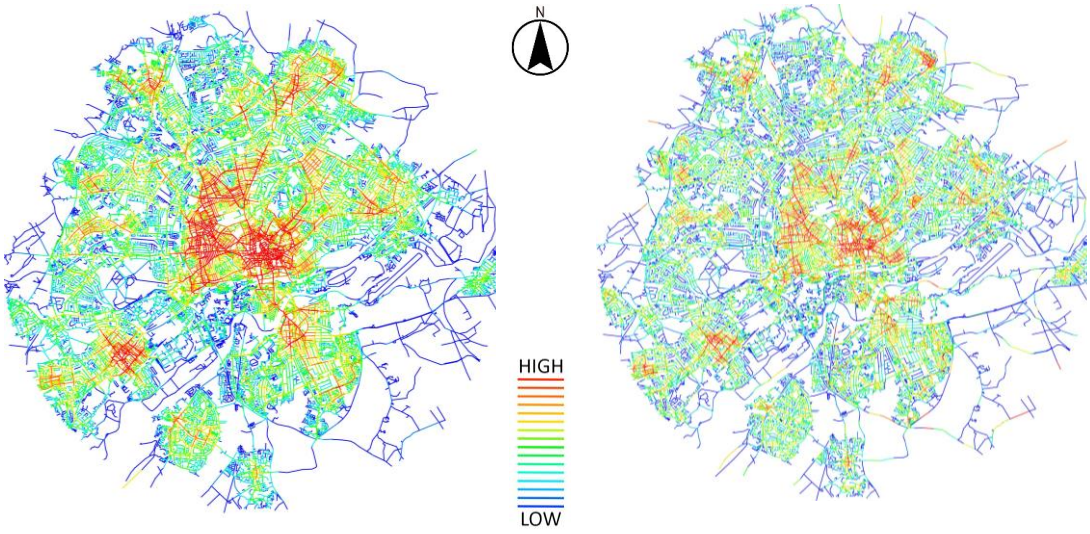
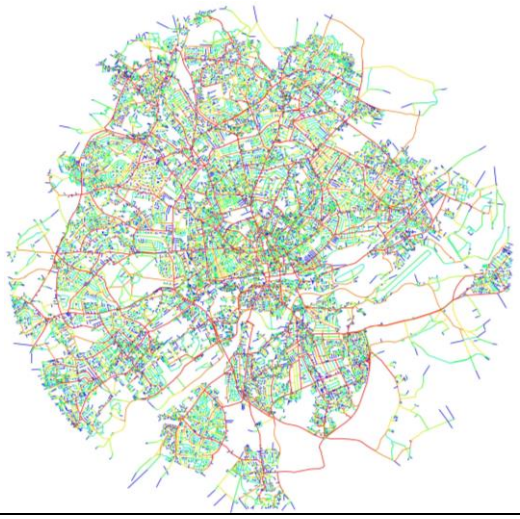


Figure 4.18 Local Integration (R800) *Figure 4.19 Local Integration (R400)*

The choice measurement in space syntax is used for understanding vehicular movement patterns and accessibility across different urban scales. The figure below shows Nottingham City's main route system in different radii. Red lines show the most linear routes with the most minor angle change. Main arteries through cities at all scales tend to consist of a series of longer lines connected at almost 180-degree angles (Hillier and Iida 2005). This measurement relates to vehicle traffic flow, especially when analysed within a larger radius, indicating the connectivity of major urban arteries. In this context, according to the results of the analysis, it is possible to say that the main arteries connecting the entire city provide equal accessibility in all directions throughout the city. According to van Nes (2021), higher radius values in space syntax analysis emphasise these main routes that connect neighbourhoods, while lower radius values highlight more localised street networks. Accordingly, the city's Rn, R4000 and R800 (Figure 4.20) analysis results were found to be significant.

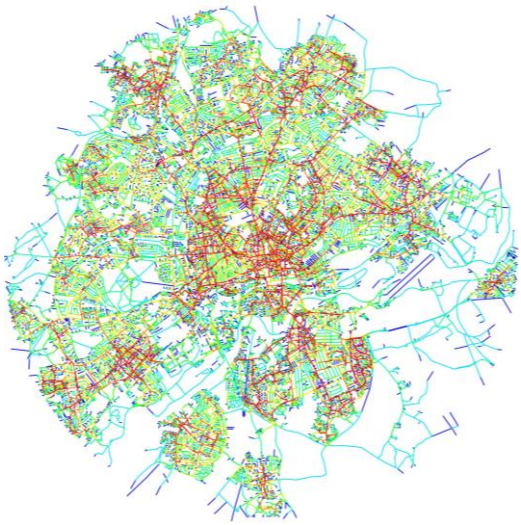
The findings from the Rn, R4000, and R800 analyses support this pattern. Rn and R4000, which represent larger-scale analyses, highlight the significance of the primary routes. These main roads with high vehicular traffic flow often run around neighbourhoods rather than through, suggesting a peripheral nature of through traffic.

In terms of the determinism of local routes, according to the R800 analysis result, street clusters with high choice values are emphasised in the street segments around the outer regions of the city centre. When the analysis results are compared, it is seen that the main roads throughout the city are mostly connected to routes with high local movement potential.



Global Choice (Rn)

Global Choice (R4000)



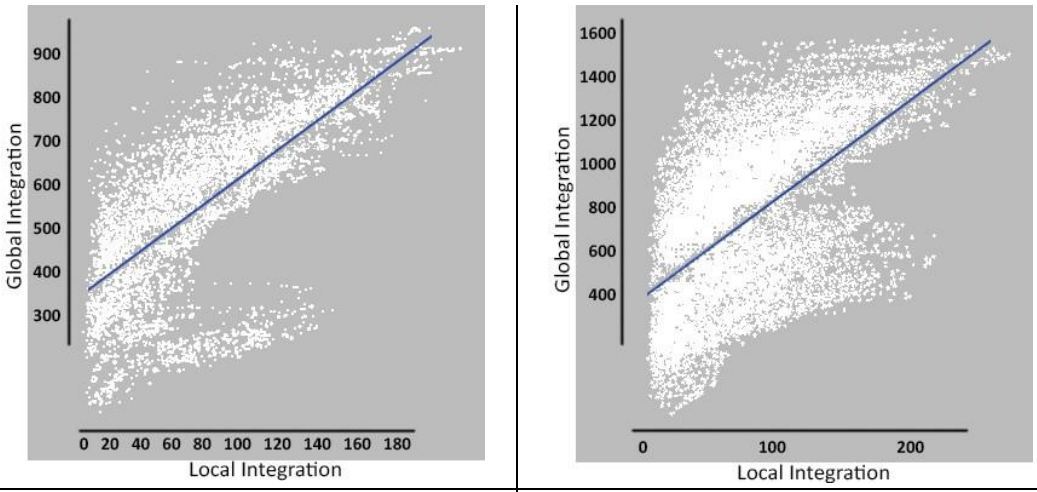
Local Choice (R800)

Figure 4.20 Nottingham's current street network choice analysis in different radii

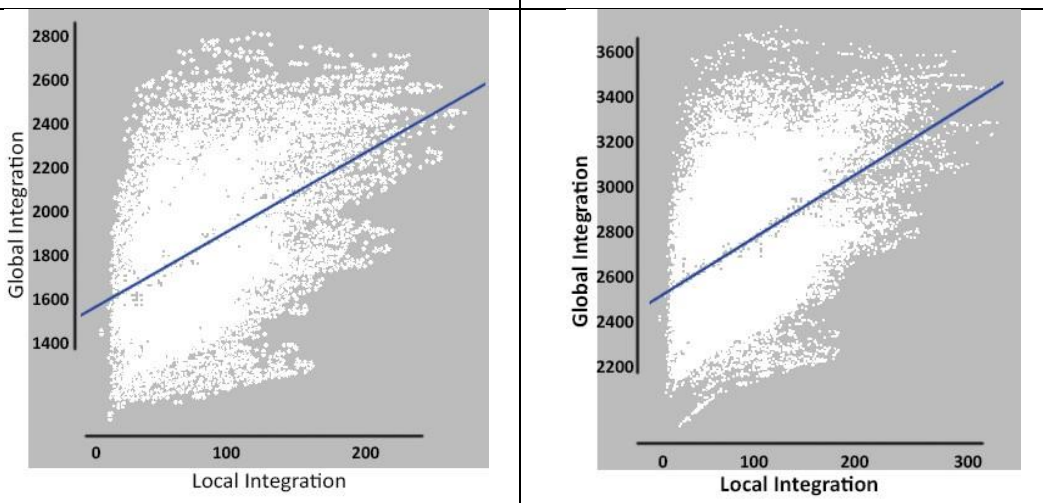
4.3.5. Comparison of Space Syntax Results

The results of the data from space syntax analysis can be correlated with each other. Intelligibility, which defines the correlation between local and global results, is one of the most frequently used correlations in space syntax literature. This value, which can be expressed through scatter plots, is closer to one, the higher the intelligibility of the examined built environment. In other words, if the main roads with high global values also define roads with high integration that encourage local movement, the intelligibility of the area is high (van Nes & Yamu, 2021).

The graphs in figure 4.21 below show the city of Nottingham's intelligibility values over the years. While the r-squared of the street network is 0.508 for the 1900s street network, it decreases to 0.353 for the 1940s and then decreases to 0.227 for the 1970s street network. Then, the city's intelligibility slightly decreased to 0.225, with the street networks added after the 1970s.



1900s - R^2:0.508 | *1940s - R^2:0.353*



1970s - R^2:0.227 | *Current - R^2:0.225*

Figure 4.21 Intelligibility of the Nottingham in different years (Correlation between Rn and R800)

As the city expands, the depth of the surrounding neighbourhoods increases, and the integration value decreases accordingly. These significant urban expansions are reflected in the intelligibility value. For instance, the 1940s saw a decrease in intelligibility due to the city's borders expanding in 1932. When comparing the intelligibility values across these four distinct periods, it is evident that the 1900s had the highest value of 0.508. This high value reflects Nottingham's street network's compact and well-integrated nature at the time, before the extensive expansions that characterised later decades. The 1900s represent a period when the city's layout was more straightforward and cohesive, making it easier for residents and visitors to navigate. Hence, due to the rapid growth around the city centre and the large residential areas built over time, the relationship between the city's parts and the whole has decreased.

In contrast to the decline in the city's intelligibility until the 1970s, when the intelligibility between the 1970s and today is compared, there is a much smaller change. This result can be interpreted in the context of the city's growth and the council housing areas built until the 1970s. Consequently, it can be stated that the top-down processes have been shown to create a gap between local and global criteria for the city. Although interwar and postwar estate layouts have relatively different characteristics, it may be argued that their impact on the city's intelligibility has ultimately led to similar results.

4.4. Chapter Conclusion and Summarising the Selected Case Studies

This chapter has provided an overview of the history of council housing in Nottingham and examined the changes in the city's spatial configuration over time. In this context, a general narrative is constructed by highlighting important properties from the period in which the city was built. The expansion of the city’s boundaries and the changes in its spatial structure that followed are then analysed using space syntax on maps from four different years.

A historical review of Nottingham's council housing legacy reveals significant properties symbolising different eras, each contributing to the urban pattern of the city. These include interwar sites such as Wollaton Estate, which Unwin praised for its architectural merit, as well as Aspley and Lenton Abbey Estates, which were built according to the recommendations of the Tudor Walters report. The post-war period in the city witnessed the construction of council housing estates such as Clifton, Bestwood, and Bilborough, which can be considered clear expressions of the political and ideological developments of that period. Moreover, the construction and subsequent demolition of multi-storey housing with deck access, such as Hyson Green and Balloon Woods, were also examples of local applications of central government policy. At the same time, there are blocks, such as the Victoria Centre from the high-

rise tower block construction period in the city, that are still in use, while other buildings, such as the Lenton Blocks, were built but ended in demolition. This city also has settlements such as the Meadows estate and Top Valley council housing estate as examples of the failure of the high-rise housing production period and the subsequent return to low-rise buildings. In this context, the city of Nottingham is an important example of examining the periodic spatial consequences of council housing history.

Moreover, the space syntax analyses performed on the city's maps over four distinct years have provided significant information about Nottingham. What this chapter has contributed to Nottingham's history is the understanding that the development of council housing estates across different periods has significantly influenced the city's spatial pattern, shaping its structural identity and urban morphology over time. The results of the space syntax analysis revealed that the northwestern emphasis of the city's compact urban form, established during its organic growth in the 1900s, was reinforced by the construction of the first council houses and has persisted to the present day. On the other hand, the street configuration of the city, which already extends in this direction and has a high integration at the global level, has caused the estates built in this region to exhibit a globally integrated structure despite their segregated local pattern. The south of the city has a more segregated structure in all periods, which has been explained by relating it to the River Trent, which forms the physical border and the dominant structure direction of the city. These analyses highlight the significance of historical housing decisions in influencing the long-term development of Nottingham's spatial configuration, providing insights into how previous planning choices have impacted the city's current spatial and social conditions.

In conclusion, Aspley council housing estate, Clifton council housing estate, Victoria Centre flats, and Top Valley council housing estate, which reflect different planning approaches and enable comparative analysis with their different spatial configurations and integration values, were determined as case studies of the study. The next chapter will present a detailed discussion of each case study.

5

CASE STUDIES

5.1. Introduction

This chapter presents a detailed analysis of four council housing estates built during distinct historical periods in the city of Nottingham. Each case study is examined within the framework of the area's historical development, morphological features, spatial analysis results, social pattern information, observation results, and a spatial narrative developed based on all findings. Through these case studies, this chapter not only provides a comparative perspective on the evolution of council housing but also contributes to the broader discourse on the production of space in mid-sized British cities. By synthesizing historical, spatial, and social analyses, the aim is to identify the factors that have led to successful or unsuccessful urban environments, as well as the lasting legacy of these housing estates in the urban landscape.

5.2. Aspley Council Housing Estate

This section will provide a concise summary of the historical development of the Aspley council housing estate, which is the first case study of the research. Aspley Estates is a significant example of council housing from the interwar period in the city, built following the construction policies of the time. Once the estate's brief historical evolution and morphological features have been examined, its spatial and social features will be analysed. Following these discussions, the results of the observations made within the scope of the fieldwork will be given. After these investigations, a layered spatial narrative of the area will be presented based on the findings obtained from the fieldwork and analyses.

5.2.1. A Brief Historical Development and Morphological Analysis of Aspley

The Aspley Council housing estate is situated in the northwestern region of Nottingham, at a distance of around 3 miles from the city centre (Figure 5.2.1).

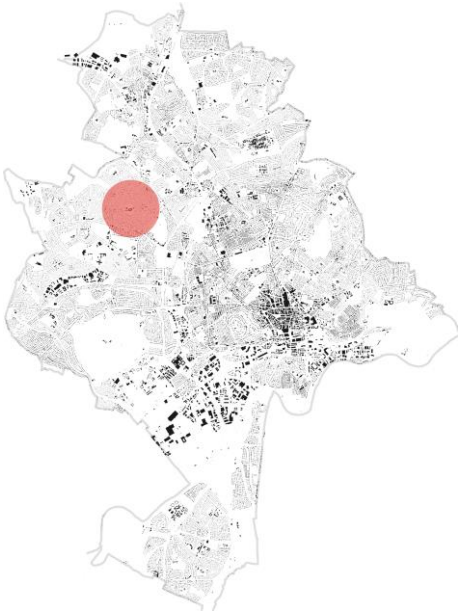


Figure 5.2.1 Location of Aspley Estate

Figure 5.2.2 Case study area

Before the land was incorporated into the city boundaries and developed as a council housing estate in 1928, it was an undeveloped part of the Radford neighbourhood. The planning of this area marked a strategic expansion of the city, driven by the city council's initiative to find larger lands suitable for the construction of properly planned residential spaces. This development was also part of a broader slum clearance scheme to improve living conditions. The first residences on the estate began to be built in 1930, along Melbourne Road east of the area. Then, with the expansion of the city

borders, the estate was expanded towards the north in a distinct circular geometric form (Oldfield, 2003) (Figure 5.2.2).

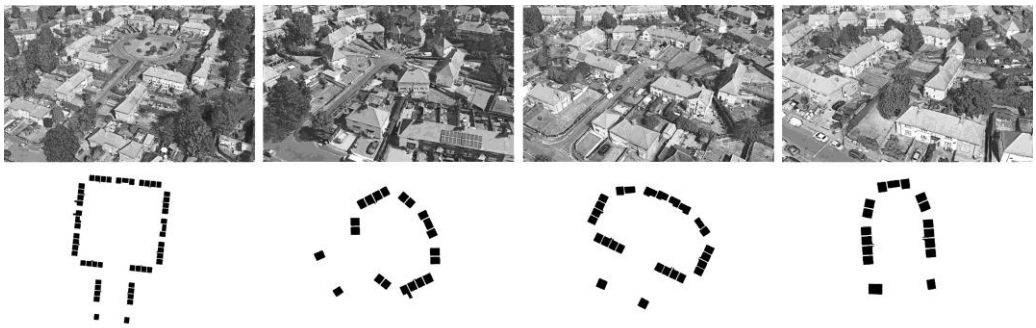
The Aspley estate is the largest estate of its era, was constructed with modern amenities such as running water, flush toilets, gas, gardens, and electrical equipment, which thousands of people had previously been deprived of until that time, thus increasing the living standards of many working-class people (Matthews, 2019). Unlike other smaller-scale council housing estates that were built in the same period and integrated into organically developed city areas, this estate represents a significant development in both scale and location.

Figure 5.2.3 The radial layout of Aspley estate
(Source: www.picturenottingham.co.uk)

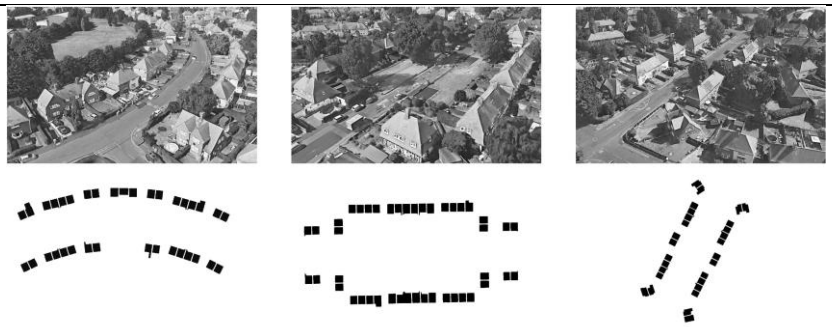
Figure 5.2.4 Typical housing pattern on the Aspley Estate, a view from the Amersham Rise, 1973
(Source: www.picturenottingham.co.uk)

The Aspley council housing estate reflects the garden city planning structure, with its low-density, two-storey brick houses and large gardens (Figure 5.2.3). In the Aspley estate, within the scope of the recommendations of the Tudor Walters (1918) report, semi-detached and short terrace houses were built instead of terrace houses with access only from the back street, which was the dominant housing pattern of the 19th century (Figure 5.2.4). In this context, the estate has a new layout that differs from the city's historical pattern. Although there were detached and semi-detached houses within the dominant terraced house pattern in urban areas or on the urban fringes in the 19th century (Carr & Whitehand, 2001), this pattern differs from the before-and-after structuring of the interwar period and represents a separate morphological period (Conzen, 1960).

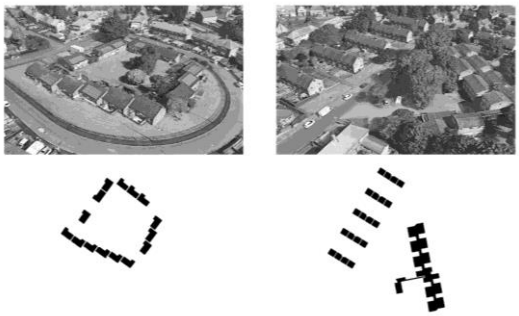
Morphologically, the estate spatial layout reflects the architectural principles characteristic of the interwar period, particularly through its angular and curved street layouts. At the same time, the cul-de-sac design, a key recommendation from the Tudor Walters Report aimed at a maximum number of housing units economically, clearly defines the estate's spatial pattern (Figure 5.2.5).



- Cluster Layout
- Access from cul-de-sac, two-step deep



- Radial layout and Linear layout
- Access from the main road, one-step deep



• Courtyard layout • Access from the courtyard, two-step deep	• Linear layout • Access from the side road, two-step deep

Figure 5.2.5 Layout and spatial arrangements (Photos Source: Google Earth)

On the other hand, houses east of the area have a different layout than the rest of the estate. The reason is the mining railway line that passed through this area in the 1930s. It is still possible to follow the old railway route as a pedestrian path, starting from the northern part of Melbourne Road and leading to the estate (Oldfield, 2003). With the subsequent closure of this line, the property was expanded, and new residences with a different type from those of other typical repetitive housing settlements were built.

Today, the total number of households on the Aspley estate is 3215 buildings, with the two major housing types being semi-detached (44.1%) and terraced (42.7%). Although at a low rate compared to these housing types, there are two-storey flats (6.6%) and detached houses (2.9%) in the northeast of the estate (Table 5.2.1). This uniformity in housing typology is far from supporting social, economic and cultural diversity.

Dwelling Type (%)	
Detached	2.9 %
Semi-Detached	44.1 %
Terraced	42.7 %
Flat (purpose built)	6.6 %
Flat (conversion)	2.2 %
Flat (commercial building)	1.5 %

Table 5.2.1 Dwelling types of Aspley Estate (Source: Census 2021)

This section will continue with a discussion of the results of analysing the current spatial configuration of the Aspley Council housing estate using the space syntax method.

5.2.2. Spatial Pattern of Aspley

In the global integration analysis of Nottingham, it is seen that Aspley estate and its surrounding areas are between the integrated and segregated parts of the city as intermediary zones. While the southeast of the estate connects with the city's most integrated streets, which are characterised by higher accessibility and connectivity, the northwestern part aligns more with the segregated other council housing areas, which are typically less connected and accessible. Thus, it can be stated that the Aspley estate can be defined as a threshold area at the level of global integration (Figure 5.2.6). On the other hand, the analysis of local integration shows that within the estate and its immediate surroundings, no strong axial lines establish a distinct sub-centre or street network that could serve as a local shopping area. This result shows a lack of easily accessible routes that may naturally facilitate commercial activities or develop into vibrant community centres at the local level (Figure 5.2.7). While this area has a well integration potential at the global level, the fact that local integration is weaker shows that although the region can be easily reached from other parts of the city via main streets, its immediate surroundings do not have sufficient connectivity. This disparity suggests that although the area is part of the broader urban pattern, the local street network does not adequately support easy movement or accessibility within the neighbourhood.

Figure 5.2.6 Aspley estate and immediate surroundings global integration (R4000)

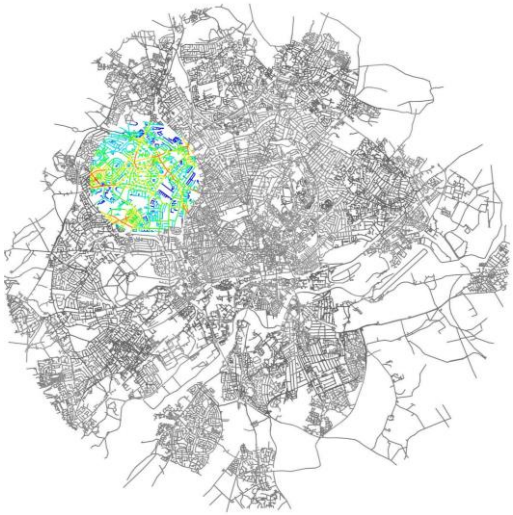


Figure 5.2.7 Aspley estate and immediate surroundings local integration (R800)

As can be seen in Figure 5.2.8 below, Melbourne Road and Nuthall Road are more connected to the whole system than other main roads in the Aspley estate. Besides these main roads, other main roads surrounding the estates also have higher integration than the internal roads. At the global level, hierarchically primary side streets appear to have nearly similar integration values. On the other hand, as expected, cul-de-sacs are the most segregated streets. In the global integration analysis, Aspley Estate is in the yellow-orange colour range, which has integration potential compared to other suburban estates, although it has a lower integration value than the city centre.

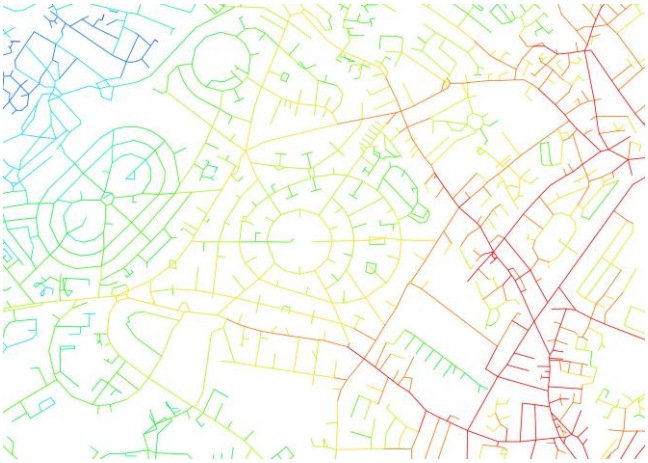


Figure 5.2.8 Aspley global Integration (R4000)

The results of the local integration analysis used to evaluate pedestrian movement patterns and activity density at the neighbourhood level show that Nuthall Road, which also has a high integration value globally, is better integrated locally than other main

streets (Figure 5.2.9). After this main road, Rosslyn Drive and Wendover Drive side streets with linear layouts are more accessible than those with radial layouts. Although the value of these roads is high, the low value of the connected roads indicates no street network to define a sub-centre.

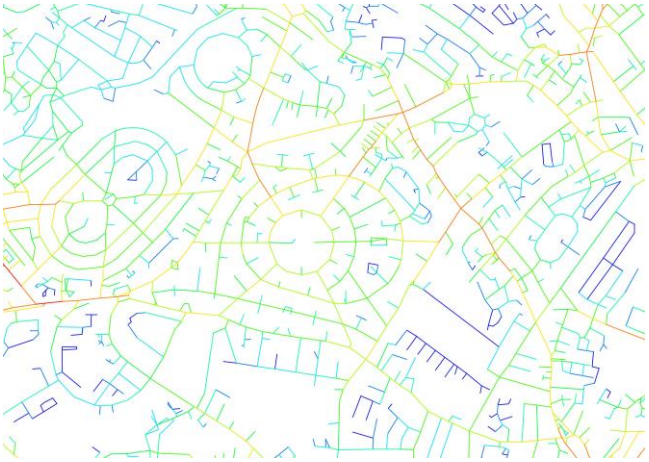


Figure 5.2.9 Aspley local Integration (R800)

The figures below show the results of the global and local choice analyses, illustrating principal vehicle movement and pedestrian movement, respectively. The global choice analysis shows (Figure 5.2.10) that the main roads surrounding the estate are in red, revealing their high vehicle mobility and important role in the entire city transportation system, while side roads within the estate have lower values. This spatial configuration highlights that the area is well connected to the main streets. Although this configuration is advantageous for residential areas to ensure privacy, it may be a disadvantage for developing vibrant urban centres with diverse and active land uses, as main roads only pass around the sites.

Figure 5.2.10 Aspley global Choice (R4000)

As seen in the results of the local choice analysis (Figure 5.2.11), Nuthall Road, located in the northeast of the estate, and Wendover Drive, which extends linearly to the

centre of the estate, attract attention with its red colour. In addition, Rosslyn Road also has high value at global and local levels. In the estate, which has a strictly circular geometric street pattern, linear roads and outer circles appear to be in the red range, which has the potential to be more preferred by pedestrians.

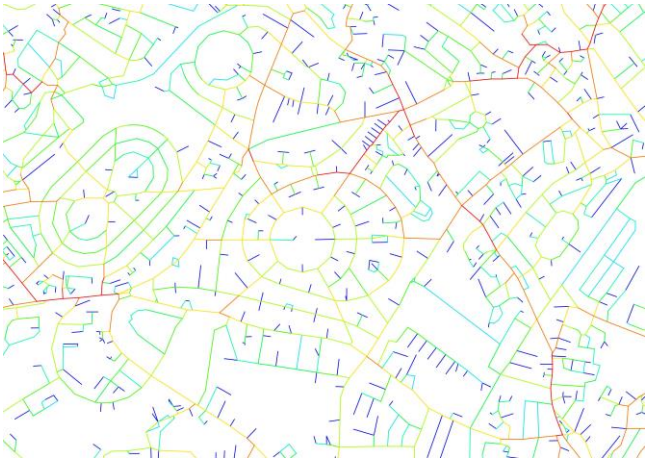


Figure 5.2.11 Aspley local Choice (R800)

In addition, the correlation between global and local analysis values is also one of the important measurements for understanding the spatial layout. Figure 5.2.12 shows the city's intelligibility, and the values of the Aspley property are above the regression line. This result shows that the estate has higher global integration than expected compared to its local integration. This means easy access to citywide resources or major transportation routes can be achieved. The intelligibility value of the Aspley is R^2:0.584; therefore, it can be said that the part-whole relationship is strong enough to predict the entire system from the local level.

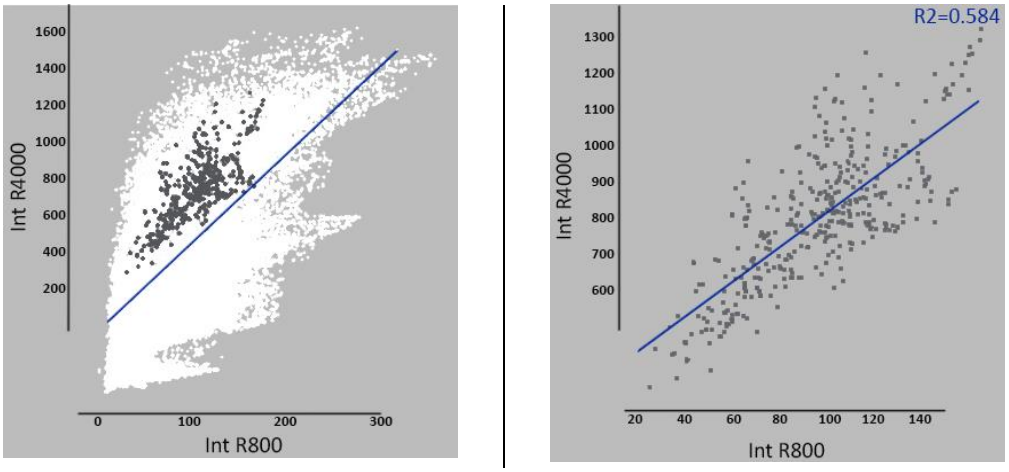


Figure 5.2.12 (a) Comparison of Intelligibility Value Between the Aspley Estate and City-wide Data, (b) Intelligibility of the Aspley Estate

5.2.3. Social Pattern in Aspley

Following the background of the methods to be applied in this study, this section shows the main Census 2021 results considered for understanding the Aspley estate's population pattern. This section takes into account the following data sets: age profile, ethnic group, occupation, method of travel the, workplace and tenure of households.

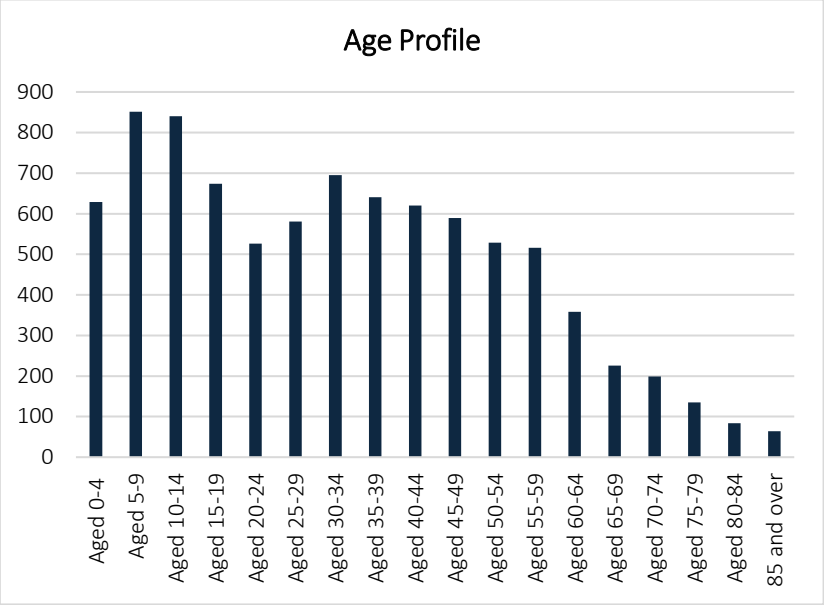


Figure 5.2.13 Aspley Estate age profile (Census 2021)

According to Census 2021, the population size of Aspley estate is 8745. Aspley's age profile shows that the young population is especially concentrated in the 0-14 age group. This data indicates a high birth rate in the region and potentially many young families. Additionally, it indicates the need for adequate childcare amenities, educational institutions, and services that address families' needs. When we look at the 25-44 age range, which is important in terms of economic productivity, it is seen that each 5-year age range is relatively close to each other. This indicates a stable society in terms of economic productivity. On the other hand, the rate of older age groups (65+) is significantly lower compared to other age groups. This can be considered as an indicator that the young population prefers this estate and that older people move to other regions (Figure 5.2.13).

When we look at the region's ethnic diversity, Figure 5.2.14 shows that although it is a predominantly white society, with 64.2% of the population identifying as White, there is also a significant presence of other ethnic groups. Specifically, individuals of Asian descent comprise 12.6% of the population, and those of Black descent account for 13.4%. This diversity is reflected in the region's spatial context. For instance, the Asian food restaurant and masjid are spatial clues about the Asian community living in the area.

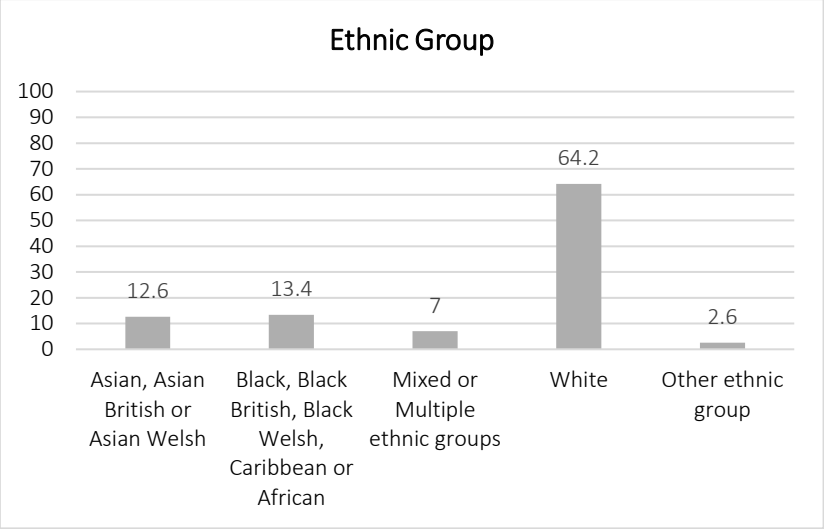


Figure 5.2.14 Aspley estate ethnic profile (Census 2021)

Occupation data (Figure 5.2.15) was used as a means of presenting an indicator of the socio-economic status of the region. According to the 2021 census, elementary occupations are the most common occupation type in Aspley. Around 800 residents were in an elementary occupation, accounting for 22.8% of all jobs in Aspley. The second most dominant occupational group is the sales and customer service occupations. These two dominant occupational groups show that a significant portion of the population works in low-wage jobs. On the other hand, the diversity in other occupation groups and their balanced distribution are indicators that the region has a mixed economy.

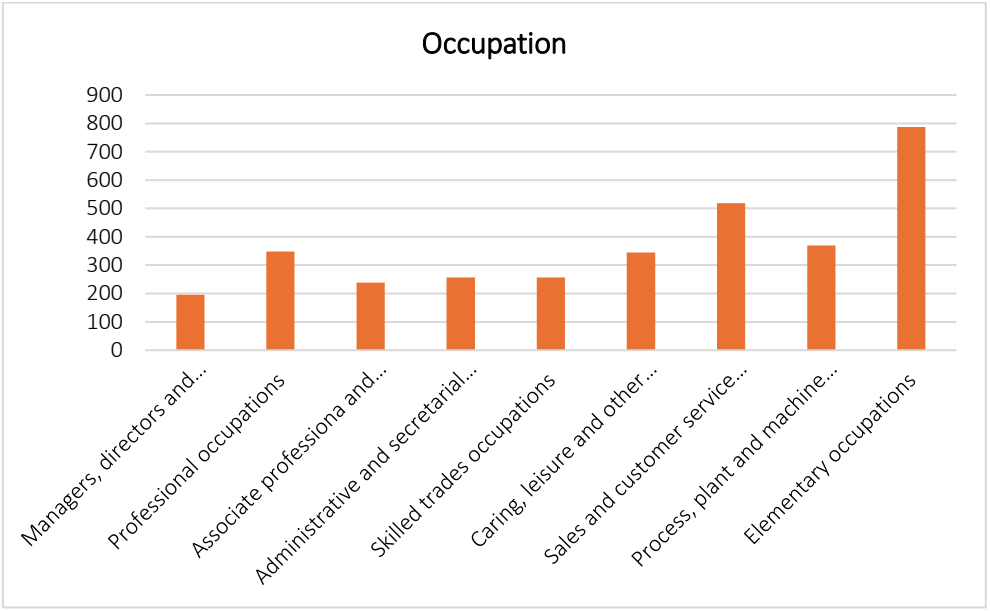


Figure 5.2.15 Aspley Estate occupation data (Census 2021)

After occupational data, the transportation method data to the workplace was evaluated to understand the daily life pattern of the estate (Figure 5.2.16). This data can be analysed to determine the region's proximity to economic activities and whether it exhibits characteristics of a suburban-style estate. During the evaluation of this data, the 2011 data was considered alongside the most recent census data from 2021. Due to the exceptional circumstances caused by the COVID-19 pandemic, the 2021 census reveals a significant disparity in the prevalence of remote work compared to typical settings. For this reason, 2011 data was also examined to evaluate the data under normal conditions and understand the estate's normal dynamics. The pandemic has undoubtedly changed the nature of work, so these results should be discussed with the next census, and an evaluation is necessary in this context. However, as a result, driving a car was the most preferred transportation method in both years (46.1% and 48.3% respectively), followed by public transportation by bus.

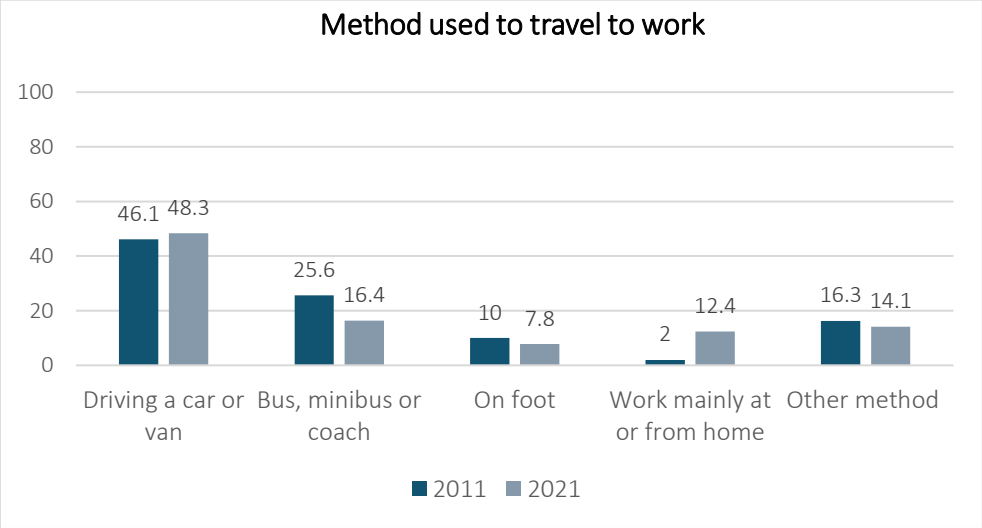


Figure 5.2.16 Comparison of the method used to travel to work (Census 2011, Census 2021)

Another critical parameter in evaluating social housing heritage is ownership rates. As discussed in the first chapter, there have been significant changes in social housing areas following enacting the Right to Buy law. In the Aspley estate, the ratio of house ownership (41%) to social rental (43%) is close. When we look at the change in the percentage of tenure of households according to the 2011 (Figure 5.2.17) and 2021 (Figure 5.2.18) census results, it is seen that the ownership rate has changed slightly, and the social rental rate has decreased. There has been a significant increase in private rented housing from 14.2% to 19.3%. This result indicates that social housing is still purchased in the Aspley estate. However, the fact that the ownership percentage does not increase at the same rate means that social housing is privately rented after purchase.

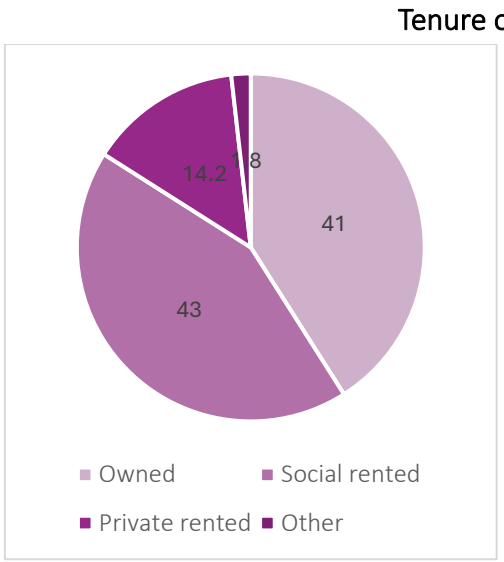


Figure 5.2.17 Aspley Estate tenure of household data (Census 2011)

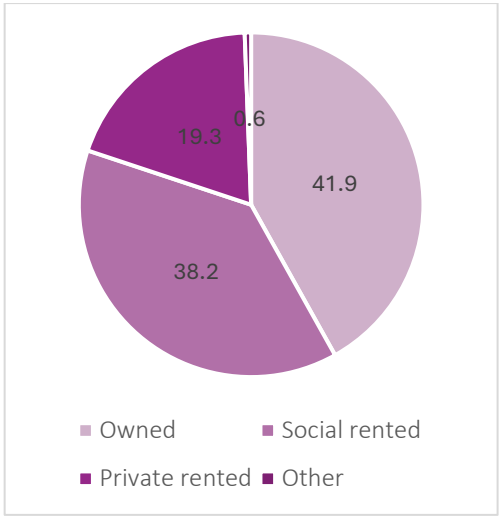


Figure 5.2.18 Aspley Estate tenure of household data (Census 2021)

Figure 5.2.19 illustrates the distribution of council-owned housing in the Aspley estate. Accordingly, except for all 2-storey flats north of the estate, there is no direct relationship between a particular area or housing typology and the houses purchased. The balanced distribution of purchased and socially rented housing can be seen as a positive attribute of the estate. This diversity in housing tenure may contribute to a more vibrant, mixed community where renters and long-term residents coexist. Such a mix can enhance social stability and cultural exchange, fostering a dynamic yet cohesive community.

Figure 5.2.19 Council owned housing on Aspley estate (Source: Nottinghamshire Insight Mapping)

5.2.4. Activity Pattern of Aspley

In this section, the case area will be examined using basic mappings such as land use and public transportation maps in the context of shaping the activity dynamics of the estate. In light of the space syntax analysis results, it was observed that the region has potential at the global level and weak but distinct main streets at the local level. The results of the observation studies of the routes, determined according to the integration results, will be discussed in conjunction with these maps.

The map in Figure 5.2.20 shows the distribution of functional diversity in land use within the Aspley estate. This region is characterised by a dominance of residential units, and functional diversity can be seen on the estate's main roads surrounding the estate. In addition, the central location of basic facilities such as education, sports and community centres are the product of a design approach focused on accessibility for the residents.

Figure 5.2.20 Aspley Estate Land use

However, the area lacks active two-way façades that would encourage the use of social areas. In fact, observation studies confirm this finding and reveal the lack of spatial arrangement that will enable these areas to function as sub-centres that can contribute to the region's development despite their inherent potential (Figure 5.2.21). On the other hand, although it offers a spatial configuration that encourages

potential movement with high local integration value, Nuthall Road has a heavy traffic flow that does not provide functional diversity. In this context, there is no correlation between the space syntax analysis result and land use pattern.

Figure 5.2.21 (a) Broxtowe Lane, (b) Aspley Lane (Source: Google Earth)

Another determinant of the region's activity dynamics is the public transportation network. In Figure 5.2.22 below, public transportation routes that provide access to the other parts of the city are marked. Additionally, each stop's 400m immediate surroundings are shown regarding walkability. In the literature, the optimal walking distance for pedestrians to access public transportation stops is 400 meters. The desire to use public transportation decreases for areas farther than these distances. In this context, it can be asserted that the area has a public transport infrastructure that is easily accessible and actively promotes utilization.

The accessibility from the neighbourhood to the city centre is crucial in terms of the economic opportunities and availability of socio-cultural activities provided by the city centre. Thanks to the public transport routes that connect the estate to the city centre, going through and around the Aspley estate, residents may reach the centre in nearly 30-35 minutes.

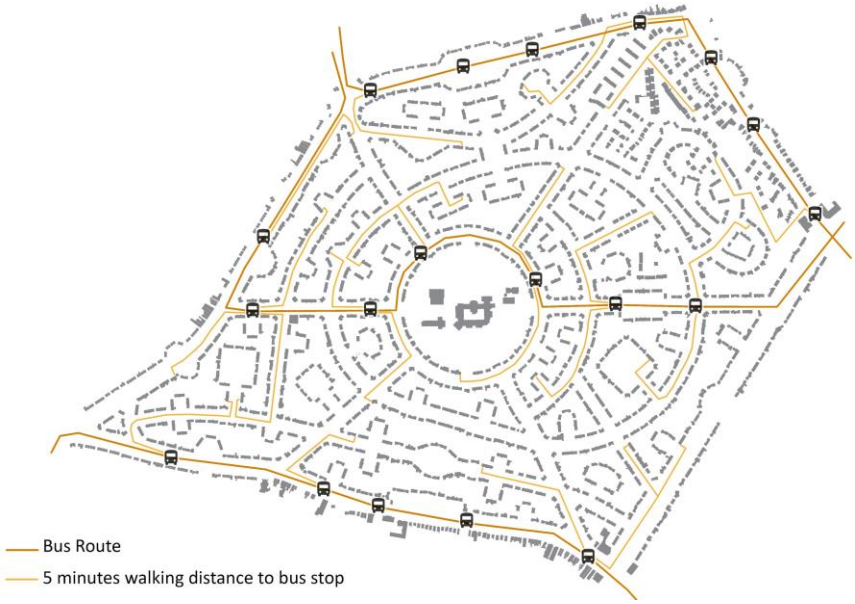


Figure 5.2.22 Public transportation map of Aspley Estate

Observation Results

The map below shows the observation routes determined according to the space syntax analysis results. Aspley estates observations were conducted four times, two on weekdays and two on weekends, in May 2022 and March 2023.

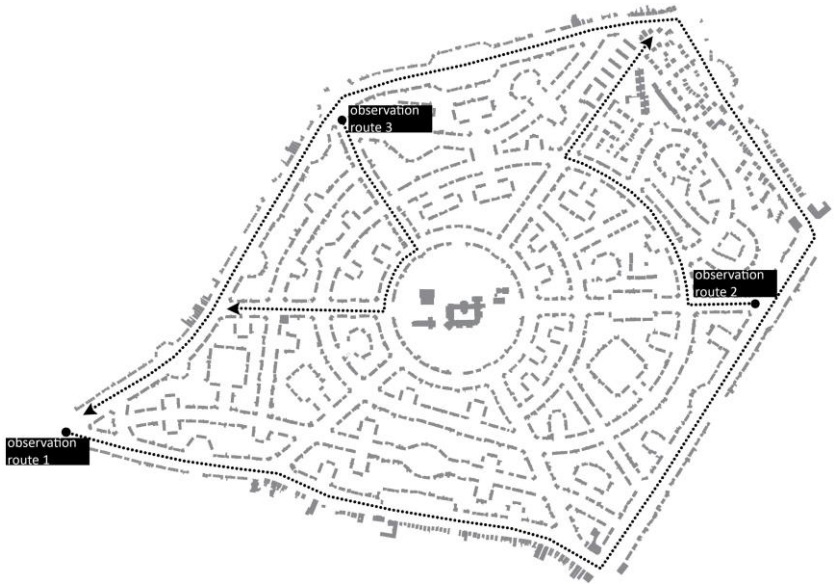


Figure 5.2.23 Observation routes of Aspley Estate

The predefined routes were walked and observed. As explained in the previous chapter, this observation does not include a direct recording of the number of people or activity types. Beyond that, the main aim of this observation is to try to discover what kinds of everyday scenes are offered in areas that have the potential to be preferred by users and external visitors in terms of their spatial configuration. The findings and notes of the observation study conducted in this context are explained below.

Observation Route 1

The first observation route is the 4.5 km route surrounding the estate, as shown on the map above. This route includes the main streets with the highest values in integration and choice analysis in the space syntax analysis results and has the potential for vehicle and pedestrian mobility. At the same time, this route, where spatial diversity is seen, is important for understanding the image of the Aspley estate and its surroundings. This route will be examined in 4 separate sections below.

The first part of route 1 is Aspley Lane.

‘This part of the journey (Figure 5.2.24) is a street with intense traffic noise. The mornings and afternoons are usually calmer than the evening hours. As you move from the residential area on both sides of the street to the section with social areas, you may encounter more people. Morning times are marked by the frequent sight of residents walking their dogs. It is possible to hear the low murmurs of people waiting in line in front of the health centre. After school hours, when individuals walk around with their children, they gather around the bus stop and have some small conversations, adding liveliness to the area. In a more spatial context, the differences between the front gardens of the houses can be contrasted in some places. Some are meticulously groomed, showcasing vibrant flowers and neatly trimmed hedges, while others, less tended, are cluttered with refuse and construction waste, showing tales of neglect or ongoing changes. As one nears the street’s end, traffic noise increases, signalling the approach to a busier area. At the end of the street, you can see the centre of religion, which can be described as the 'landmark' of the estate. This building, renovated from a church to a masjid in 2019, provides information about the region's Muslim population.’

Figure 5.2.24 Observation of Aspley Lane

The second part of route 1 is Melbourne Road.

‘Moving from the busy intersection into Melbourne Road, there's a noticeable shift in the atmosphere. This road, which has large trees and residential areas on both sides, is a quieter street with less traffic noise. The housing typology of the region is now more distinct. Tuesdays bring a subtle change to the street’s routine—it’s bin collection day. Especially when passing by clustered houses, the sidewalks become narrower due to more bins. The atmosphere of the street becomes different once again as you pass by the houses in a radial layout, one step deep from the street. This arrangement introduces a new rhythm—the frontage expands, incorporating large green spaces serving as buffers and connectors between the street and the houses. As you pass by clusters of houses with only pedestrian access, the line between private and public spaces becomes sharper. A narrow street with high privacy, accessible only to those living there, is separated from the street without the need for physical barriers. Along the street, the front gardens of many houses, originally designed as vibrant green areas, have been pragmatically transformed into park areas. This alteration speaks volumes about the evolving needs and priorities of the residents, reflecting a practical compromise between aesthetic desire and functional necessity.’

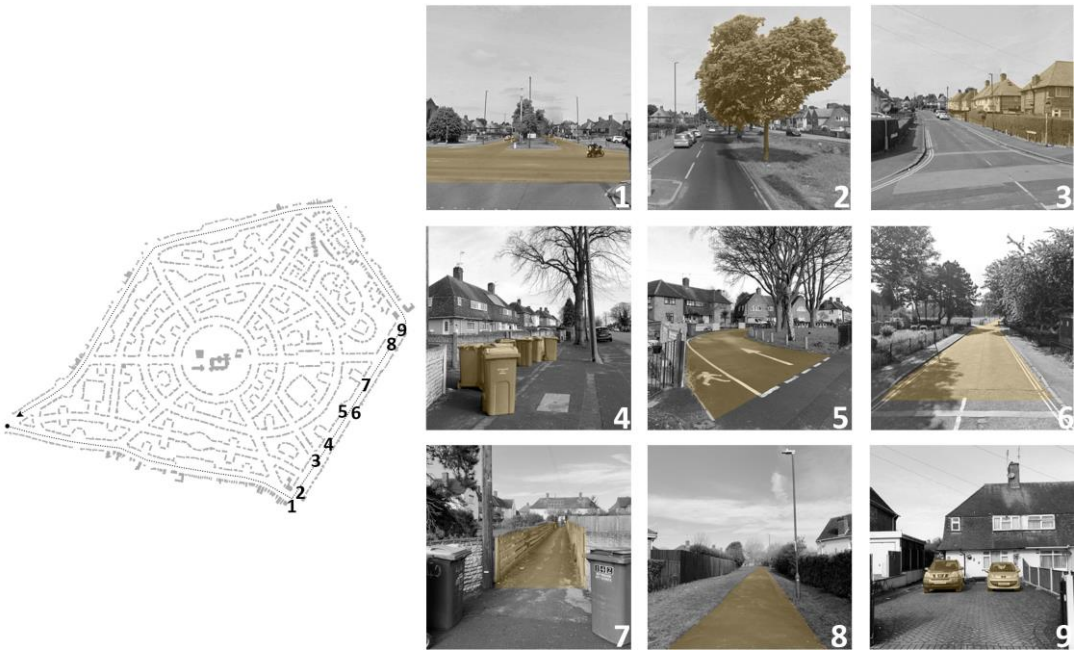


Figure 5.2.25 Observation of Melbourne Road

The third part of the route 1 is Nuthall Road.

‘The next phase of the journey starts at the library, an important social interaction point that becomes particularly lively after school hours. In Nuthall Road, the atmosphere shifts markedly again. This road is a busy street with heavy traffic flow. This route, where the bus line connects the north of the city to the centre, has a linear rhythm in terms of transportation. Scooters scattered near bus stops introduce a subtle narrative of mobility and accessibility. This situation provides clues to the routines used to access public transport, incorporating a new layer of modern public transport into the pattern of this street. Architecturally, there are detached and semi-detached houses on both sides of the street; The various structures of these houses stand in contrast to the typical semi-detached houses on council estates. Moreover, along the street, it is seen that many houses have higher fences and hedges. Despite its high spatial integration value—suggesting a potential for vibrant street life—the actual pedestrian activity was rare, mainly limited to individuals waiting at bus stops.’

Figure 5.2.26 Observation of Nuthall Road

The last part of the route 1 is Broxtowe Lane (Figure).

> ‘As you pass through the first part of the road, the high stone wall that continues until the first street intersection forms a dominant physical boundary. Although there is a pharmacy, restaurant and small grocery store across the road, the façade is closed, especially in the early morning hours, creating a distinctly deserted and unsafe atmosphere. While it is not possible to encounter many people in the morning, the atmosphere changes as the day progresses. As the shops open in the afternoon and students gather at the bus stop in the evening, the same area transforms and exhibits a temporary rhythm of life. The path then continues with various spatial narratives, each section distinguished by its unique rhythm. Due to the elevation difference, a series of steps leading to the residences create a difference in physical access and also differentiate visual communication. Further on, houses with car parking spaces are set back from the road. It seems that the gardens of the houses in this region are used more appropriately, with the advantage of parking space. The metal railings that continue along this area determine the public-private physical boundary. A particularly lively node along this route is around Greggs bakery (point 5 in the route). Here, the rhythm of the street finds a lively pace in the morning and noon hours. The cafe is a frequent destination for daily breakfast routines and short breaks. People come in their cars for a quick pick-up, and some have their breakfast inside. The road continues with large trees that shade the entire road at noon hours. One of the recurring actors in this daily rhythm is the postmen who pass through the property repeatedly, adding movement to the region with its own route. It is possible to come across the site many times with them and their delivery trolley, especially in the morning hours, and sometimes even meet and greet the same person. In terms of traffic density, there is generally an average vehicle traffic density during the day, but this region exhibits a more intense traffic flow, especially in the evening hours. The end of the street ends with the busiest intersection of the region and a functionally diverse area. With this changing functional diversity, pedestrian and vehicle traffic is increasing and the rhythm changes (Figure 5.2.27).'

Figure 5.2.27 Observation of Broxtowe Lane

Observation Route 2

'As soon as you turn from the main road onto Hilcot Drive, the soundscape changes; The traffic noise is replaced by the quieter atmosphere of the neighbourhood. With a narrower street, the dominant residential pattern of the estate is perceived better. The row of identical short terraced and semi-detached houses offers the classic suburban appearance. Although the houses painted instead of brick-covered occasionally break the relative continuity, the form is overwhelmingly based on repetition and sameness. The bus stop at the beginning of the route is one of the rare points contributing to the region's dynamism. The atmosphere is generally so isolated and belongs only to those who live here that it feels like someone will come and ask who you are at any moment. As the route continues, the architectural rhythm changes slightly, and a section dominated by two-storey flats is seen (Figure 5.2.28).'

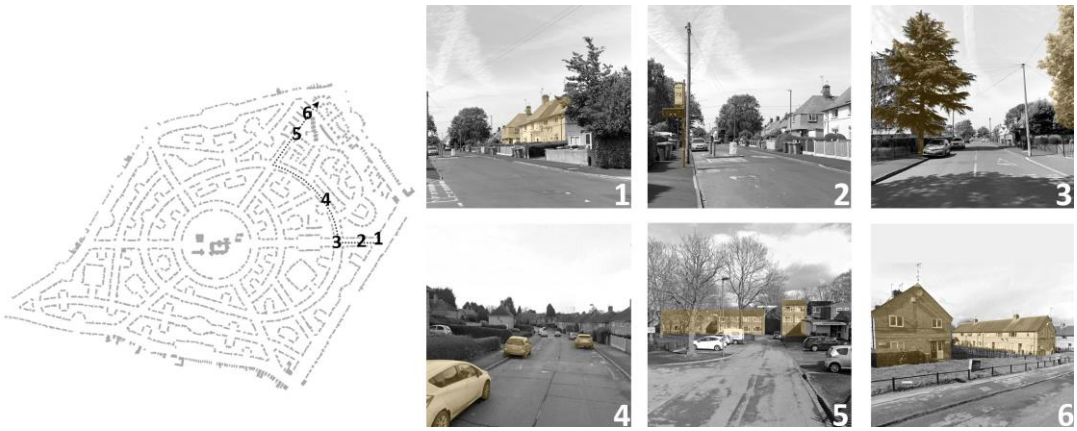


Figure 5.2.28 Observation of Hilcot Drive and Wendover Drive

Observation Route 3

'The route (Figure 5.2.29) begins with houses framed by well-tended gardens, their meticulously pruned hedges signalling a sense of order and care. Further down the road, you come across a house with front gardens arranged as a ramp for personal needs. Then, as we approach the school area in the centre of the estate, children's voices can be heard. As you reach the centre of the settlement, this area, surrounded by hedges, offers limited access. The most apparent difference between this region's weekday and weekend rhythm is the sounds of children coming from school. This route allows us to capture the layered rhythms of the region, with the daily routines of parents who walk to this area every weekday evening at school finish time, as well as the perhaps annual routine of an old woman painting the garden fences at noon hours on the weekend. Another key component of the everyday scenes of this route is the regular passage of buses every 10 minutes, marking a steady, linear rhythm.'

Figure 5.2.29 Observation of Rosslyn Drive and Sherborne Road

The observational study results are presented above in detailed. Observational studies have revealed differences in spatial character between the main roads surrounding the estate and the areas within the estate. While the main roads provide a more dynamic and vibrant urban environment with traffic volume and pedestrian movement, the inner roads of the estate have a quieter, more introverted atmosphere where only local interactions occur. Among the observed routes, Aspley Lane, with its spatial diversity and intersections, combines both the quiet residential area and the social area, forming a key corridor representing the overall rhythm of the estate.

5.2.5. Rhythmanalysis: A Layered Narrative of Spatial Experience in Aspley

This section will provide a layered narrative of Aspley Lane (Figure 4.2.30), which is considered to have the potential to represent the rhythm of the lived space of the Aspley council housing estate.

Aspley Lane is an urban space that contains micro-level representations of rhythms observed in the region in general and has a high representational value in this context. It is a microcosm reflecting the dynamics of the region's lived space; the daily life practices here can be evaluated as fragments of rhythms related to the estate. The high global integration and related vehicle traffic seen on the main roads of the region, low local integration, and limited pedestrian mobility are reflected.

This street, where the changing pattern resulting from the variety of spatial arrangements of housing units and the effects of expansions reflected on the street can be examined, is also important in understanding the changing privacy levels throughout the estate. Different arrangements, such as housing set back from the street by the distance of a garden, accessible via a separate pedestrian path, and reached by passing a green space in front, influence the atmosphere of the street. The street also reflects the changing atmosphere, transitioning from two-sided housing areas to social areas. Despite the functional diversity, the fact that social areas that are

not sufficiently connected remain inefficient keeps the interaction at a limited level. Religious centres, health centres, and restaurants that are open at certain hours affect the rhythm of the region at different times of the day, which has provided the opportunity to reveal the changing rhythm of the area. People usually wait in line in front of the health centre during weekday morning hours and Friday afternoons when the Muslim community comes to pray, changing the rhythm of the area. Many restaurants that open at noon and 3 pm also reveal a difference in the area's liveliness.

In addition, as part of the bus route that provides direct access to the city centre, Aspley Lane reflects the area's everyday mobility with its stops through the street. The bus, which passes every 15 minutes, reveals a linear rhythm. More people wait at the stops on weekdays than on weekends. While the directions to the city centre are busier on weekday mornings and afternoons, there is no gathering.

Sound level is another important parameter for understanding the space's rhythm. Although low and similar level noise is generally observed along the street, the beginning and end of the street attract attention with their different soundscapes. As it is the intersection of main roads, increasing traffic density affects the soundscape of the region. This contributes to the rhythmic narrative of urban space, both as an environmental element and a reflection of social interactions.

Consequently, this route has provided a key corridor that contains and overlaps dominant experiences, where typical activities, spatial arrangements, and outcomes of the estate's neighbourhood formation can be explored.

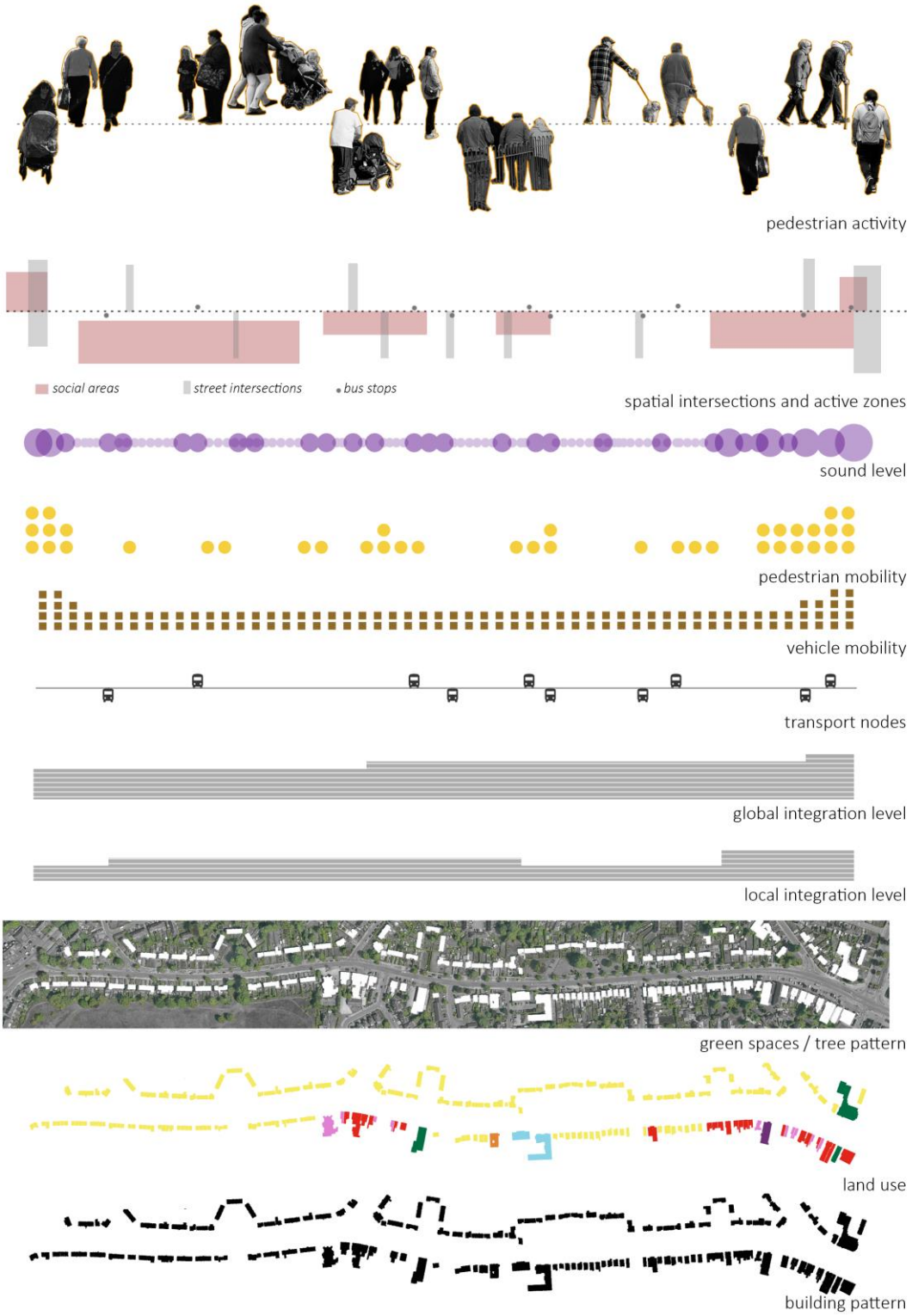


Figure 5.2.30 Layers of the street that reveal the lived space and have the potential to define daily rhythms

5.2.6. Conclusion

The Aspley Council housing estate reflects the interwar period's spatial characteristics and stands out as the largest of the social housing areas built during this period in Nottingham. It is a typical example of garden city planning, with its strict geometric planning and low-density, two-storey housing pattern. Although morphologically underdeveloped and built in the peripheral area of the city, Aspley Estate is located in a location that provides high integration with the city at a global level. During the period when the settlement was built, the development of the city's growth direction towards the Aspley area positively affected the urban integration of this area. However, this high integration is observed not on the internal roads of the settlement but on the main arteries surrounding the neighbourhood. In this context, although Aspley Estate is in a location that provides easy access to the city's important main roads, it has an isolated structure from these main roads in its internal spatial arrangements. This isolation increases the privacy of the residential area while ensuring that traffic density remains at low levels. There is a striking difference between the main roads and the roads within the estate. At all times of the day, the roads within the estate have a quieter atmosphere.

The results of the global integration and choice analyses correlate with the observations. Heavy traffic flow was observed on the main roads, but despite the global integration of the settlement, there is no strong axis that would define a sub-centre at the local level. This situation shows that the spatial configuration is weak in terms of the potential to encourage pedestrian mobility and social interactions. This deficiency in spatial organisation, combined with the lack of social space, which is one of the main criticisms of the housing areas built in the interwar period, has turned Aspley into a neighbourhood focused solely on housing.

When the demographic structure of the area is examined, a picture emerges with an ethnically diverse and young population. This demographic structure is also reflected in the daily life of the estate. People with baby strollers and children returning from school, who are frequently seen on the street, are important indicators representing the demographic structure of the area. In addition, observation studies have revealed the spatial reflections of ethnic diversity. The church was converted into a mosque, and local markets selling halal meat stood out as important spatial indicators reflecting the ethnic and religious diversity of the area's residents.

The observations revealed that the mobility and activity type in the area is more walking-based than lingering. People use the streets as a primary context for getting from one place to another rather than as places of interaction. People were observed having short conversations at a bus stop or while waiting in line in front of the health care. Although the community centre and sports centre in the centre of the estate are accessible due to their location, the fact that fences surround it and are not directly

integrated with the street pattern of the estate can be considered the main factors that prevent the potential of this area from spilling over to the surrounding streets. On the other hand, functional diversity spaces such as shopping centres, restaurants, and commercial areas in certain parts of main streets cannot sufficiently reveal the potential of creating active social areas due to their designs, which do not create in-between spaces around them. The failure of such spaces to integrate with the urban fabric causes social interactions and the dynamics of public life to remain limited, thus causing these areas to remain as places that serve only commercial activities.

Each layer can be considered an indicator of its own rhythm or potential rhythm that can emerge. For example, despite the rhythm of the spatial configuration and its potential capacity to produce movement, a functional arrangement that is incompatible with its rhythm can create arrhythmia in the area. Furthermore, the spatial arrangements, the rhythm of the configuration, and the activity that is part of the weekly linear rhythm of the area come together to create a productive urban environment and can present polyrhythm. Understanding these various rhythms in the area and how they interact is critical to creating a harmonious street rhythm and promoting a more productive urban environment.

5.3. Clifton Council Housing Estate

This section will present a detailed analysis of Clifton Council housing estates as a legacy of the post-war period as the second case study of the research, following a similar format to the case study outlined previously.

5.3.1. A Brief Historical Development and Morphological Analysis of Clifton

In 1950, the municipality of Nottingham purchased the 944-acre Clifton land, which had previously been an agricultural village until 1946 and declared it a social housing area. This area, located in the south of the city, is approximately 5 km away from the city centre (Figure 5.3.1). In the 1950s, to address the city's housing shortage, 6820 houses were built for a population of 30,000 between 1951 and 1958. This scale of council housing development was unprecedented until then (Edwards, 1966; Oldfield, 2003; Matthews, 2019). In 1948, a request was submitted to the ministry to include the Clifton land in the municipal boundaries and establish it as a residential neighbourhood for social housing. However, the proposal was declined because of the city's lack of cooperation. The second proposal, submitted two years later, was granted approval based upon the construction of houses that adhere to the region's rural character, utilise smokeless fuels, maintain low-density development, and exclude any noxious industries (Ewen, 2000).

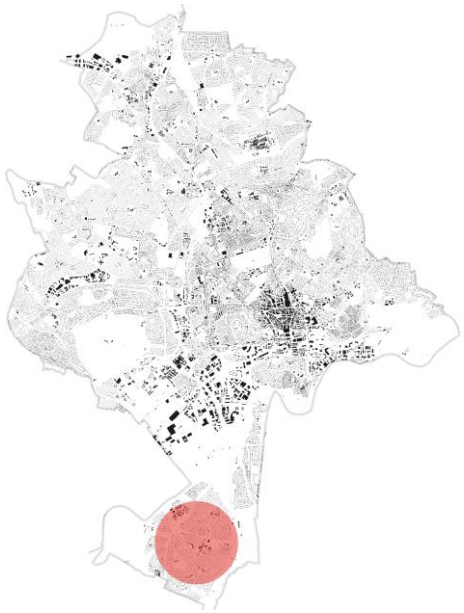


Figure 5.3.1 Location of Clifton Estate

Figure 5.3.2 Case study area

Clifton estate's planning was designed to directly reflect post-war spatial arrangements (Figure 5.3.2). The estate has five neighbourhoods, each with school areas, local shops, and green areas within walking distance. Nevertheless, despite the planning, construction priority was given to residential units in the first phase (Oldfield, 2003), and for this reason, the early residents' feeling of isolation and the absence of social facilities and necessary functional diversity in the region led to some problems (Wright, 2000). Furthermore, before the construction of the Clifton Bridge in 1958, which provided direct access to the city centre, the only way to reach the city centre from the estate was via Trent Bridge (Oldfield, 2003; Matthews, 2019).

In addition to the complaints by residents, Edwards (1962) critically assessed region development in his study and pointed out numerous shortcomings. While he described the region's spatial arrangements as *'monotonous'* (Figure 5.3.3), he stated that it had a homogeneous social class structure. He further highlighted the scarcity of employment opportunities and the inadequacy of social services, except for educational amenities. Although he acknowledged the improvement in housing standards compared to the previous years, he emphasised that effective social development requires more than just providing mass-produced housing (Edwards, 1962). Godfrey (1966), moreover, confirmed in his study that the region could only meet the housing demand but that all other essential requirements were lacking. Besides, as stated in the thesis study conducted by Gyte (1981) on the service provision and use of the region, it was determined that the social facilities in the Clifton region were insufficient in terms of both quantity and diversity in the early years (Gyte, 1981). In addition to all these academic studies, a BBC documentary about the Clifton housing estate, published in 1958, described it as *'hell on earth' (*Matthews, 2019). All of the criticisms also highlight that more is needed to create neighbourhoods beyond providing housing in better physical conditions.

Figure 5.3.3 Aerial view of Clifton council housing estate, 1971

(Source: www.picturenottingham.co.uk)

Figure 5.3.4 Typical housing pattern on the Clifton Estate, a view from the Green Lane

(Source: www.picturenottingham.co.uk)

The experiences of the first residents included similar themes. Although they complained about the estate's shortcomings, they also expressed the joy of having their own home compared to the areas they had lived in before. Edna Dearman, who moved to Clifton after spending five years on the waiting list, said: *'I jumped for joy. I thought it was beautiful. It was a mud bath, but I didn't care. We had our first house of our own.'* (BBC, Inside Out, 2008). Similarly, although Mrs Randall complained about the unfinished roads, the lack of garden fences and the only shop, she said: *'Well, I thought it was nice and it was a relief to get a house of your own after being in a flat, you know, and living with relations.'* (Wright, 2000).

As the stores, libraries, shopping areas, churches and recreation areas that the region needs and are within the scope of planning are provided (Figure 5.3.5), the region has become more liveable for its residents.

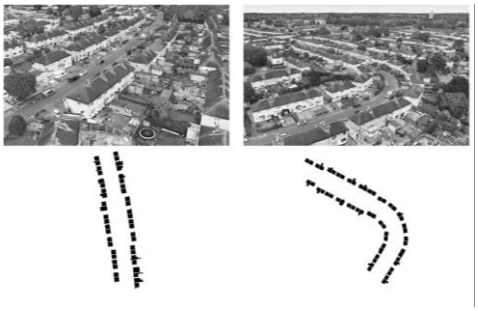
Figure 5.3.5 Spatial development of estate centre (Map of 1950s and 1960s)

(Source: Digimap)

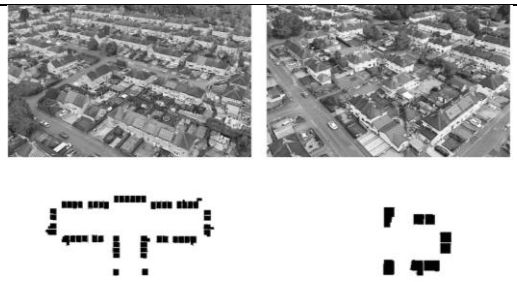
These improvements have also enhanced the residents' sense of attachment to their properties. In his report examining the area's development between 1945 and 1955, Wright (2000) revealed, based on his interviews with the residents, that the people of the site managed to create a strong sense of community, contrary to the perception of foreigners who saw the site as a *'soulless dormitory'* devoid of community spirit (Wright, 2000). With substantial improvements in conditions, the once-deprived area, where residents wanted to exchange for more central housing options in the early 1950s, underwent a significant transformation. With the Right to Buy Act in 1980, this area had evolved into one of the most preferred locations for buying property (Oldfield, 2003). In 1991, a study of ownership rates in council housing estates throughout the city revealed that Clifton had a higher homeownership rate than other suburban council housing estates, only ten years after the Right to Buy policy was implemented (Giggs, 2006). Given the influence of all these physical developments and

the sense of community that has developed over time, it is possible to understand the region's changing image for its residents in 30 years.

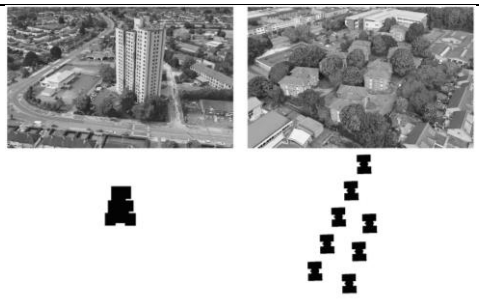
This estate comprises five distinct neighbourhoods divided by main roads, resulting in a quiet residential atmosphere that effectively prevents heavy traffic from reaching the inner regions. In this sense, the estate reflected the criteria proposed under the New Towns Act of 1947. As mentioned before in Chapter 1, with this act, the government suggested mixed-use residential areas for the spatial arrangement of council housing settlements, with less formal roads and each neighbourhood having its own centre, combining residential, commercial, and social areas. In addition, it is possible to see the effects of the Dudley report published in 1944, as the necessary spatial diversity was designed at the planning stage, although it was built late.



- Linear and curvilinear layout
- Access from the main road, one-step deep



- Cluster Layout
- Access from cul-de-sac, one-step deep



- Point block and apartment blocks
- Access from the inner road, one-step deep

Figure 5.3.6 Spatial arrangements (Photos Source: Google Earth)

Morphologically, when the plan layout of the estate is examined, it is seen that the street pattern was predominantly curvilinear with numerous cul-de-sacs instead of the strict geometric form of the interwar period. This arrangement frequently leads to a decrease in the amount of traffic passing through, creating quieter and safer residential zones. This can foster a stronger sense of community among the residents. On the other hand, it can also result in a lack of connectivity and permeability, potentially isolating different parts of the estate.

Aside from the street pattern, the relationship between the houses and the street is another critical parameter. Figure 5.3.6 above shows the different spatial arrangements of the Clifton estate. Spatial accessibility and visibility between buildings and streets play a crucial role in determining the safety and walkability of urban environments. Many studies have emphasised the importance of high visibility and accessibility for making streets more walkable and safer (Hillier, 1996; Gehl, 2011; Jacobs, 1961). In this context, maintaining a one-step depth in the housing-street relationship within the region's dominant pattern is a crucial spatial arrangement that enhances the region's safety for pedestrians.

Today, the total number of households on the Clifton estate is 7684 buildings, with the two main housing types being semi-detached and terraced. While 45% of the houses were short-terraced, 38.6% were built as semi-detached. There is also a 22-storey high-rise block and three-storey flats (12.8%). Although limited in the variety of housing typology, this diversity allows the estate to offer different living environments that can attract a broader demographic. The mix of housing typologies contributes to the social sustainability of the estate by promoting a sense of community among residents of different housing types and encouraging social interactions in different spatial configurations (Table 5.3.1).

Dwelling Type (%)	
Detached	2.8 %
Semi-Detached	38.6 %
Terraced	45 %
Flat (purpose built)	12.8 %
Flat (conversion)	0.4 %
Flat (commercial building)	0.4 %

Table 5.3.1 Dwelling types of Clifton Estate (Source: Census 2021)

5.3.2. Spatial Pattern of Clifton

The global integration analysis results identify the Clifton council housing estate as one of the most segregated areas within the city, as indicated by its blue-range classification (Figure 5.3.7). As explained in historical development, the estate is located south of the River Trent, opposite the main direction of the city's spatial expansion. Clifton Lane, which connects the area via the Clifton Bridge, provides access to the city centre and other parts of the city.

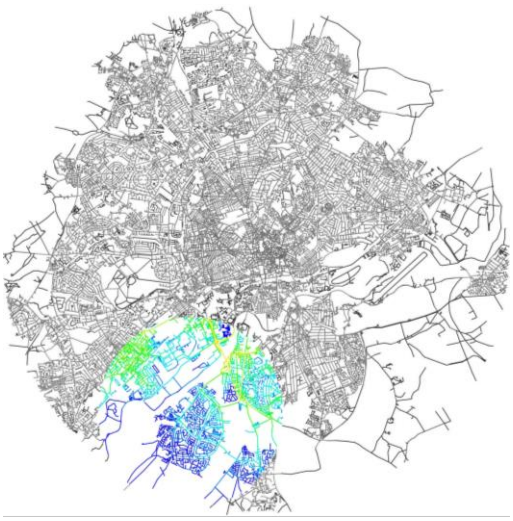


Figure 5.3.7 Clifton estate and immediate surroundings global integration (R4000)

Figure 5.3.8 Clifton estate and immediate surroundings local integration (R800)

The estate's connection to the rest of the city is based on just one road rather than a solid, integrated road network. This weak road connectivity and the river's natural barrier effect result in significant segregation at the global level. Moreover, the estate's lack of a direct spatial connection to the highly integrated Beeston area—an area with high local and global integration values located close to the north-west of Clifton—further isolates Clifton (Figure 5.3.9).

Figure 5.3.9 Clifton global Integration (R4000)

In the local level, the street network significantly supports local mobility, contrasting with a less connected global network. In this sense, the Clifton council housing estate distinctly mirrors suburban dynamics. As van Nes et al. (2021) stated, local integration analysis plays a crucial role in identifying local centres within predominantly segregated suburban areas. The local integration analysis (Figure 5.3.10) shows that Southchurch Drive and Green Line are the most integrated streets. These streets serve as a vital corridor, facilitating pedestrian flows and thus acting as local centres of activity. Following these roads, Remembrance Way, which forms the western border of the estate, is another street with high integration. This street is the main street between the estate and the university campus, and it has a high vehicle density. In this sense, although it has an integration value that supports potential pedestrian mobility locally, it is a street that stands out with the intensity of vehicle mobility rather than pedestrian mobility.

Figure 5.3.10 Clifton local Integration (R800)

According to the integration results of the estate, despite the segregation indicated by the global integration analysis, the local level presents a notable potential for community cohesion and social interaction. The estate's isolation from wider urban opportunities means that it has become more important for the site to provide comprehensive social amenities within its boundaries. Parallel to this, the estate's land use map shows (Figure 5.3.21) that functional diversity and local integration overlap.

Figure 5.3.11 below shows the global choice map showing the main routes in terms of vehicle movement. Although it does not have very high values in the global integration analysis, the three main roads connecting Clifton estate to the city and its immediate surroundings have high values in the global choice analysis. This result highlights the estate's peripheral location, characterised by its limited accessibility from many parts of the urban street network. While the north-south boundaries of the estate are more active in terms of vehicle traffic, Green Lane, which runs east-west through the centre of the estate, is also a route with high potential for vehicle mobility.

Figure 5.3.11: Clifton global Choice (R4000)

The local choice at R800 highlights the local structure of Clifton, which rather emphasises the local street in the estate (Figure 5.3.12). For example, Green Lane and Southchurch Road, which also have high local integration values, are identified by high local choice. These key routes are crucial for local movement, hosting various shops, cafes, and local markets, making vibrant zones with significant pedestrian activity. In addition, there are side roads connecting these main routes to the estate boundary, such as Glapton Lane and Lanthwaite Road, which have high values and potentially encourage movement.

Figure 5.3.12 Clifton local Choice (R800)

As Figure 5.3.13 below shows, there is a weak correlation between Clifton's local and global integration. The Clifton estate's intelligibility value is R^2:0.111. This result shows that the estate is not strong enough to predict the entire city structure at the local level. Moreover, the graph comparing the Clifton estate's intelligibility values with the city's intelligibility shows that the estate's local values are higher than expected according to global values. This result can be interpreted as coincident with the design principles of post-war housing areas, which focused on self-contained neighbourhoods.

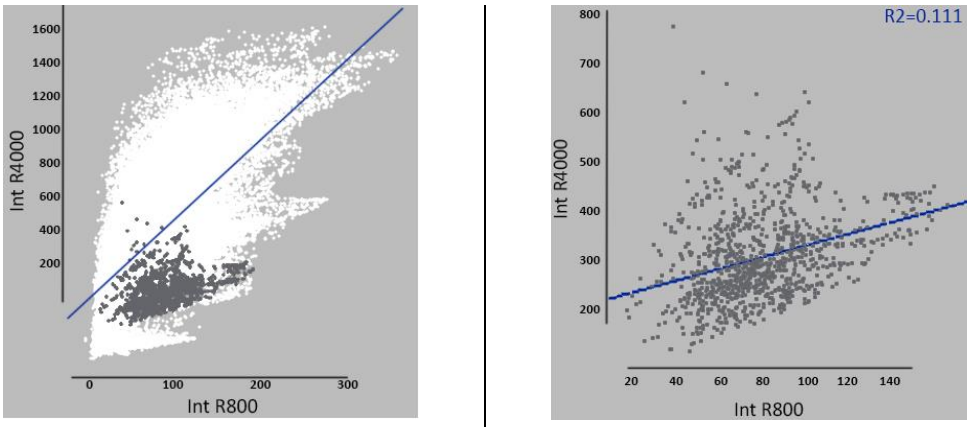


Figure 5.3.13 (a) Comparison of Intelligibility Value Between the Clifton Estate and City-wide Data, (b) Intelligibility of the Clifton Estate

5.3.3. Social Pattern in Clifton

According to the 2021 Census data, the population size of the region selected for the case study is 18,300. The age profile of the Clifton estate, shown in Figure 5.3.14, demonstrates that the estate has a considerable number of young individuals, with a significant population in the age groups 0-24.

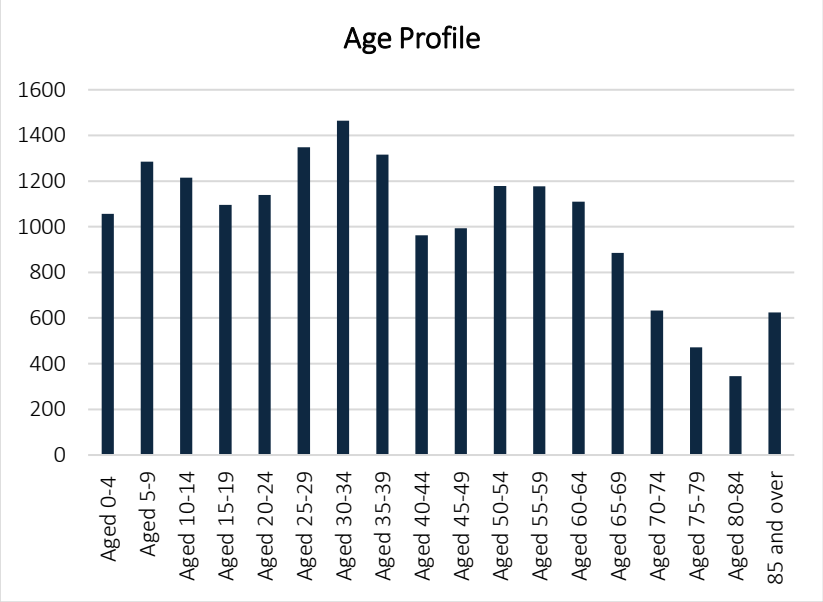


Figure 5.3.14 Clifton Estate age profile (Census 2021)

Moreover, the highest population is in the age group 30-34, followed closely by 25-29 and 35-39. This result indicates a robust working-age population contributing significantly to the local economy. Another remarkable data in the results is the elderly population. The population begins to decrease in the 60-85 age range; on the contrary, there is a significant number of elderly individuals in the 85 and over category. This situation is a sign that health services and care facilities are needed and that spatial

arrangements are necessary. It can also be interpreted as an indicator that the elderly population prefers to live in this region.

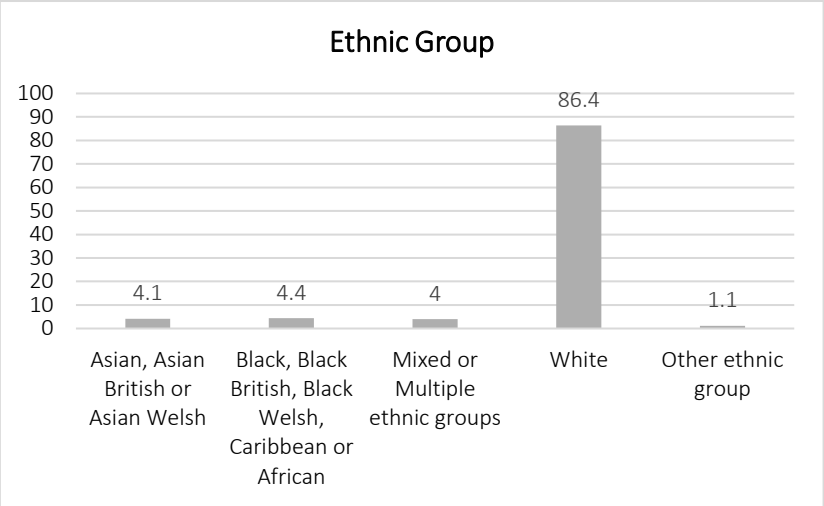


Figure 5.3.15 Clifton estate ethnic profile (Census 2021)

Figure 5.3.15 above shows the estate's ethnic profile. The estate's population is predominantly White (86.4%), and the remaining 13.6% of the population is composed of minority ethnic groups. In this sense, this estate has very limited ethnic diversity.

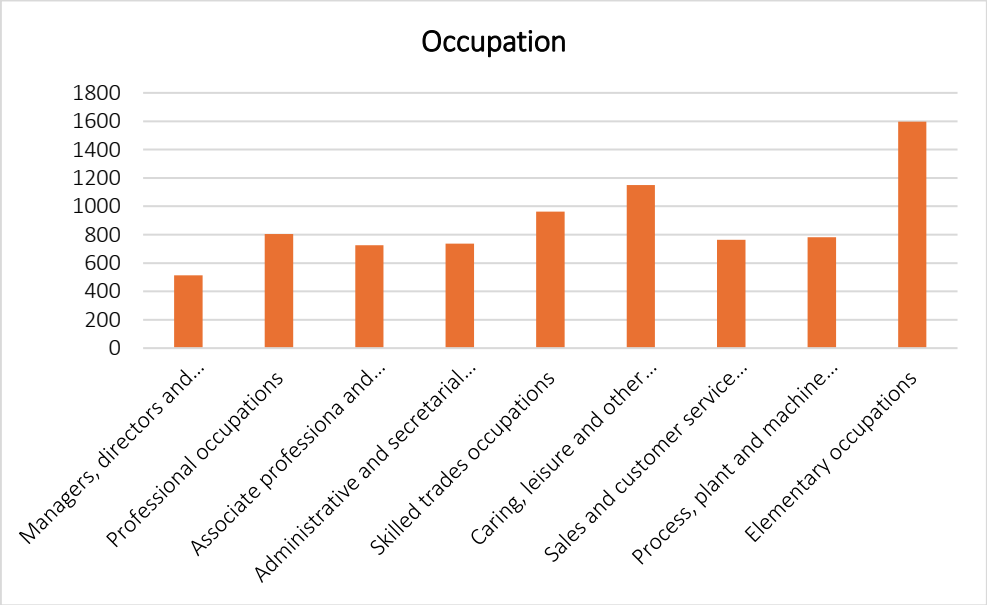


Figure 5.3.16 Clifton Estate occupation data (Census 2021)

When looking at occupation data as an indicator of the socio-economic status of the region, it is seen that the most common occupation type is elementary occupation. Approximately 20% of the population works in primary occupational groups that involve simple and routine tasks. On the other hand, the occupational group of managerial roles, which requires a higher level of education, has the lowest rate. On

the other hand, the rates of the remaining occupational groups are closer to each other (Figure 5.3.16).

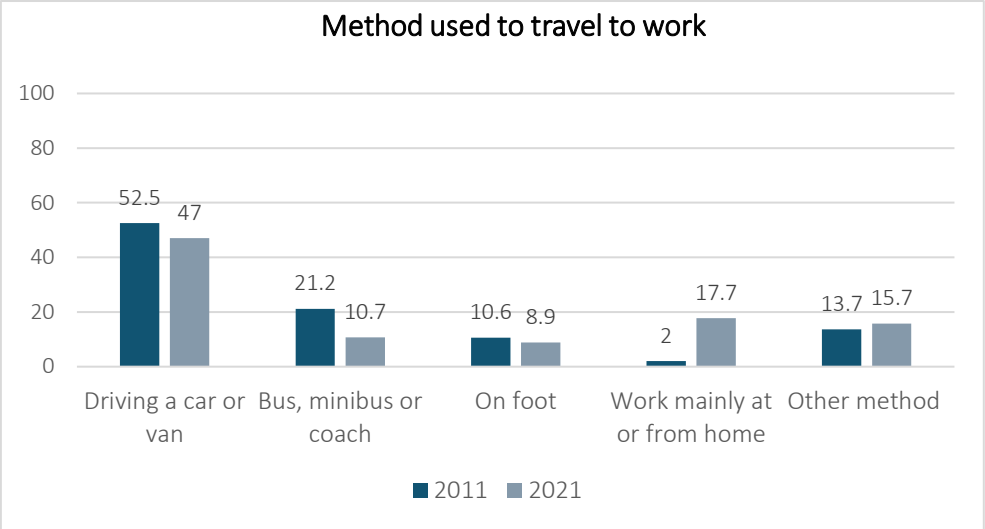


Figure 5.3.17 Method of travel the workplace data (Census 2021)

Transportation method data to the workplace was used to understand the mobility pattern of the estate. As explained in the previous section, data from both years were evaluated to see a more realistic result based on this data. An analysis of the results from both 2011 and 2021 reveals that the most common mode of transportation is driving a car. As a common consequence of many suburban settlements, the region's distance from the city centre and centres of economic activity has resulted in a car-dependent population. However, the data from both years also show a significant percentage of people who walk to work (10% in 2011 and 8.9% in 2021), highlighting the region's potential to offer local job opportunities (Figure 5.3.17).

Figures 5.3.18 and 5.3.19 give the estate's housing ownership rates for 2011 and 2021. Accordingly, while the social housing rate in Clifton has decreased in the last ten years, there has been a significant increase in private rental rates. Moreover, the ownership rate decreased from 57% to 51%. This result means that social housing purchased in the Clifton area is rented privately. However, the fact that half of the houses in the area continue to be used as council housing for rent indicates that the area continues to be used following the purpose for which it was first built.

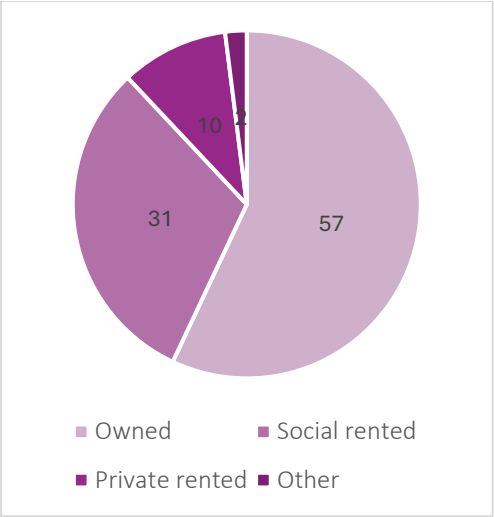


Figure 5.3.18 Clifton Estate tenure of household data (Census 2011)

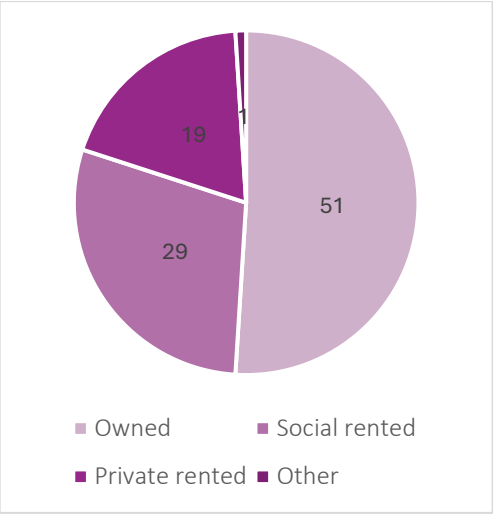


Figure 5.3.19 Clifton Estate tenure of household data (Census 2021)

The map in Figure 5.3.20 shows the locations of council houses on estates. Accordingly, most of the flats are used as social rented housing. In addition, the purchased and socially rented houses are in a spatially balanced distribution. This balanced distribution can be considered a positive situation in that it encourages social integration and reduces segregation.

Figure 5.3.20 Council-owned housing on Clifton estate
(Source: Nottinghamshire Insight Mapping)

5.3.4. Activity Pattern of Clifton

This part will describe the land use map of the case area, the public transit access map, and the findings from the comprehensive observation studies. As mentioned earlier, observation routes were determined based on the results of space syntax analysis.

Figure 5.3.21 Clifton Estate Land use

The map in Figure 5.3.21 above shows the land use of the Clifton estate. As mentioned in the history of the region's development, it is seen that this area, built following the recommendations of the Dudley report published in 1944, was designed by considering the necessary spatial diversity rather than a purely residential estate. There are interaction areas with functions such as markets, cafes, and retail clusters in different parts of the estate. In particular, the area at the intersection of Southchurch Drive and Green Line defines the main shopping and social centre of the estate with its two-way active façade potential. Additionally, the market that opens in this area of the Clifton estate on Fridays is in an ideal location in terms of accessibility and effectiveness.

This area also has a spatial configuration that encourages potential movement, facilitating ease of movement for its residents and visitors. In this sense, the region offers vibrant urban life, where local integration analysis results are supported by functional diversity. These findings are also consistent with the observation study. This vitality is not only a result of its physical layout but also of the diverse range of functions and activities it supports. The high level of local integration indicates that the spatial configuration of the area increases social connectivity and accessibility, making it a well-connected and inclusive urban area (Figure 5.3.22).

Figure 5.3.22 Use of the area on different days of the week (Fridays, when the market is open, people shop and then wait for the bus, and on other days of the week, people are seen sitting on the benches in the area and chatting)
(Photos source: Author)

Given the estate's considerable distance from the city centre, the availability of public transportation is highly important. The tram line opened in 2015, which contributed to the area's accessibility. The figures below show the bus and tram line routes and the distances to the stops within 5 minutes (Figure 5.3.23). The distribution of bus stops is efficient and accessible within walking distance of different areas of the estate. The tram line comprises five stops, fewer than the bus stops in the vicinity. Although the

accessibility of the tram is limited within walking distance, it is efficient with its direct access to the city, which takes 20-25 minutes.

Figure 5.3.23 Public transportation map of Clifton Estate

Observation Results

As stated in the context of the research's methodological approach, within the scope of the field studies, the routes that encourage movement in the estate and are most likely to be passed by potential visitors were determined, and an observation study was conducted. Figure 5.3.24 below shows the observation routes of the Clifton council housing estate. This estate's observation study was conducted five times, three on weekdays and two on weekends, in May 2022 and May 2023. This section will provide detailed descriptive explanations of spatial experiences encountered during the observations along these routes in a text-based narrative supported by photographs.

Figure 5.3.24 Observation routes of Clifton Estate

Observation Route 1

The first observation route, as seen in the map above (Figure 5.3.24), is Southchurch Drive. This route has a high value in both integration and choice analysis results on a local scale and functional diversity and is the intersection line of all public transport routes in the region. In this sense, it is important to understand this area's rhythm to discover the Clifton estate's image.

> ‘This route (Figure 5.3.25), which reaches Clifton from the city centre, starts with a high-rise block, unlike the estate’s typical housing pattern. The first stop of the tram line is at the beginning of the route. The tram, which passes every 15 minutes, represents the linear rhythm of the estate. Vehicles stopping when the tram passes cause tram sounds and vehicle sounds to be separated rather than mixed together. A little further, on the right of the road, you can see the area where the shop, barber, and various retail centres are located. Opposite these commercial areas, semi-detached brick-clad houses give clues about the housing pattern of the estate. Although it is the

main road of the region, almost equal traffic density is observed at different times of the day. This shows that the region is far from the main routes of the city, has an isolated layout, and offers a calm and quiet residential area. It is noteworthy that the gardens of the houses along the route are carefully tended. These gardens reflect the residents' attachment to the place and importance to their living spaces. The pavement sometimes widens and narrows due to car parking areas, which affects pedestrian mobility. Starting from the intersection of Rivergreen Lane and Southchurch Drive, the streetscape, soundscape, and the rhythm of the area suddenly change. This part offers a less urban pattern, surrounded by large trees and large green areas on two sides. On a warm day in May, the gentle breeze on the leaves and the soft conversations of people walking their dogs in the morning add a calm atmosphere to this area. Once you pass the Leisure Centre, the pedestrian movement density, streetscape and soundscape change once again. When you come to the centre of Clifton, you encounter many people shopping, visiting the library, sitting on the bench and chatting, and waiting for the bus/tram at the stop. This centre stands out as the social heart of the estate, a place for people to meet and interact. In particular, the presence of many elderly people gives important clues about the population age distribution of the region. The market opening in this area every Friday completely changes the rhythm of the region. The market starts in the morning and continues until the evening. The market's unique rhythm, sounds, dynamism and even the smell of fresh vegetables and fruits change the image of the estate. After crossing the Green Line, the rhythm changes once again, and the density gives way to a quieter area surrounded by residences on both sides. The houses in this section have exteriors re-clad and painted instead of brick cladding houses. Most of the gardens are surrounded by meticulously trimmed hedges and fences. A little further on, the church, which is the area's landmark, is seen, and the route continues with houses of typical pattern with brick cladding until a third shopping centre area represents a less dense area at the end of the road.’

Figure 5.3.25 Observation of Southchurch Drive

Observation Route 2

This route is the other street with the highest local integration value in the region. Due to the high global election analysis, it is also the street where the region's potential vehicle mobility is observed.

> 'The route (Figure 5.3.26), which starts from the street with high traffic density that forms the western border of Clifton, continues with calmer while still heavy traffic. The iron railings throughout The Glapton Academy Garden restrict physical access but provide visual accessibility, presenting a rhythmic visual. The path is further characterized by large trees planted regularly, creating a consistent natural rhythm. Across the street, the urban landscape is marked by a repetitive pattern of semi-detached and short terraced houses. The morning hours are much quieter, and the afternoon hours are accompanied by light conversations of people tending to their gardens and those waiting at the bus stop. The inner streets that intersect Green Lane and provide access to the inner areas of the estate offer perspectives on the monotony of the estate's housing pattern.

It is seen that the front gardens of many houses along the road are used as car parks. When approaching large supermarkets like Lidl, B&M, and Morrison, pedestrian activity and car mobility notably increase. This area, which is observed to be busier, especially on weekends, constitutes the retail centre of the region. Here, it is also possible to hear daily conversations among elderly people resting after shopping. After the intersection of the main streets, the route continues with quieter residential areas. After passing the youth centre, the area with residences surrounded by high fences with no direct access from the road attracts attention as an element that changes the street rhythm and permeability. If you turn off the main road onto the side roads, the narrower roads more clearly reflect the region's spatial pattern. This road, where only a few elderly people walk at noon, can be busier in the evening. The bus comes every half hour, creating long waiting times at the stop, adding a layer of stasis to the dynamic urban rhythm. When you come to the end of the route, you come to the end of the settlement, urban texture and movement. The intense traffic flow and the wide green areas indicate an end and a border.'

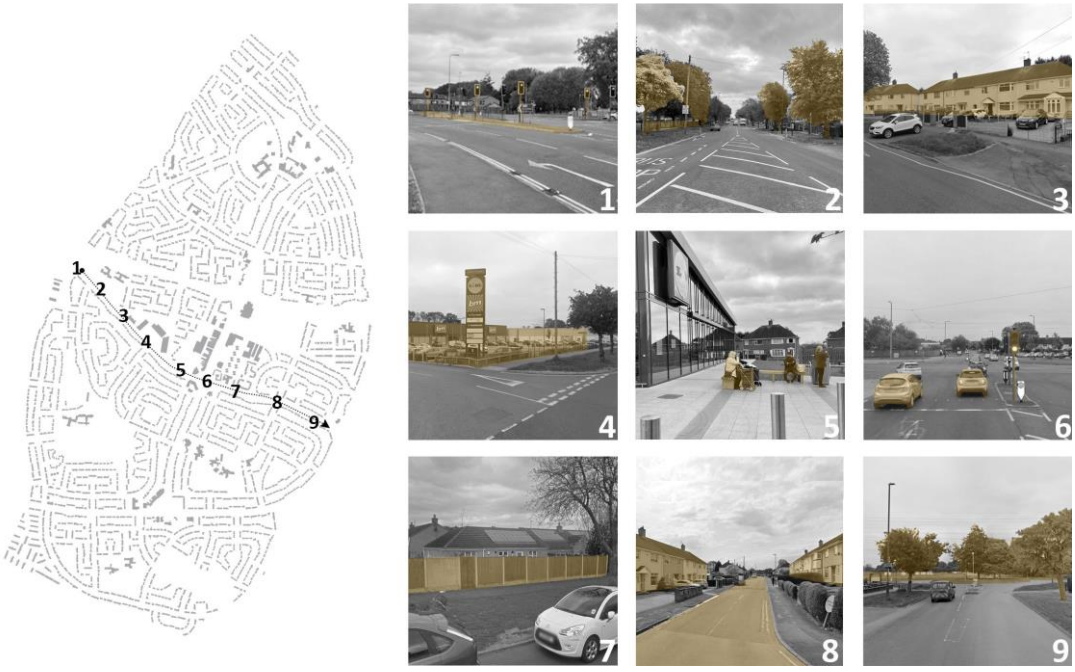


Figure 5.3.26 Observation of Green Lane

The results of the observation study are given above in a comprehensive, descriptive, and phenomenological way. Both selected routes were found to be important in terms of containing spatial elements that contribute to the image of the region and the dynamics they offer. Southchurch Drive as observation route 1, in particular, can potentially represent the estate's rhythm with its high local integration value, pedestrian mobility correlated to the analysis results and functional diversity.

5.3.5. Rhythmanalysis: A Layered Narrative of Spatial Experience in Clifton

As a result of identifying and observing the spatial patterns that trigger movement and interaction, insight into the changing rhythm of the area has been gained. The daily manifestations of the conceived space are visualised in a layered form in the figure below. In addition to the recurring spatial patterns of the area and the daily linear and cyclical rhythms that emerge in its surroundings, Clifton estate has areas that define the polyrhythm of the area, including areas that contain different encounters, spontaneity, and spatial diversity. Figure 5.3.27 below presents a layered narrative representing the spatial and rhythmic dynamics of observation route one on the Clifton estate. In terms of offering a variety of experiences on the Clifton estate and the multidimensionality it offers in terms of layering potential, this route has the potential to reflect the representative rhythm of the region as a microcosm.

There is a unique rhythm that offers variety underneath the seeming monotony. This rhythm emerges as a result of the changing pedestrian movement, traffic flow, and spatial variations on different days of the week and each day from morning to evening.

The part of the street where functional diversity is dominant and offers a two-way active façade contains a multi-layered polyrhythm. As revealed in the spatial analyses, this street, which offers a high potential for movement at the local level, demonstrates the complex structure of urban rhythms. The market set up in the region on Fridays is a temporary spatial intervention and symbolises a linear rhythm in temporal terms. If we explain it with Lefebvre's concepts, such a differentiation creates a break in the general rhythm of the space, and the entire street and even the region are reshaped in interaction with other rhythms. This represents a situation where rhythms diversify harmoniously, which Lefebvre defines as 'eurhythmia'. The market, which starts to be set up in the early morning hours and the increasing activity in the afternoon hours, determines the residents' shopping habits and the revitalisation process of the region. This activity contributes to the social and economic dynamism of the region by reshaping the rhythmic structure of the space.

This area continues to be actively used on other days. People do their daily shopping and banking, have short chats, spend time, and socialise here. Offering a space for all the necessary, optional, and social activities defined by Gehl (2011), this area functions as a *node* for the estate. At the same time, this street, which is located on the main transportation axis of the area, shapes the mobility rhythm of the neighbourhood and

makes it visible. Bus stops and tram stations create pedestrian mobility at all hours of the day, which is a clear reflection of the social and human *linear rhythm* of modern life.

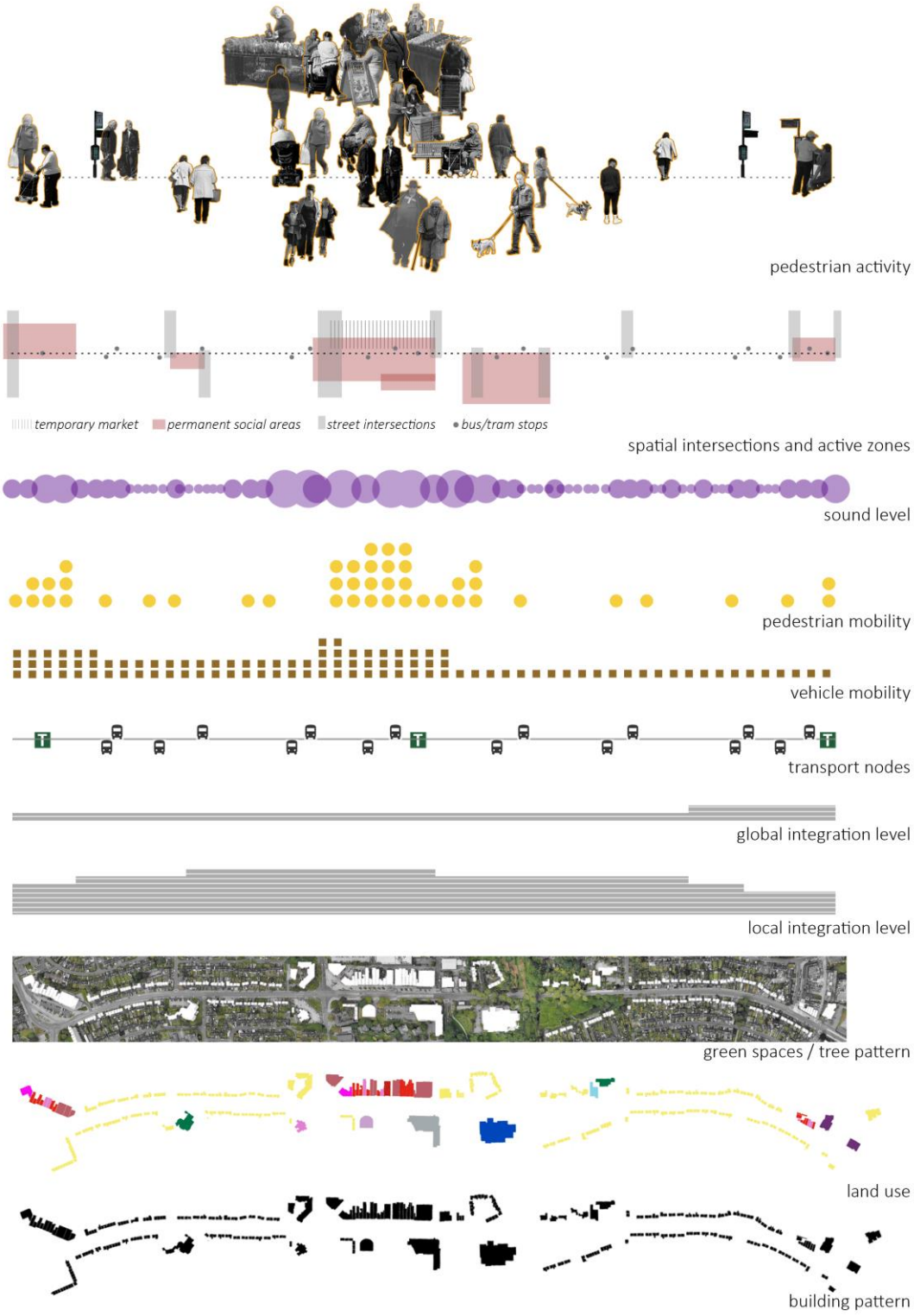


Figure 5.3.27 Layers of the region that reveal the lived space and have the potential to define daily rhythms

5.3.6. Conclusion

Clifton Council Housing Estate is one of the important social housing settlements in the city, built in the suburban style of the post-war period. This estate was designed with the necessary social facilities in mind within the scope of the neighbourhood concept of the period.

As an example of the top-down production process, it is a typical residential area with an introverted and segregated life as a result of the expansion of the city boundaries and the construction in the opposite direction of the city. The settlement, which caused its residents to feel isolated due to its remoteness from the city centre and inadequate social space opportunities when it was first built, has transformed into a neighbourhood with an increased sense of community with improved transportation and facilities over time.

According to space syntax analysis results, Southchurch Drive and Green Lane, which have high integration at the local level, contrary to the globally segregated pattern, pass through the area. These routes, which have high movement potential, correlate to the observation results. At the intersection of these two streets, there are spaces that meet the needs of the area with their functional diversity. There are various land uses such as shopping malls, libraries, entertainment centres, cafes, restaurants, banks, pharmacies and office units. In addition, Clifton Central Park is one of the important areas for pedestrian use. These locally integrated routes, determined through space syntax analysis, provide critical images that reveal the lived space of the neighbourhood as the area where daily rhythms and activities take place. Furthermore, the correlation between the integration analysis at the local level and observational data validates the analytical method used. On the other hand, the space syntax analysis indicated that Clifton estate has a low level of intelligibility, which means that it is difficult to estimate the city's spatial pattern based on the estate level.

The Clifton estate, which was designed according to the neighbourhood concept in the context of the post-war spatial design criteria, has spaces that meet the region's needs with their functional diversity, especially around the intersection of Southchurch Drive and Green Lane. Various mixed-use developments, including shopping centres, libraries, leisure centres, cafés, restaurants, banks, pharmacies, and office units, are present in the area. Additionally, Clifton Central Park serves as a key zone for pedestrian activity. In this sense, this area can be considered the focal point of daily community life in Clifton.

When the population data is examined, it is seen that the region has low ethnic diversity and a high elderly population rate. This demographic structure also aligns with the findings obtained during the observation studies. The fact that elderly individuals are encountered intensively in the estate, especially in the morning and afternoon

hours, reveals that this age group is more visible in daily life. The elderly population, who go shopping in the early hours of the morning, participate in social activities or spend time in park areas, reflects that they are an active part of the elderly demographics of the region.

5.4. Victoria Centre Flats

The building selected as a case study from the high-rise council housing construction period is the Victoria Centre flats located in the city centre. This section will proceed similarly to previous case studies. However, unlike other estates, census data has not been included for Victoria Centre flats. The data, accessible to everyone via Nomis (https://www.nomisweb.co.uk/), is provided on a regional basis rather than for specific buildings to prevent access to personal data on an individual level. Therefore, it was decided not to use this data since specific information for only this building could not be obtained.

The Victoria Centre Flats, different from the other cases in every aspect, will be explicitly evaluated as a legacy of the high-rise building period that is still in use without being demolished, beyond being examined by comparing it with the other cases.

5.4.1. A Brief Historical Development of Victoria Centre Flats

Victoria Centre flats were constructed in the city centre of Nottingham on a 20-acre plot of land after the Victoria Station building (Figure 5.4.1), which was operational from 1900 to 1967, was demolished due to a decrease in its usage over the years. This council housing block was constructed with a shopping centre using the common concrete frame construction method of the period. The construction of the Victoria Centre shopping centre and flats was completed in 1972. Designed by Arthur Swift, this complex was described as a part of *'a new city centre'* (Matthews, 2019).

Figure 5.4.1 Demolished Victoria Station building, 1953 (Source: www.picturenottingham.co.uk)

Figure 5.4.2 Victoria Centre Flats construction nears completion, 1971 (Source: www.picturenottingham.co.uk)

The clock tower of the old railway station, seen in Figure, has been conserved, and the Victoria Centre has been designed to include this image of the city's past. This contrast creates an image that allows us to see the layered difference between the architectural approach of the 1900s and the modern period. Standing as a reminder of urban heritage, the clock tower presents a striking contrast to the dramatic and harsh lines of the modernist façade behind it (Ritter, 1964). On the other hand, Wight (1973)

criticised the clock tower's conservation and its juxtaposition with the modern exposed concrete construction of the 1970s, describing it as an *'isolated and incomprehensible relic of an age when the standards of city centre building were much higher than they are now'* (Wight, 1973, p.184).

Unlike other high-rise council housing buildings built in the same period, the fact that the Victoria Flats were designed in the city centre and together with a shopping complex makes these flats clearly different from others. The 5-block housing complex, with 464 flats varying in height from 7 to 23 storeys (Figure 5.4.3), presents a council housing image that is completely different from other suburban-style council housing, far from the city's liveliness.

Figure 5.4.3 Victoria Centre council housing blocks from Glasshouse Street (Source: author)

In a 1964 interview, Arthur emphasized the project's complex structure, combining retail, commercial, and residential/social elements. He also noted the influence of the Buchanan report, which advocated a separation of vehicular and pedestrian traffic, on the project's design (Midlands News, 1964). Despite some interventions made later in the project's original state, the fact that social housing was preserved in the final scheme can be interpreted as an indicator of Nottingham Municipality's determination to construct council housing. In this sense, Victoria Centre Flats social housing is a result of the period's government subsidies being provided intensively to high-rise housing.

In addition to the advantages of the building's central location, particularly in terms of accessibility to the city's diverse amenities, a significant drawback is the lack of sufficient communal spaces for residents. Moreover, there is no direct access to open areas from the flats. These inadequacies have been criticised, both architecturally and in terms of fostering social interaction. While the original design included plans for common outdoor spaces, these were subsequently cancelled as part of later

modifications to the development. The only shared area currently available to residents is a poorly developed roof deck located on the fourth floor, which fails to meet the social and recreational needs of the community adequately (Shepherd, 2022).

On the other hand, access to the flats is provided only by elevators reserved for residents in the shopping centre. Due to the occasional technical problems, complaints from residents on this issue have been reflected in the press (Nottingham Post, 2021). In addition, Shepherd (2022), in his study on the Victoria Centre, emphasized in his interviews with residents living in the centre that the lifts are essential not only for access but also as a means of socialization in the context of social purposes and the possibility of encountering residents.

5.4.2. Spatial Pattern of Victoria Centre Flats

In the integration analyses at both 4000m and 800m radii in Nottingham, it is clear that Victoria Centre and its surroundings represent the most integrated and accessible part of the city. This area is described as the core of the city centre. This area of the city centre has a high interaction potential with a well-connected street network and high integration value. The region is also one of the most important areas where the diversity of functional activities markedly enhances urban vitality.

Figure 5.4.4 Victoria Centre Flats and surroundings global integration (R4000)

Figure 5.4.5 Victoria Centre Flats and surroundings local integration (R800)

According to results from global and local analyses, all roads in the immediate surrounding of Victoria Centre are in the orange-red colour range and have high integration values (Figure 5.4.4 and 5.4.5).

Figure 5.4.6 Victoria Centre Flats global Integration (R4000)

In particular, Mansfield Road to the west of Victoria Centre and Lower Parliament Street to the south are the city's most integrated streets. These streets are the arrival and starting points of many significant public transportation networks. In this sense, it is an intersection and meeting point for both the residents and visitors of this region.

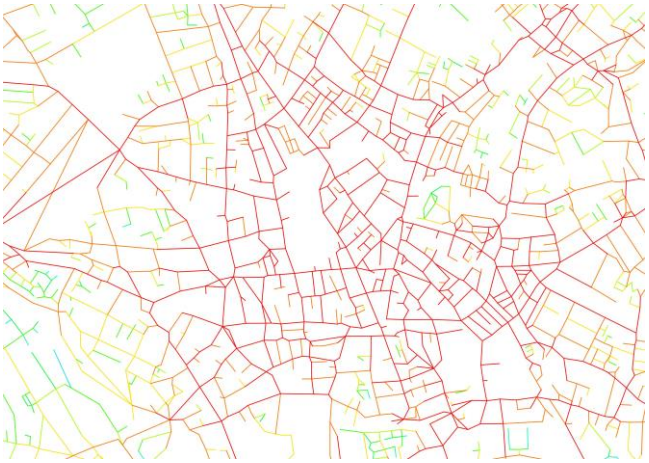


Figure 5.4.7 Victoria Centre Flats local Integration (R800)

In the global integration analysis (Figure 5.4.6), the northeast of Victoria Centre has lower integration than other regions. Although this area is geographically close to the centre, it shows secondary roads and low-density residential areas that are less integrated.

In Figure 5.4.8 below, the roads with potential intense vehicle mobility are shown in red in the global choice map showing the main routes. However, as a result of global choice analysis, many streets in the south of Victoria Centre, which have high vehicle traffic potential, have been pedestrianised. In this sense, Lower Parliament Street form a boundary between public transportation traffic zones and exclusively pedestrian areas. This street functions as a transitional zone that separates two distinct environments: one side is characterised by roadways primarily used by vehicles for

efficient mobility and accessibility, along with high pedestrian movement, while the other side consists of pedestrian-only streets designed for leisure, commerce, and social interaction.

Figure 5.4.8 Victoria Centre Flats global Choice (R4000)

In local choice analysis (Figure 5.4.9), most of the primary roads in the area are highly preferred by pedestrians within the 800m radii, which defines a 10-minute walking distance. As can be seen in the land use map of the region in the next section, supporting these streets, which have a high potential to be preferred by pedestrians, with areas that encourage social interaction, such as shops, cafes and restaurants, has presented the image of a vibrant city centre. As a result, the Victoria Centre, located in the centre of Nottingham, is a very important and accessible junction for the city.

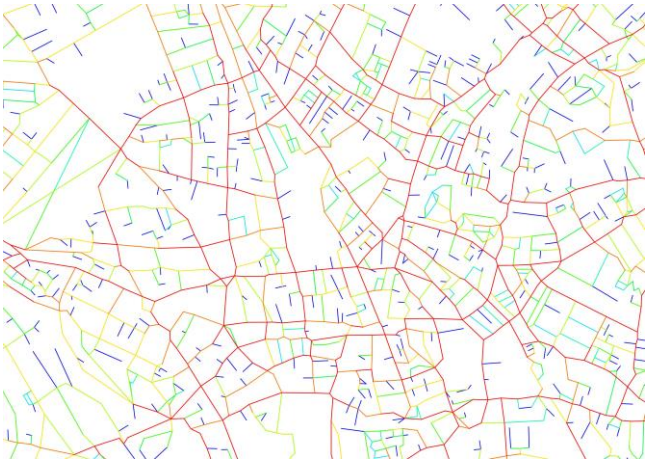


Figure 5.4.9 Victoria Centre Flats local Choice (R800)

As Figure 5.4.10 below shows, there is a strong correlation between local and global integration. This area's intelligibility value is R^2:0.821. This means that the region can provide easy access to the city's resources and main transportation routes and that the system is predictably strong at the local level in the context of the part-whole relationship.

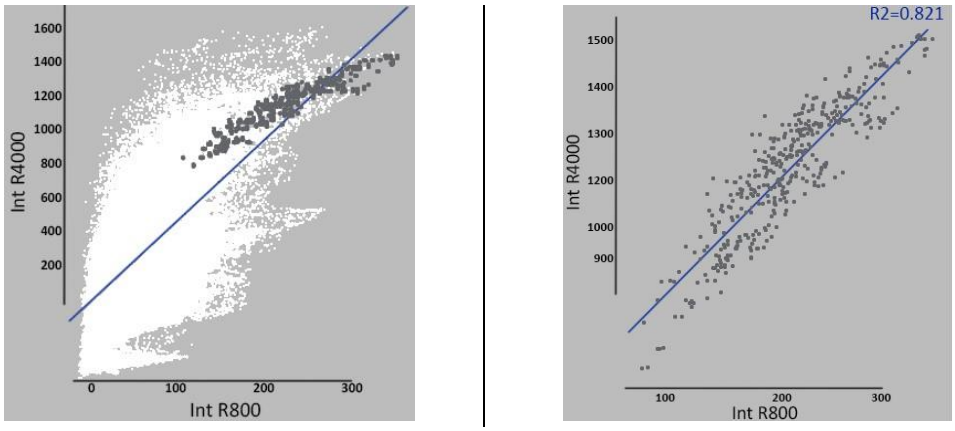


Figure 5.4.10 (a) Comparison of Intelligibility Value Between the Victoria Centre and City-wide Data, (b) Intelligibility of the Victoria Centre and its surroundings

5.4.3. Activity Pattern of Victoria Centre Flats

The map in Figure 5.4.11 shows the land use distribution of Victoria Centre Flats and its immediate surroundings. A dominance of retail, commercial activity, office and mixed-use characterises this urban area. In addition to the dominant pattern, the presence of university campuses and student accommodation areas belonging to Nottingham Trent University, one of the city's two universities, is another important component that diversifies the area's land use. Moreover, St Mary's Rest Garden, to the east of Victoria Centre, attracts attention as an important area that meets the region's need for open and green space in this high-density building pattern.

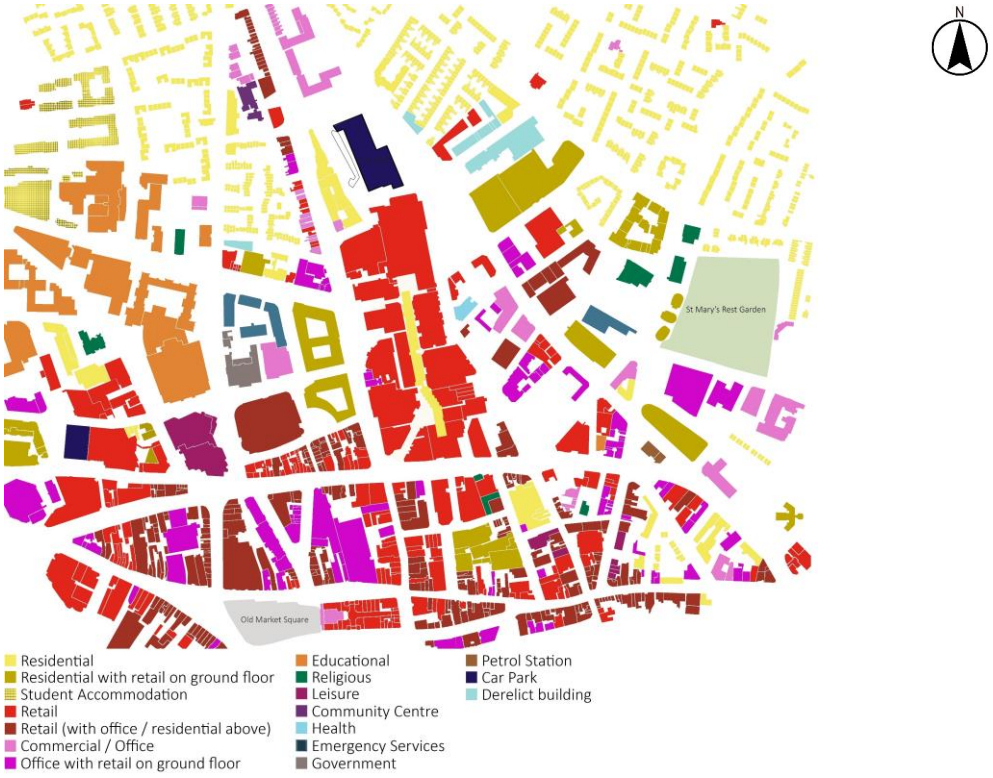


Figure 5.4.11 Land use map

Victoria Flats Council housing is an important residential area that offers a very dynamic and practical experience in the context of direct access to the opportunities offered by urban life. In the context of easy meeting of daily needs, shops, offices, restaurants, and other service sectors allow residents to do their work, shopping and social interactions just a few steps away. In addition, the functional diversity offered by the region as an urban centre is important in the sense that it encourages social interactions, whether chance encounters or predetermined.

Another key determinant of the region's dynamics is that public transport networks serving various parts of the city primarily pass through the vicinity of the Victoria Centre Flats. Public transport facilities, which will be discussed as an essential component shaping the rhythm of the region in the following sections, are valuable not only for facilitating access from different parts of the city to the centre but also for providing mobility to council housing residents without the need for car dependency.

Observation Results

With its central location, the Victoria Centre blocks provide a direct experience of city life for council tenants. In this context, the observation studies cover the four main roads surrounding the Victoria Centre facade, which is the first encounter with the city for people residing in the council flats. To access their homes, council tenants must use the lifts dedicated for residents only in the Victoria Centre car parks. At this point, each tenant experiences this immediate environment. However, the results of this observation study are too densely populated by visitors to be limited to the experience of only those living there due to the location of the building. The observation studies are shared below as two separate routes: the west and south sides of Victoria Centre, where there is intense pedestrian and traffic flow, and the east and north sides, which offer more isolated areas relatively.

Observation Route 1

‘The route (Figure 5.4.12) begins with a street that reflects the rhythm of the city centre and maintains its urban vitality with movement and flow at all hours. This area is one of the most active streets of the city in terms of both traffic and pedestrian activity. It is possible to obtain clues about urban life along this street, which supports social interaction, encounters and consumption with its functional diversity. As you approach the Milton Street entrance, one of the four main entrances to the Victoria Centre, the clock tower with its red brick and stone facade that stands as a witness to history immediately draws

attention. This clock tower's traditional style contrasts sharply with the Victoria Centre's modern, transparent glass facade, symbolizing a dialogue between past and present. The entrance to the shopping centre is provided from both sides of the clock tower. This front area functions like a definite square, a social hub where people wait for each other, meet, and chat beyond the intensity of the shopping centre's entrance and exit. This area has a high pedestrian population, especially on weekday evenings and weekends. If you are walking the street on your busy day, you may not see Victoria Centre flats unless you look up. However, especially when approaching this area from the road directly opposite the Clock Tower, you can be aware of the Victoria Centre Flats that form a background for the Clock Tower. This important image reflects the contrast between the building's period, construction style, facade material and scale. In addition to spatial contrasts and diversity, the region also has elements that affect the rhythm of the space in a sensory context. For example, the McDonald's next to the Clock Tower adds a specific smellscape to the street; moreover, trees continuing both sides of this section of the street soften the urban pattern without obstructing it, creating a blend of nature and urbanity. As you proceed down the street, the road reaches where a continuous pedestrian flow is observed, with bus stops on both sides. Visitors from different parts of the city gather around the stops at all day hours. The increase/decrease in the density of people here changes rhythmically. The density of people fluctuates rhythmically and offers an intense movement open to spontaneous encounters. This area is a microcosm of the city's diversity in terms of population, economy, and ethnicity. You might see people leaving the shopping mall with luxury bags juxtaposed with homeless individuals who have found a corner of the shopping to create their living place. This area has the potential to provide an experience of all the differences, diversity and contrast in every sense. As you approach the main entrance to the centre, you may notice someone sitting on the boundary wall, creating a moment of variety in use. As you approach Lower Parliament Street, the pedestrian density increases. The inviting transparency of the store entrance facades, in contrast to the dominant concrete surface, creates a duality that contributes to the rhythm of the space. The atmosphere changes after returning to Lower

Parliament Street just after passing the main entrance. In addition to the main entrances, the entrances of the shops in the centre define other pedestrian movement points. This street is also the heart of the city's active public transport network, and especially in the evening hours, it is possible to come across long bus waiting queues. As you proceed along the route, an undefined space and immediately after a dead-end street and inactive, blank facades are the main elements that change the atmosphere. When you reach the end of the route, the pedestrian density has given way to traffic density. From this point, it is possible to get a clearer view of the size of the Victoria Centre flat blocks.'

Figure 5.4.12 Observation of Milton Street and Lower Parliament Street

Observation Route 2

‘When you turn into Glasshouse Street (Figure 5.4.13), you encounter a calmer, quieter, and less dense streetscape. It feels like crossing an invisible boundary. After Lower Parliament and Milton Street, which are characterised by active pedestrian flow, functional diversity, and urban vitality, this street contrasts with a more isolated atmosphere where the edge effect can be observed. The ongoing construction work creates a background in the sound rhythm of the street, and its noise increases from time to time. As the road progresses, the Victoria Centre blocks, visible with their slight bend, extend vertically with a dominant position to be defined as a landmark. The route, which continues with the entrance to the shopping centre's car park entrance, continues to offer dominant images of the density of the structure. The reeded concrete texture along the impermeable and solid facade of the building and the black brick coating at lower levels allow the traces of the building's construction material to be seen up close. The difference in material and scale also affects the atmosphere of the street. This facade continues to display its strong image that draws an edge effect. Although not designed, this street allows you to encounter different spatial uses of people. It is possible to see someone sitting and eating something from the service stairs or a centre employee who has taken a break, as can be understood from their logo-covered clothing. These small, everyday occurrences add layers of human activity to the street's narrative. A little further on, the third entrance, which is used much less than the other two main entrances, is seen. This entrance, unlike the front façade entrances, which are surrounded by billboards and designed to invite attention with transparent materials, is merely a functional door that provides access to the building without drawing much notice. This entrance, although not actively used, is observed to be used more frequently during weekend evenings than at other times. The road continues with an empty, undefined area surrounded by a wire fence. With the slight slope of the road, an image can be captured where the difference from the Victoria Centre flats' surroundings can be understood again. At this point, if you do not have any idea about this centre, you can think that this is an office building. There is no clue about the shopping centre.

When you turn onto Cairns Street, you come across people leaving the shopping centre with bags. This entrance directly connects the open car park to the centre. On a sunny day, people sitting in the small green area in front of the entrance can personalise the space with their actions that continue to create alternatives to the use of the area. The route ends by passing in front of the centre's second closed car park entrance and connecting to the main road, including heavy traffic and pedestrian activity.'

Figure 5.4.13 Observation of Glasshouse Street and north of the Victoria Centre

5.4.4. Rhythm of Victoria Centre Flats

The narrative of the Victoria Centre area, which uncovers the distinct rhythm of the region by integrating both analysis and observation results, is visualised in Figure 5.4.14 below. This street, which is not only specific to this region but also functions as a microcosm of active urban life, offers a rich layering in terms of reflecting rhythm.

The street has high integration values at both local and global levels, and this potential is supported by the functional diversity of the area. The intersection points of pedestrian axes, two facade social areas, and especially the entrance areas that encourage meeting and interaction, as well as the square located at the front facade, are the main components that create the rhythm of this area. The architectural elements used in defining the square contribute to the spatial diversity and rhythmic pattern of the area. The entrance to the shopping centre is also the point that provides access to homes for those living in council housing. In this sense, the residents witness all this life. This spatial diversity strengthens the layering of rhythms and provides dynamic movement in the area.

In addition to the constant flow of people moving through the street, the rhythm of the area is further diversified by the temporary pauses that occur in key spaces such as the square and bus stops. These moments of pause—where individuals meet, rest, or engage in activities such as talking on the phone—introduce subtle but significant variations in the rhythm of the space. While the continuous movement of the crowd establishes a baseline of urban activity, these intermittent breaks in motion create a contrasting layer of stillness, adding richness to the overall spatial rhythm. This interplay between movement and pause reflects the dynamic nature of urban life.

The street section examined in detail exhibits a multi-layered polyrhythm. While vehicle mobility dominated by public transportation causes an increase and decrease in the number of people waiting rhythmically, the mobility of pedestrians stands out as the dominant element of this rhythm. Bus stops are not only a factor that determines this rhythm but also a reflection of the social and human linear rhythms of modern life.

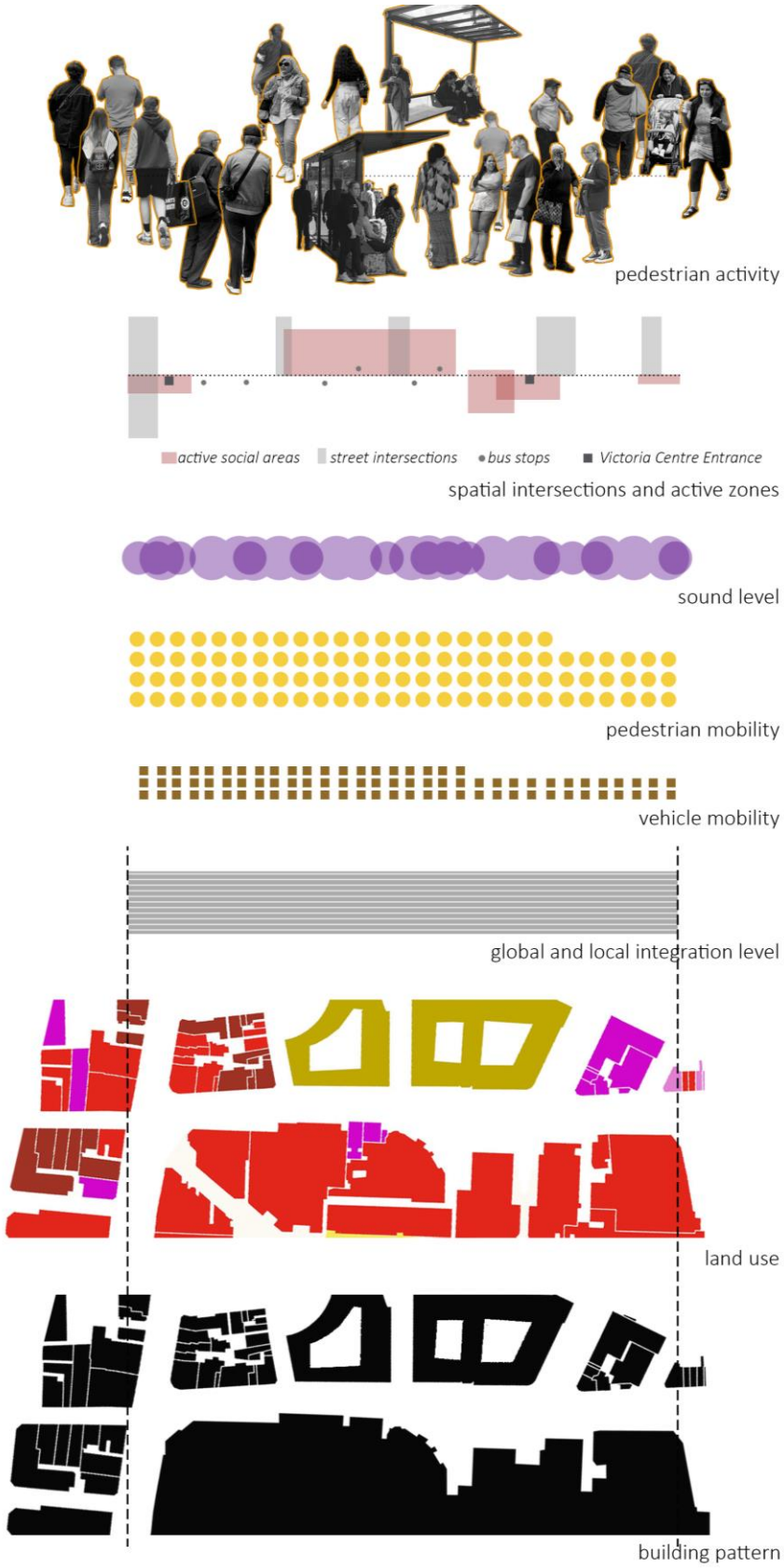


Figure 5.4.14 Layers of the street that reveal the lived space and have the potential to define daily rhythms

5.4.5. Conclusion

The Victoria Centre flats stand out as one of the most important examples of the period when high-rise council housing was built in Nottingham. In particular, the demolition of the old railway station and the construction of this building in its place are of great importance in terms of the urban transformation of the area. Both architecturally and in terms of its central location, the Victoria Centre has not only represented high-rise housing construction but has also become a symbol of a significant transformation taking place in the city centre. In this context, it concretely demonstrates the impact of social housing policies on the modernisation and transformation processes in the city centre. In addition, the fact that it was designed in the city centre together with the shopping centre distinguishes this building from other high-rise council housing examples in the city.

Depending on its location and design, unlike traditional council housing estates, the Victoria Centre flats are an important example of mixed-use and modern architectural understanding that allows council housing tenants to directly experience urban life and actively participate in this dynamic life. The presence of a shopping mall, commercial areas and social interaction points together with the residences transforms this structure from a mere shelter to a living space integrated into the rhythm of urban life. In this respect, it can be evaluated as a unique example emphasising the importance of mixed-use, integrated social housing solutions in urbanisation processes.

When the results of the global integration and choice analyses are compared with the observation results, two different pictures emerge. In Milton Street and Lower Parliament Street (observation route 1), the space syntax analysis results and the observation results largely overlap. These streets confirm that they have intense pedestrian mobility and active use areas thanks to their high integration values. On the other hand, Glasshouse Street, despite its high integration value, does not correlate with the observation results due to its inactive facades and car park entrances. This situation shows that there is an inconsistency between the integration potential of the physical space and the user experience. This sharp difference between the front and back facades of the Victoria Centre causes the area to become a ‘boundary element’; while the front facade is lively in terms of commerce and social interaction, the back facade has a more isolated and passive character. This separation reveals that spatial experiences in urban life are not homogeneous and that urban rhythms may vary in different parts of the space.

Beyond these, the Victoria Centre is also important in terms of the city's image. Located in the city centre, this building makes a strong contribution to the general texture of the city, both physically and socially. In this context, when evaluated within the framework of Lynch's (1960) approach, the building functions as a visual reference

point as a landmark and can also be defined as a node, a centre of interaction, and a junction located on the city's main axes.

5.5. Top Valley Council Housing Estate

This section will provide a detailed analysis of the Top Valley council housing estate as a final case study of research, following a similar format to the previous cases outlined.

5.5.1. A Brief Historical Development and Morphological Analysis of Top Valley

As discussed in Chapter 1, following the official end of high-rise council housing construction in 1968, a significant turning point in the history of council housing, the focus shifted toward low-rise, garden city-style, and low-density housing. This marked a return to earlier principles of suburban living, emphasizing green spaces, private gardens, and a more human-scaled urban environment. Within the periphery of Nottingham, the Top Valley estate stands as a smaller-scale development compared to the much larger estates of Clifton estate and Bestwood estate, located four miles north of the city centre (Figure 5.5.1). Most of the housing in the area was completed between 1975 and 1980 (Matthews, 2019).

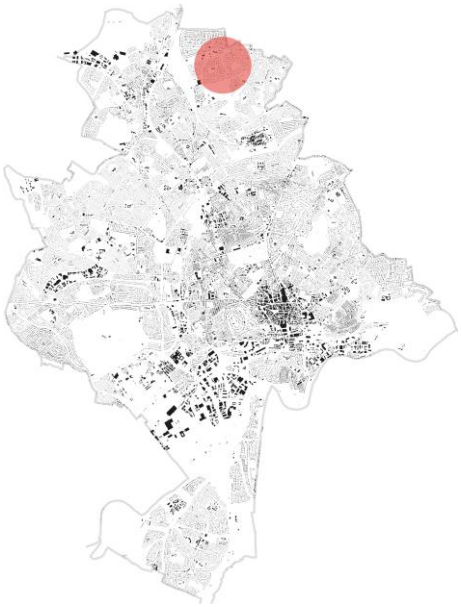


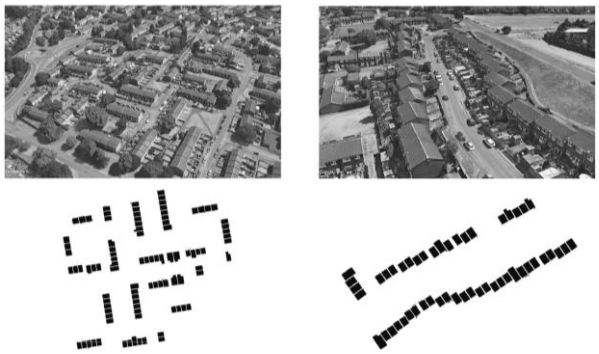
Figure 5.5.1 Location of Top Valley

Figure 5.5.2 Case study area

The Top Valley estate was planned in accordance with the principles outlined in the Buchanan Report. This report recommended the creation of safer and quieter walking areas for pedestrians while designing main roads and urban motorways for vehicles, with the aim of separating pedestrian movement from traffic. This approach on estate resulted in a design for separating movement through pedestrian underpasses. This has led to a more fragmented urban area, as will be discussed in the observational studies in the following section (Figure 5.5.3).

Figure 5.5.3 Main Road passing through estate boundaries and underpass reserved for pedestrian access (Photo source: Author)

When the spatial layout of the estate is examined morphologically, there are two dominant settlement patterns. The first spatial layout is residential clusters accessed via interconnected cul-de-sac streets, promoting a sense of enclosure and community-oriented design. The second pattern is characterized by terraced houses with direct access along main roads, facilitating easier connectivity and interaction with the broader urban environment (Figure 5.5.4).



• Cluster Layout • Access from cul-de-sac, one-step deep from inner road	• Linear layout • Access from the main road, one-step deep

Figure 5.5.4 Spatial arrangements (Photos Source: Google Earth)

Currently, there are 2420 households on the Top Valley estate, with the two predominant housing types being terraced houses (40.5%) and semi-detached houses (30%). In addition, 16.5% of the residences are designed as flats, contributing to the spatial diversity of the area (Table 5.5.1). This diversity in housing types plays a crucial role in accommodating different social groups, fostering a more inclusive and mixed community.

Dwelling Type (%)	
Detached	11.6 %
Semi-Detached	30 %
Terraced	40.5 %
Flat (purpose built)	16.5 %
Flat (conversion)	0.8 %
Flat (commercial building)	0.6 %

Table 5.5.1 Dwelling types of Top Valley (Source: Census 2021)

This section will continue with a discussion of the results of analysing the spatial configuration of the Top Valley council housing estate using the space syntax method.

5.5.2. Spatial Pattern of Top Valley

As described in the historical development of the Top Valley council housing estate, the last fieldwork for the research is in the north of the city. In the global integration analysis (Figure 5.5.5), it is clear that it is a very isolated area far from the main roads of the city.

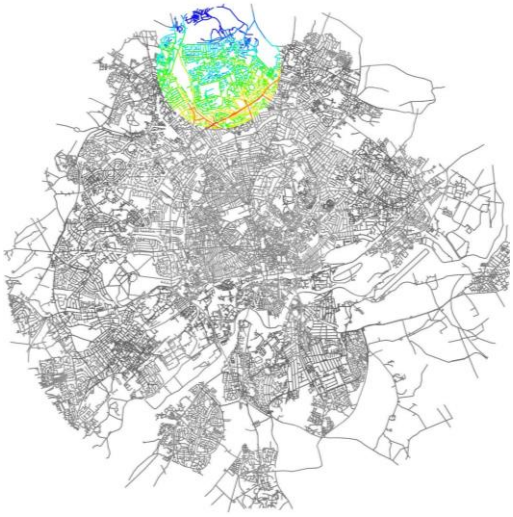


Figure5.5.5 Top Valley estate and immediate surroundings global integration (R4000)

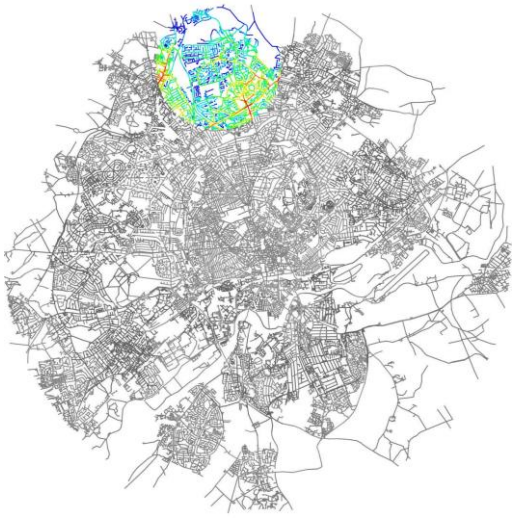


Figure 5.5.6 Top Valley estate and immediate surroundings local integration (R800)

On a global scale, the roads closest to the estate with the highest levels of integration are Hucknall Road in the west and Arnold Road in the south. These roads facilitate movement and connectivity across different parts of the city in the broader urban

network. However, despite their close proximity, the area lacks direct connections to these major networks. One of the primary factors contributing to this problem is the large green golf course located west of Hucknall Road. Although it offers recreational advantages, it also serves as a physical barrier that interrupts the continuity of the street network. Consequently, the integration of Hucknall Road has significantly decreased, especially near the Top Valley estate.

Figure 5.5.7 Top Valley global Integration (R4000)

Figure 5.5.8 illustrates the result of the integration analysis at 800m radii, which shows the local integration values. The accessibility of the area is lower on a local scale than on a global scale. When examining the street network, it can be seen that its cul-de-sac street pattern caused this result. This layout, which is advantageous in terms of providing privacy in residential areas, causes isolation and spatial segregation. In the case area, Bestwood Park Drive and the main roads surrounding the region result in the yellow-green range and have relatively higher integration than other side roads.

Figure 5.5.8 Top Valley local Integration (R800)

On the other hand, this area has a higher value of choice at local and global scales rather than integration (Figure 5.5.9, Figure 5.5.10). Main roads with the fewest total

angular deviations have a high choice value. On global choice analysis, it can be concluded that the Top Valley estate is introverted rather than extroverted, as the main preferred routes surround the estate.

Figure 5.5.9 Top Valley global Choice (R4000)

These roads have the potential to be preferred by vehicle traffic at the global level and by pedestrians at the local level. However, because of the low integration value, this area cannot be identified as a sub-centre or destination; these streets are often used as paths to get from one place to another. Moreover, as can be seen on the land use map of the region, these streets' surroundings do not have a layout that offers functional diversity to encourage social interaction.

Figure 5.5.10 Top Valley local Choice (R800)

Figure 5.5.11 shows the Top Valley estate's intelligibility value. Interestingly, although this area has low local and global integration, it has a high intelligibility value with R2: 0.757. This means that even though integration values are low, the correlation between local and global scales is strong and predictable. Moreover, as can be seen in Figure (a), the area's trend is similar to the city's general correlation trend. This can be

interpreted as the reason why the whole system can be predicted from the Top Valley estate.

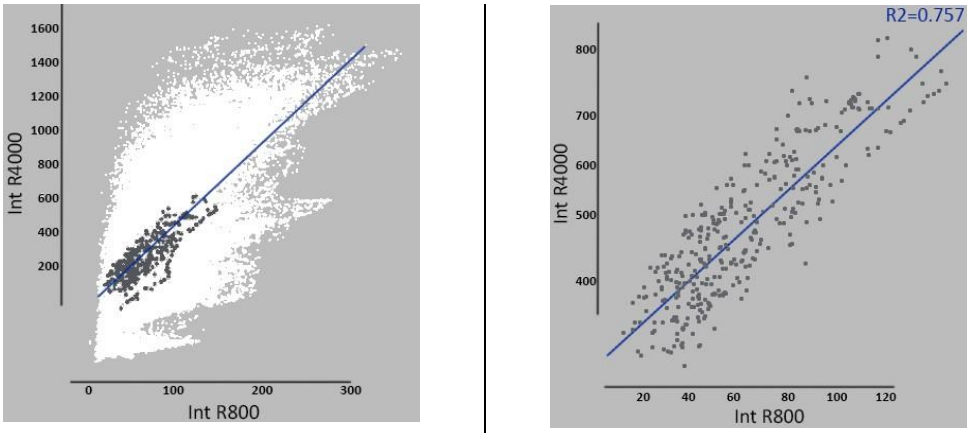


Figure 5.5.11 (a) Comparison of Intelligibility Value Between the Top Valley Estate and City-wide Data, (b) Intelligibility of the Top Valley Estate

5.5.3. Social Pattern in Top Valley

In this section, following the previous case studies, age, ethnic group, occupation, method of travel to the workplace, and tenure of household data obtained from the Census 2021 results for the case area will be discussed. The Census 2021 indicates that the chosen region for the case study has a population of 5690. According to Top Valley's age profile results in Figure, the 30-34 age group represents the majority population of the age group, and the population decreases with age. The 0-14 age group, which constitutes 22% of the total population, shows the region's young population potential (Figure 5.5.12).

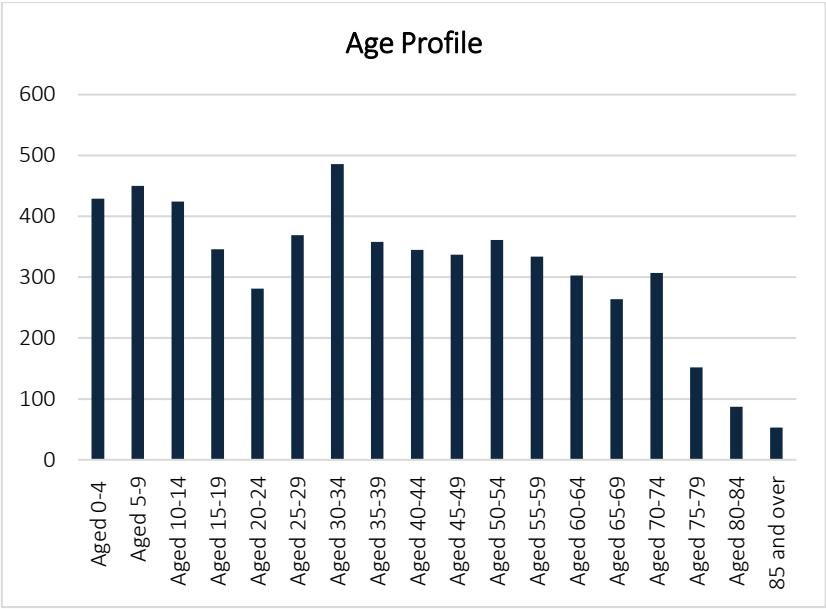


Figure 5.5.12 Top Valley Estate age profile (Census 2021)

When we look at the region's ethnic diversity, Figure 5.5.13 shows that although it is a predominantly white society, with 74.4% of the population identifying as White, there is also a significant percentage of people of black origin, with 13.8% of the population. Moreover, the presence of Mixed or Multiple ethnic groups, 8.4%, and Asian communities, 2.3%, suggests a degree of ethnic diversity within the minority population.

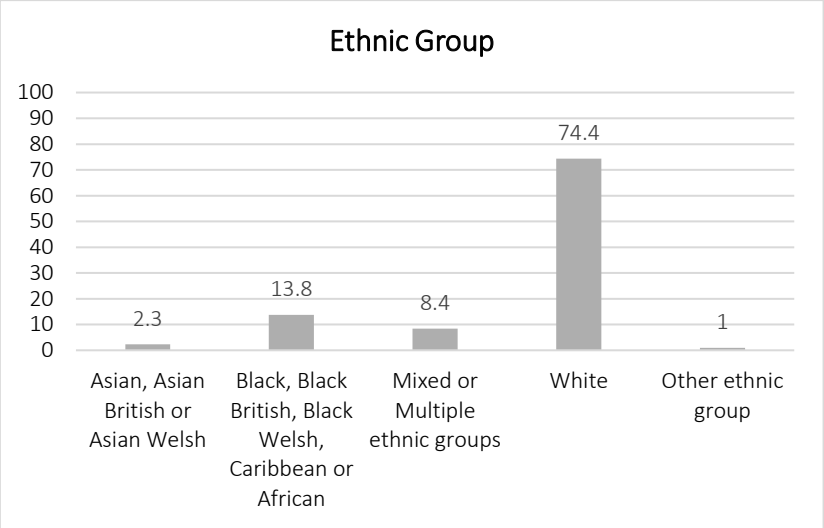


Figure 5.5.13 Top Valley estate ethnic profile (Census 2021)

Based on the occupational statistics used to infer the region's socio-economic status (Figure 5.5.14), the two predominant categories of jobs in the area are elementary occupations and occupational groups that provide services in care, leisure, and other essential fields. 33% of the region's working-age population is employed in these two occupations. On the other hand, it is seen that there are a significant number of people working in professional occupations that require a higher level of education in the region.

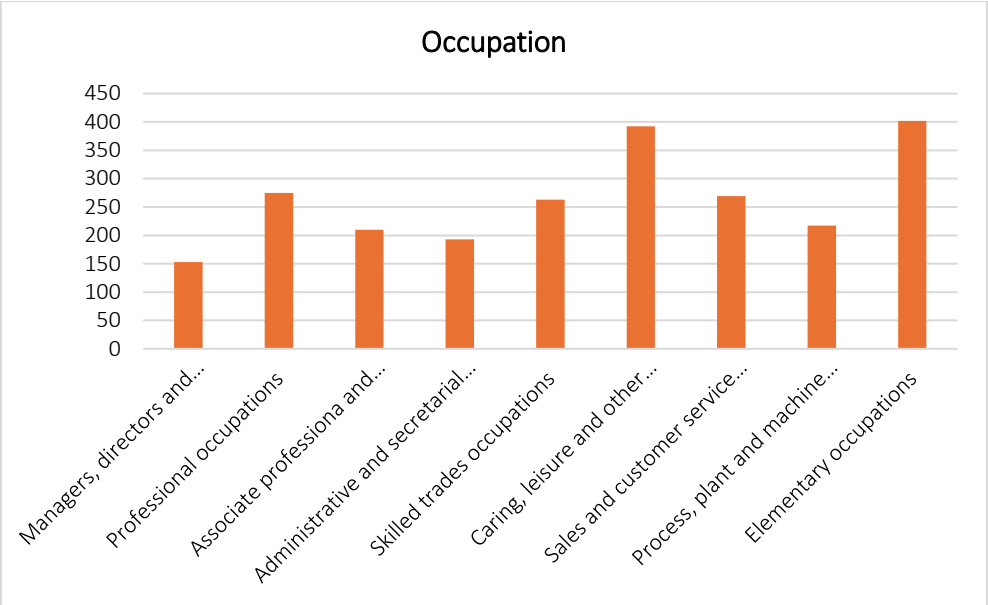


Figure 5.5.14 Top Valley Estate occupation data (Census 2021)

Figure 5.5.15 below shows the method of travel to the workplace. According to this, similar to previous case studies, it is clear that the most commonly preferred method is driving a car. The fact that a rate as high as 50% is observed in both years' data shows that the region is a car-dependent estate in terms of transportation to the workplace. Following this, the second most common transportation method is the public transportation system, the bus. In the following sections, these data will be evaluated together with the region's public transport access map.

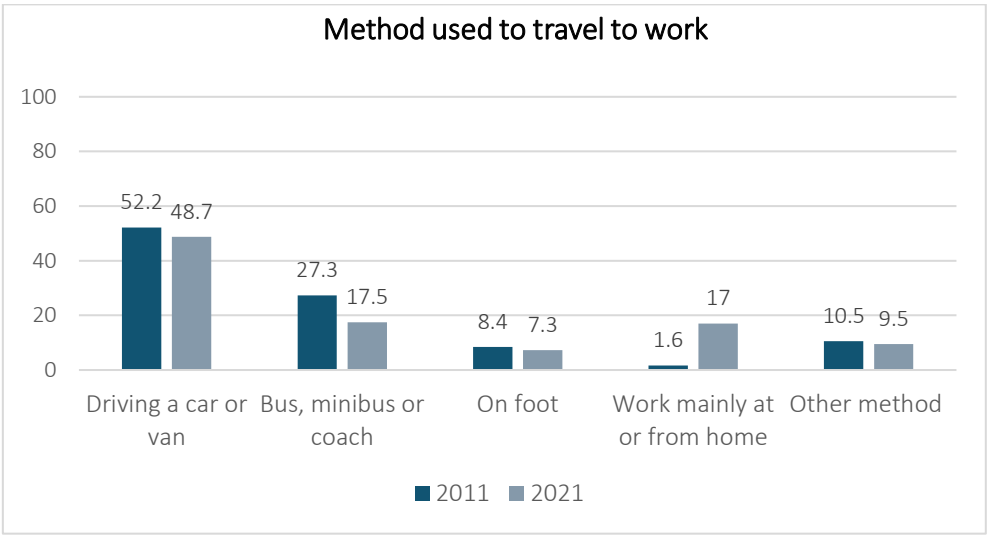


Figure 5.5.15 Method of travel the workplace data (Census 2011, Census 2021)

Homeownership rates are another important parameter discussed within the scope of the evaluation of council housing legacy. Figure 5.5.16 and Figure 5.5.17 below show data for the years 2011 and 2021. Accordingly, the rate of socially rented housing in

the estate decreased by 2.2% to 37.3%, while the home ownership rate decreased by 1.3%. In addition, the rate of privately rented housing increased by 5% to 14%.

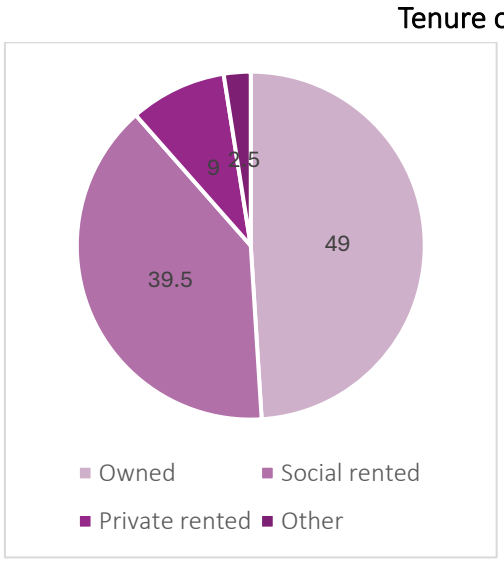


Figure 5.5.16 Top Valley Estate tenure of household data (Census 2011)

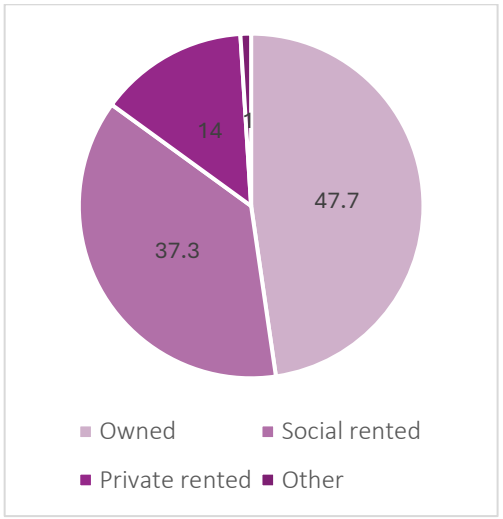


Figure 5.5.17 Top Valley Estate tenure of household data (Census 2021)

Moreover, the map in Figure 5.5.18 below illustrates the distribution of council-owned housing in the Top Valley estate. The distribution of housing tenure within the region reveals a significant spatial disparity. The majority of houses in the western and northern parts of the region are predominantly privately owned, whereas socially rented dwellings are primarily concentrated in specific areas. This distinction in housing tenure can be interpreted as an indicator that highlights the region's socioeconomic stratification and potentially points to the existence of different social and cultural groups. The segregation of housing tenure may lead to the formation of socio-economically homogeneous neighbourhoods, which can reinforce existing social inequalities and limit opportunities for cross-cultural and cross-economic interactions.

Figure 5.5.18 Council-owned housing on Top Valley estate
(Source: Nottinghamshire Insight Mapping)

5.5.4. Activity Pattern of Top Valley

The map below (Figure 5.5.19) shows the land use distribution of the Top Valley estate and its immediate surroundings. According to this figure, this area is characterised by a dominance of residential units and a lack of functional diversity. The large shopping centre located southwest of the estate, along with nearby retail centres, a community centre, and a smaller shopping area in the north, provides the estate with the necessary functional diversity and social zones. When the spatial configuration and use of these areas are examined, it is seen that they have a clustered retail park spatial organisation that encourages vehicle access rather than being an integrated social street that creates active street uses. On the other hand, in terms of access to educational centres, the region indicates an important centre for educational activities, with nursery, primary and secondary schools located within the estate borders and in the immediate vicinity.

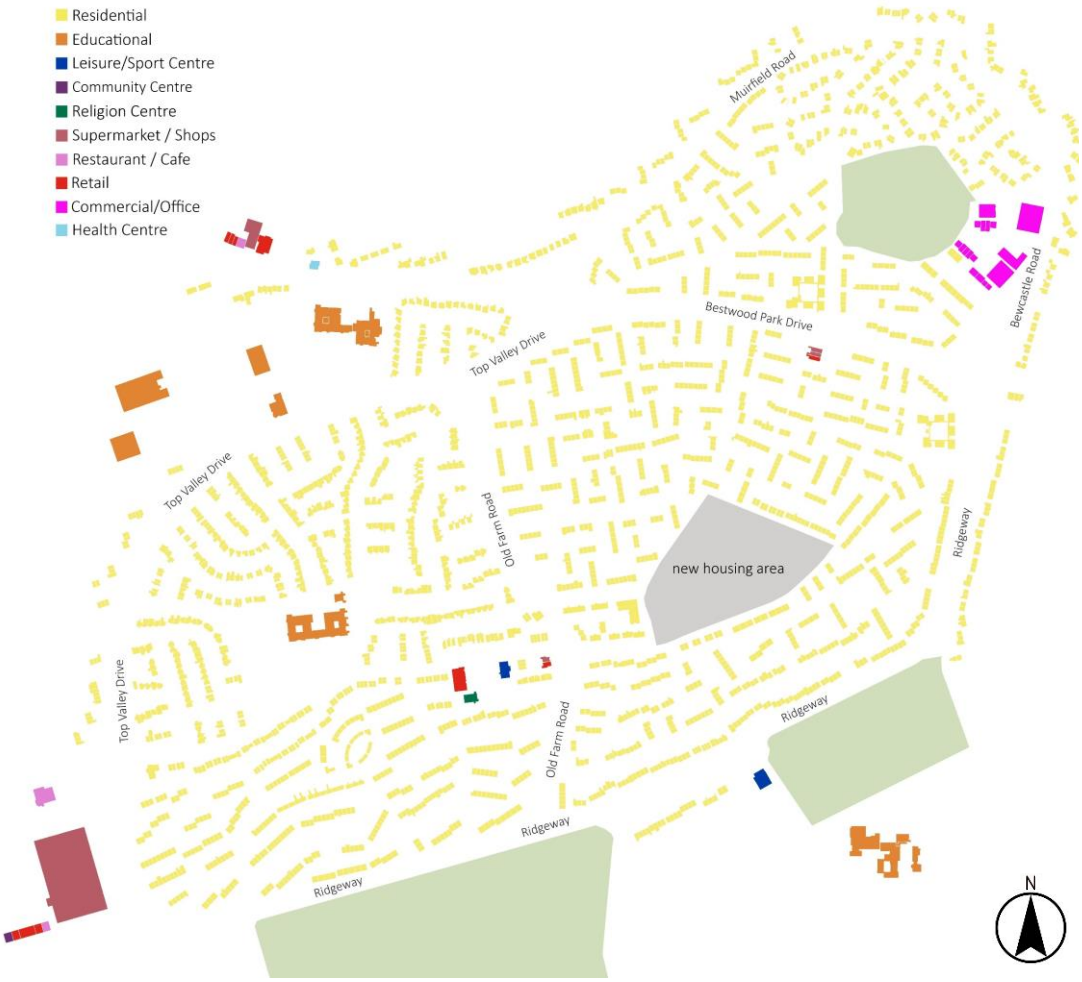


Figure 5.5.19 Top Valley estate Land use

Figure 5.5.20 below shows the bus line routes and the distances to the stops within 5 minutes. The location of bus stops is efficient and accessible within walking distance from most of the different areas of the estate. Two main lines provide access to the city centre. Transportation from the region to the city centre takes approximately 35-40 minutes.

Considering the region's poor functional diversity, access to the opportunities provided by the city centre becomes crucial for residents seeking a broader range of services and amenities. While the estate's suburban layout encourages car dependency, public transportation emerges as a vital alternative for those without private car or who prefer sustainable modes of travel. In this context, although reaching the city centre from the estate is not particularly efficient due to the long travel times and the limited number of bus lines serving the area, the proximity of bus stops within walking distance offers a notable advantage. While the journey itself may be time-consuming, the fact that public transport is easily reachable on foot enhances the overall connectivity of the estate.

Figure 5.5.20 Public transportation map of Top Valley Estate

Observation Results

The map below (Figure 5.5.21) shows the observation routes determined according to the space syntax analysis results. Top Valley estates observations were conducted four times, three on weekdays and one on weekends, in May 2022 and May 2023. As explained in previous cases, these routes were walked and observed. This section will continue with descriptive explanations of observation routes.

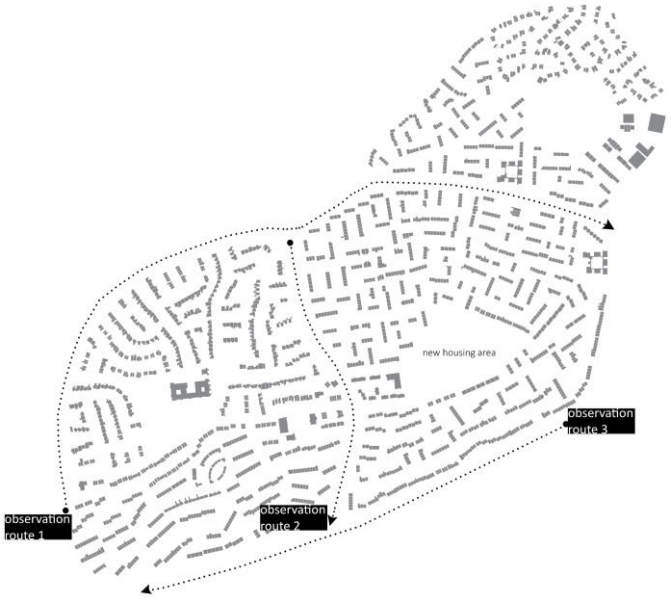


Figure 5.5.21 Observation routes of Top Valley Estate

Observation Route 1

‘The route (Figure 5.5.22) starts with a wide street dominated by vehicle traffic and a view of the dominant residential pattern of the estate on the other side of the road. The terrain's elevation differences and the width of the main road, makes you feel like you are walking on the highway. As you continue along the main road, the secondary roads extending towards the inner parts of the estate and the housing pattern of the region begin to be seen more clearly. Despite the spatial configuration that supports the potential movement of this route, the placement of the houses without any relation to the road causes the region to be defined as an introverted and isolated area. A deserted atmosphere is effective on this route, where it is impossible to meet anyone except students returning from school in the evening hours. As the road progresses and approaches the school area, especially during weekday afternoons, the soundscape shifts with the lively sounds of children’s voices, temporarily brightening the region. The garden walls and high hedges that continue along the pavement along the road define a strict separation while restricting physical and visual accessibility. When you reach the vehicle roundabout, the route continues through a pedestrian underpass, offering an experience that is lonely, unsafe and desired to be passed with fast steps. The graffiti seen on the underpass walls provides some clues of temporary interaction between people and space. The fact that the vehicles are above and the pedestrians are below starkly emphasises the movement hierarchy within the urban landscape. As the road continues, sections of side roads highlight the car-dependent, residential-dominated pattern of the area as a typical suburban landscape. Apart from the occasional sighting of a few people tending their gardens on weekend afternoons, it is hard to get a clue about the area's human activity patterns. The route ends at another roundabout, marking a recurring image of this isolated and introverted area in the urban landscape.’

Figure 5.5.22 Observation of Top Valley and Bestwood Park Drive

Observation Route 2

'The route starts with a pedestrian underpass, which indicates the area's distinct vehicle-dominant pattern. The underpasses illustrate the urban design choices that isolate pedestrian mobility from the more integrated and accessible main roads, reflecting a broader trend of prioritizing vehicular over pedestrian movement within the area. After passing through the underpass, the route continues on a slightly inclined road. The road, surrounded by large trees and green areas on both sides, separates the house-street relationship. This type of layout, which means that no one sees you, makes one may be worried about the safety of the street. Although big trees and elevation differences create changes in the area's landscape in places, the dominant form of the housing type and repetitive images maintain their continuity. The route continues with similarities that sometimes make you feel like you are constantly passing through the same place. In some places, the road remains well above the gardens of the houses, and people's garden-house relationships can be observed directly. It provides a bird's eye view of someone hanging laundry in their garden on the weekends or a family having a barbecue. A little further, it is possible to reach the small local grocery store in the area with a path that branches off from the main road. The fact that this relatively integrated street is not connected to this area, which

can support direct interaction, reduces mobility. The route ends with houses whose backyards you can see, separated from the road by carefully constructed fences (Figure 5.5.23).'

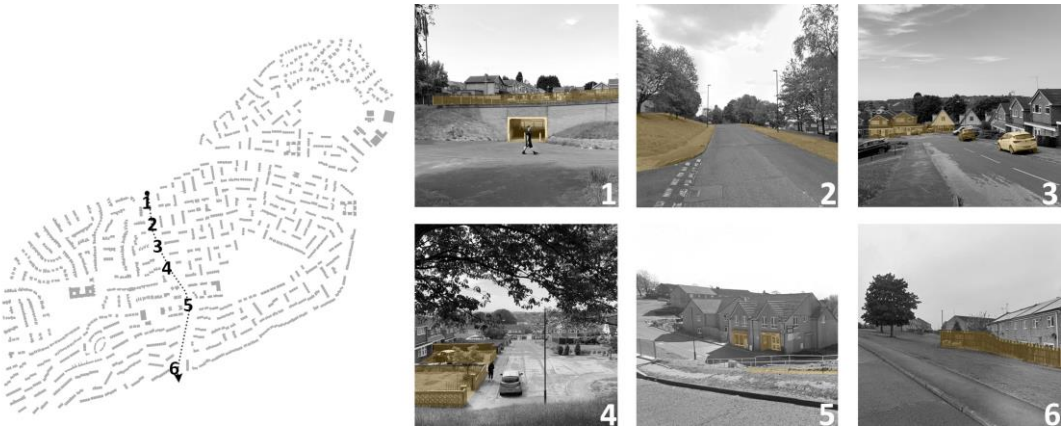


Figure 5.5.23 Observation of Old Farm Road

<u>Observation Route 3</u>

'The route begins with an area where the main road and housing are disconnected, as can be observed in many parts of the area. The semi-detached brick houses are lined up side by side, and the spatial arrangement where pedestrians reach these houses from a lower level predominantly prevents intersections and encounters. A little further on, the figure of schoolboys standing out on the pavement signifies the entrance to the school. On this road, which reaches the wide green area, it is possible to encounter middle-aged people walking their dogs, especially in the morning hours. The route allows you to see the homogeneous housing pattern of the entire estate with all its plan and repetition. The solar panels on the roofs indicate an initiative regarding modern energy sources in the area. Although this route is part of the public transport route that provides access to the city centre, not many people were waiting at the bus stops. The Southglade Park entrance, located just opposite the intersection with Old Farm Road, is one of the points that encourages the area's liveliness. The large green area serves as the recreation area of the site. The route ends at the intersection with the pedestrian path that leads to Tesco, the only large shopping centre near the site. This area, where pedestrian movement increases and residents returning from shopping with bags in hand engage in short conversations, contrasts with the rest of the site (Figure 5.5.24).'

Figure 5.5.24 Observation of Ridgeway Road

5.5.5. Rhythmanalysis: A Layered Narrative of Spatial Experience in Top Valley

Following observation studies, Old Farm Road was selected for rhythm analysis to describe the spatial and temporal rhythms of the area. This road reflects the isolated and introverted character of the neighbourhood with its dominant residential layout and segregated urban structure (Figure 5.5.25). The socio-spatial structure of the area reinforces its monotony by exhibiting limited diversity in rhythms and activities. The lack of social spaces and interaction points leads to life in the area being based on more structured and predictable movement patterns.

Urban life should not be a product of mechanical repetitions only. However, in this area, the expected rhythmic diversity does not occur due to spatial homogeneity and lack of activity. Limited daily activities repeated at similar times and with similar intensity every day reveal the monotony of urban life. Pedestrian movement increases in the early morning hours when children go to school; this provides a brief moment of intensity. However, this movement soon gives way to calmness and inactivity. Later in the day, especially on the weekday afternoon, there is almost no one on the street. A similar movement occurs again in the evening when children return from school, indicating that the rhythm of the day is repeated.

The spatial structure of the area directly affects limited pedestrian mobility and monotonous life rhythms. When low local and global integration is combined with an arrangement lacking functional and social diversity, the isolation observed in the space deepens. This situation reveals the fragmented nature of the area in both physical and social terms.

As a result, the impact and determinism of the conceived space on daily life are clearly seen here. This spatial structure, which does not encourage social harmony and lively public spaces, leads to a lack of dynamic rhythms and social interactions in the lived space.

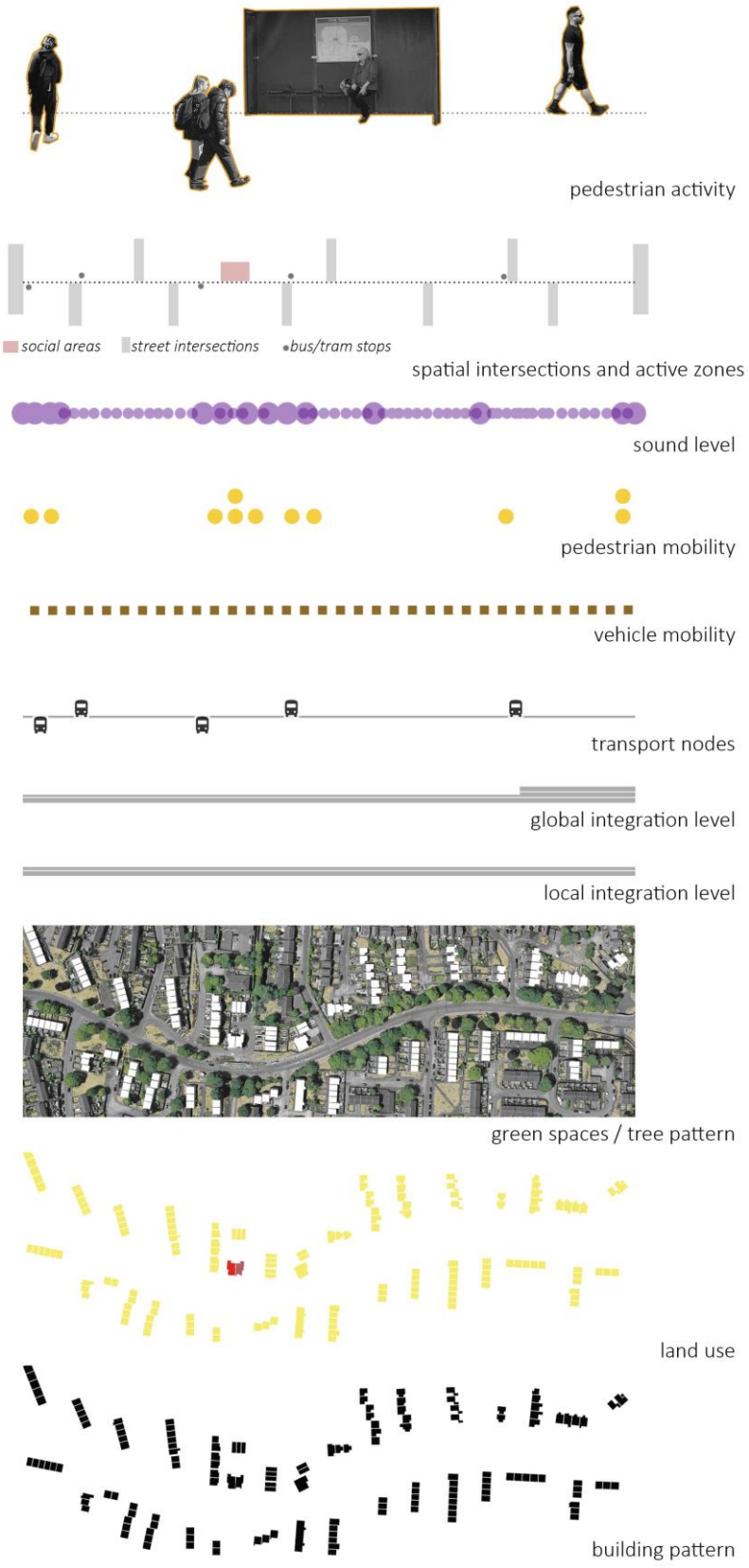


Figure 5.5.25 Layers of the street that reveal the lived space and have the potential to define daily rhythms

5.5.6. Conclusion

The Top Valley council housing estate was built in the 1970s during the re-encouragement of low-rise housing construction and is one of the important examples of this period. When the region's demographic structure is examined, the data shows a social structure with limited ethnic diversity and a high proportion of the young population.

The estate, built in an available area within the city boundaries, has low global and local integration values. This situation weakens the general connections of the settlement within the city and results in segregation. Peripheral location has also led to further segregation. However, in the more decisive choice analysis in terms of vehicle mobility, it is surrounded by main roads that provide connections to important arteries within the city, and these roads have high choice values.

These low integration values are consistent with the observation studies. Top Valley's spatial configuration shows an isolated and segregated structure that severely restricts its residents' daily life rhythms. At the neighbourhood level, the areas where residents can meet their social needs and daily requirements are quite limited. Instead of integrating with the street design, existing social and commercial areas concentrate around the large shopping centre in the southwest of the estate. This situation causes urban fragmentation, resulting in a decrease in social interaction.

On the other hand, the absence of any spatial configuration or functional arrangement that would define a strong local axis within the estate has led to the streets being used more as transit areas rather than providing interaction areas for residents. Therefore, the data obtained during the observations show that the limited mobility in the area is more walking-based than lingering.

PART III

CHAPTER 6 DISCUSSION

CHAPTER 7 CONCLUSION

6

DISCUSSION

6.1. Introduction

This section provides a comparative evaluation of the analysis results from the case studies. Firstly, the results of the space syntax analysis will be presented in the context of the conceived space, followed by a comparison of the demographic structures of the estates. These analyses will highlight key spatial and social differences between the cases. This chapter will continue by comparing the perceived space through the outcomes of observational studies, capturing the spatial practices and interactions within each estate. The narrative of lived space will then be explored, synthesising all findings to reveal how the rhythms of daily life shape and are shaped by the urban environment. Finally, the case studies will be assessed using the SWOT analysis method to systematically identify each area's strengths, weaknesses, opportunities, and threats.

6.2. Analysing the Conceived Space: Comparison of Space Syntax Results

Examining council housing estates within the framework of conceived space enables us to comprehend the results of the planning strategies employed during the era in which these estates were constructed. This section presents a comparative analysis of the results obtained from the space syntax methodology employed to examine the spatial configurations of four selected areas. Space syntax offers a framework for quantitatively comparing various periods and spatial layouts. The objective of this section is to identify which specific period yields the highest level of integration within

the urban environment, as well as the potential for fostering social interaction and facilitating movement.

Table 6.1 below illustrates the global integration results for all cases. The analysis conducted within a 4000-metre radius reveals that the Victoria Centre has the highest global integration value. Alongside the central location advantage of the Victoria Centre, the Aspley estate also demonstrates a high global integration value compared to the other suburban estates. In contrast, the Clifton estate exhibits the lowest global integration value.

	Global Integration (R4000)			
	Aspley Estate	Clifton Estate	Victoria Centre	Top Valley Estate
Min Value	566.71	176.21	1048.83	355.92
Max Value	1362.20	795.11	1513.33	837.24
Mean Value	933.39	370.55	1324.04	555.75

Table 6.1 Attribute Summary of Global Integration for each case

As expected, the results of the local integration analysis (Table 6.2) show that Victoria Centre, situated in the compact city centre, has the highest local integration value, comparable to global integration. When examining the other three cases, we observe that the Aspley estate's mean local integration value is higher than the Clifton and Top Valley estates. However, the Clifton estate has a higher maximum local integration value than the Aspley estate. While the Aspley estate demonstrates stronger integration with its immediate surroundings, the high maximum value of the Clifton estate suggests that the neighbourhood can play a more central role in terms of mobility and social interaction within its boundaries. Conversely, Top Valley has the lowest value across all results.

	Local Integration (R800)			
	Aspley Estate	Clifton Estate	Victoria Centre	Top Valley Estate
Min Value	22.63	13.07	117.32	12.25
Max Value	136.76	151.16	281.96	113.91
Mean Value	80.25	69.90	200.37	50.39

Table 6.2 Attribute Summary of Local Integration for each case

Consequently, the most segregated area is the Top Valley estate, whereas the most integrated area is the Victoria Centre, situated in the city centre. Furthermore, the Aspley and Clifton estates display contrasting spatial characteristics, with one demonstrating stronger global integration while the other having a spatial configuration that enhances local connectivity.

Compared to other cases, the segregated structure of the Clifton estate on a global scale can be more effectively explained by its location rather than its spatial configuration. The natural barrier effect of the River Trent, discussed in the context of the city's spatial development, has markedly limited the global integration of the Clifton estate, leading to an introverted urban structure. Natural barriers, such as rivers, can create physical divisions and, consequently, separations within the urban system, as highlighted by Anciaes et al. (2016). In the case of Clifton, the river has not only served as a geographical constraint but has also contributed to the estate's relative isolation from the rest of the city. Due to its peripheral location, the Clifton estate has become increasingly disconnected from the central urban core, reducing access to the city's economic, social, and cultural opportunities.

Table 6.3 below shows the global choice analysis results for the cases. According to the data, Top Valley has the highest maximum global choice value among the three suburban estates, while Clifton exhibits the lowest global choice value on a global scale. These findings indicate that the Top Valley estate has a spatial configuration that is better integrated with the city's main arteries, whereas the Clifton estate is more isolated from the urban fabric. The high global choice value of Top Valley estate signifies that its connection to the rest of the city is closely tied to the major roads that support heavier vehicle traffic. In contrast, Clifton estate's low global choice value reveals that the area has a more closed network structure and is limited in its connection to other parts of the city.

	Global Choice (R4000)			
	Aspley Estate	Clifton Estate	Victoria Centre	Top Valley Estate
Min Value	0	0	0	0
Max Value	1928990	1251179	7659550	2147265
Mean Value	298833.96	72770.74	1593828.37	168407.84

Table 6.3 Attribute Summary of Global Choice for each case

Concerning the intelligibility value, the results in Table 6.4 below reveal that the Victoria Centre exhibits a stronger correlation between local and global integration values. This can also be understood as the relationship between locals and outsiders or between local and global communities (Hillier et al., 1987; Hillier, 1996a). It is additionally associated with the centrality effect of the Victoria Centre, as it is more accessible both locally and globally. However, what is interesting here is that the Top Valley estate has a higher intelligibility value than other estates, with an R^2:0.757 value. Despite its segregated configuration in the blue-green range, both globally and locally, this estate represents a higher intelligibility compared to the Aspley estate, which has high global integration, and the Clifton estate, which exhibits high local integration. Intelligibility is defined as the correlation between global and local measurements (van Nes & Yamu, 2021). Furthermore, Hillier (1996a) defined intelligibility as the

correlation between global integration and connectivity. However, connectivity is inherently a local measure. It specifically refers to the number of direct connections a street has with nearby streets, focusing on its immediate surroundings rather than the broader, global network. Hence, it measures local spatial relationships within the urban system (van Nes & Yamu, 2021). In this regard, a place may have interconnected streets, but the intelligibility value will be low if they are not well integrated with the entirety. Consequently, despite achieving a high local integration value, the Clifton estate has the lowest intelligibility value (R^2:0.111) among the selected areas due to its weak integration with the whole.

Nottingham	Aspley Estate	Clifton Estate	Victoria Centre	Top Valley Estate
0.225	0.584	0.111	0.821	0.757

Table 6.4 Intelligibility value for the city and each case

Furthermore, the results of the space syntax analysis were compared with the function and land use models, providing a deeper understanding of how spatial integration affects land use diversity. In this regard, the Clifton estate is distinctly different from other estates. The street with a high local integration value precisely coincides with the area where the spatial diversity of the Clifton estate is observed (Figure 6.1). In this context, the local integration outcome is sufficiently robust to predict land use in the Clifton estate. This relationship between local integration and varied land use suggests that local integration in Clifton serves as a strong predictor of functional diversity and pedestrian accessibility, in line with the theory of natural movement (Hillier et al., 1993). The concept of 'natural movement' indicates that spatial configuration directly impacts land use patterns, especially in areas with well-integrated street networks. When street patterns are accessible and interconnected, retail users are likely to situate themselves along these routes, thereby amplifying the effect of the pattern in terms of movement (Hillier et al., 1993, 1998). In Clifton, the street network's high local integration reflects a broader array of functions, supporting the notion that ‘the spatial configuration of the urban space affects the degree of land use diversity’ (Van Nes & Yamu, 2021, p. 180). This reinforces the argument that local integration is vital in fostering vibrant, multi-functional areas. Similarly, Mohammed et al. (2015) illustrated that in informal urban areas like Cairo, shops and commercial activities tend to cluster along highly integrated streets, further emphasising the connection between spatial integration and land use diversity.

On the other hand, in the Aspley estate (Figure 6.1), the outcome of global integration is more robust than that of local integration when it comes to predicting activity and functional diversity.

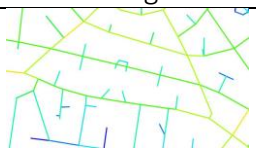
	Street Morphology		Function
	Global Integration	Local Integration	Use
Aspley Estate			
Clifton Estate			

Figure 6.1 Comparison of integration patterns and spatial diversity of Aspley and Clifton estates

While Aspley shows a high level of global integration, it does not display the same degree of functional diversity or pedestrian activity as Clifton. Research on Oslo (van Nes, 2021) illustrates that pedestrian-orientated shopping areas are typically situated along streets with high local integration. In contrast, car-orientated shopping areas are often positioned on the periphery and along roads with high global integration. When assessed in this context, shopping areas situated along streets with high global integration values in the Aspley estate, despite their proximity to residential zones, have not succeeded in fostering a vibrant urban centre. This comparison between the estates highlights the essential role of local integration in developing pedestrian-friendly, multi-functional spaces, especially within residential neighbourhoods.

According to Read (1999), the correlation between local integration and natural movement in neighbourhood areas is much stronger than that between global integration and natural movement. While similar outcomes are observed in the Clifton estate, the movement and activity patterns of the Aspley estate show stronger relationships with global results. Another important difference between these two estates is related to the role of main roads in shaping their spatial and functional dynamics. Van Nes et al. (2021) argue that one of the fundamental conditions for creating vital urban areas with a high diversity of active land uses is for the main routes to pass through the neighbourhood rather than around it. In this context, while in Clifton, the main roads pass through the neighbourhood, in Aspley, the main roads pass around the neighbourhood rather than through it, limiting its local integration and pedestrian accessibility. This enables Clifton to support a more pedestrian-friendly and multifunctional environment while diminishing Aspley's capacity to create an active urban space.

On the other hand, the spatially segregated structure of the Top Valley estate also aligns with the land use model. The correlation between an isolated area lacking social

spaces and the low integration result has once again highlighted the potential of the space syntax method. As Major et al. (1999) point out, one of the most frequent criticisms of modern housing schemes is their lack of 'vitality,' with some areas being described as 'urban deserts'—spaces devoid of social interaction or activity even during peak hours. This criticism is consistent with the observation results of the Top Valley estate, which was built in the late 20th century, among the residential areas analysed in the study. With its segregated pattern, the Top Valley estate appeared largely deserted in the observation studies conducted along streets with relatively high integration at the estate scale in the space syntax analysis, and pedestrian movement or social interaction was minimal. This aligns with the urban desert phenomenon discussed by Major et al. (1999).

The Victoria Centre, unlike the other three case studies, presents a unique dynamic due to its central location within the city. Unlike more peripheral suburban areas, its spatial configuration interacts with numerous external factors that shape movement and activity throughout the day. The area's mobility is influenced not only by land use diversity but also by key elements such as bus stops, shopping centre entrances, and car parking access points. These factors create distinct movement patterns at various times, contributing to the area's complex rhythm. However, despite its high spatial integration, certain sections—particularly the back façade—remain isolated. This isolation can be attributed to the car parking entrance, the lack of permeable facades, and ongoing construction, which restrict pedestrian flow and create a more isolated street landscape. This situation highlights an important consideration in urban analysis: while spatial integration is a crucial factor in predicting movement, it is not always sufficient to explain the lived experience of space.

6.3. Population Portraits: Comparison of Census Data

The demographic characteristics of the estates examined in the study offer valuable insights into the potential for social interaction in these areas. This section will present a comparative discussion of the Census 2021 data for three suburban case studies.

Age

Table 6.5 below presents population data and average age information for the three estates. Although the average ages of all three estates are similar, Aspley Estate has the youngest population, whereas Clifton has the oldest. This difference is particularly evident in the population rates for those over the age of 60. While 22% of the population in Clifton and 20% in Top Valley belong to this age group, the rate is only 12% in Aspley. This situation indicates that Clifton's demographic structure is predominantly elderly and that its elderly population is more concentrated than that of Top Valley and Aspley.

	Aspley Estate	Clifton Estate	Top Valley Estate
Population	8,745	18,300	5,690
Average Age	32	39	35
Percentage of under 19	34%	25%	29%
Percentage of over 60	12%	22%	20%

Table 6.5 Population and an average age of Aspley, Clifton and Top Valley Estates

Ethnic Group

When comparing the ethnic diversity of the three estates, a clear distinction emerges in the social patterns of these areas. Aspley exhibits a more diverse community, where the presence of various ethnic groups is evident not only in demographic composition but also in the urban landscape, with establishments like Asian restaurants and places of worship highlighting the influence of these communities. In contrast, Clifton showcases a predominantly homogeneous population with limited ethnic diversity, reflecting a more uniform social structure. Top Valley presents a moderate level of diversity, with a notable presence of black and mixed ethnic groups. This comparison highlights the significance of ethnic diversity in shaping the social and spatial characteristics of these estates, with Aspley representing more inclusive and heterogeneous communities than Clifton and Top Valley.

Occupation

Elementary occupations represent the most common occupational group across all three case areas. However, in Clifton and Top Valley, the second most prevalent group includes caring, leisure, and other service occupations, whereas in Aspley, this category is represented by sales and customer service occupations. These findings indicate that a considerable proportion of individuals in all three areas are engaged in low-skilled and typically low-paid jobs.

Tenure of Household

This comparison illustrates how the legacy of council housing has responded to evolving market conditions and legal influences over time and how this process has impacted each area with varying dynamics. In particular, the council housing rate is highest in Aspley at 38.2%, while in Top Valley, this rate has declined to 37.3% over the last decade. These results indicate that social housing plays a significant role in both areas, revealing that the housing market is more intricate here. In contrast, the decline in the proportion of socially rented housing and the rise in private rents in Clifton can be interpreted as a more rapid integration of social housing into the commercial market, with the social housing system in this area maintaining a comparatively weaker

position. The change in the mono-tenure structure of council housing areas is directly linked to the Right to Buy law. Although the primary aim of this legislation, which created homeownership opportunities for the working class, was not to foster a mix of ownership, it evolved into a component of policies designed to create mixed neighbourhoods, with consequences that emerged over time. The Right to Buy policy had a dual impact on social mixing; it exacerbated concentrated poverty in less desirable neighbourhoods by selling off the best social housing first, while more affluent areas saw further increases in homeownership (Kleinhans and Van Ham, 2013). In this context, the Clifton estate achieved the highest rate of home ownership in the first ten years following the Right to Buy compared to other council housing areas in Nottingham (Giggs, 2006; Oldfield, 2003). It has the highest homeownership rate among the three areas studied, with a 51% owner-occupied rate. This ownership rate in Clifton can be considered significant for fostering a sense of community. Research indicates a strong relationship between the length of residence and a sense of community (Talen, 1999), whereas transience results in low social integration (Rossi, 1980 in Talen, 1999). In this regard, the potential for homeowners in Clifton to stay attached to the area for a longer duration may contribute positively to developing a stronger sense of community in this locale.

6.4. Understanding the Perceived Space: Comparison of Observational Studies

In perceived space, the user engages actively with their surroundings, becoming a subject in the spatial experience. At this point, the abstract space becomes concrete with the individual's experience and leads to everyday realities. It involves reconfiguring the space that was previously conceived in the mind through daily practices and experiences. In this context, comprehensive observational studies were conducted to understand the daily life patterns of the selected areas. The use of observation as a research method in urban studies is widespread, providing essential insights into the relationship between people and space. Despite the research being based on a phenomenological explanation informed by observational studies, it is essential to recognise the challenges inherent in this approach and to clarify its distinctions from the positivist approach to observation before presenting the findings of the observational study. While positivist approaches attempt to make observation objective through standardised procedures and measurements, the phenomenological method emphasises individuals' experiences and their worlds of meaning. In observation studies and then in the phenomenological description attempt, the effect of the observer's subjectivity on the research findings, and the contextual nature of interpretations are among the main difficulties of the method. As explained in previous sections, the aim is to provide a narrative that illustrates how spaces create experiences rather than simply tracking the number of people engaging in various activities. However, it is certainly possible to enhance the method more systematically. Seamon (2007) highlights the significance of combining a

phenomenological approach with the space syntax method in his research, emphasising how spatial observations can reveal patterns in human interactions. He suggests that such observations may include information on 'who encounters whom', 'in what way', and 'how often'. Within this framework, the descriptive storytelling experiment conducted as part of the research can be developed to incorporate this information.

The findings from the case observations will be presented in a comparative manner, emphasising spatial practices and perceptions of physical space. Functional and spatial diversity are essential arrangements for breaking the monotony of residential areas and creating environments where residents can fulfil their daily needs. In this context, observational studies conducted along routes determined by space syntax analysis revealed two main spatial practices in Aspley, Clifton, and Victoria Centre. However, a single dominant spatial practice was observed in the Top Valley estate, where isolation, monotony, and a lack of diversity were dominant.

The spatial practices of the selected estates reflect differing approaches to diversity, spatial configuration, and social activity. Aspley estate, for example, has a relatively homogeneous housing typology, characterised by semi-detached and terraced houses, which create a monotonous street landscape. The uniformity of housing types in Aspley estate addresses a specific demographic, limiting its ability to meet the needs of a broader range of income groups and lifestyles. The housing typology in Clifton, while exhibiting certain limitations, offers a diverse range of living environments that have the capacity to attract a wide demographic. The estate comprises semi-detached and terraced houses, a high-rise block, and three-storey flats, thereby promoting social sustainability by fostering interaction across different spatial arrangements and cultivating a sense of community. In contrast, the Top Valley estate is also primarily made up of terraced and semi-detached houses, similar to those in the Aspley estate.

Although the three estates exhibit distinct spatial characteristics—such as variations in garden layouts, street configurations, and the proportion of green spaces—they share common spatial practices dominated by monotonous, isolated residential streets. However, these different spatial arrangements create significant differences in the perception of space. For instance, residential areas situated near wide main roads and homes grouped around cul-de-sacs have led to the emergence of differing spatial perceptions. While the prevailing experience in the Top Valley estate contributed to a feeling of insecurity, in Aspley and Clifton, the presence of *'eyes on the street'* (Jacobs, 1961) afforded a comparatively safer environment. On all the estates, the inner streets were characterised by a dominance of everyday activity, limited solely to essential tasks. This observation suggested that the streets provided few opportunities for social interaction. Additionally, bus stops within the estates acted as intervention points, encouraging interpersonal encounters among residents.

In Aspley estate, the second spatial practice unfolds along the outer main streets, where a more complex spatial dynamic becomes evident. These streets stand out as dynamic transition points, featuring an integrated spatial configuration that connects the area to the city. Consequently, these streets offer a more mixed streetscape, characterised by increased traffic flow and diverse land use patterns. Despite the spatial configurations of these streets facilitating potential encounters and interactions, a notable limitation is the insufficient diversity of land use and the quality of the physical environment to fully support and sustain these opportunities. This lack does not adequately promote the emergence of optional activities, which largely depend on the space's quality. The presence of cars in front of the shops throughout the day suggests that individuals predominantly rely on private vehicles rather than walking to access this area. This pattern of car dependency reflects the limited walkability of the environment. Furthermore, the space in front of the shops has been utilised as a car park. Although this area had the potential to function as an in-between space to support social interaction, it has become a locale that hinders pedestrian mobility.

In contrast, the Clifton estate's spatial pattern presents a more diverse and integrated centre. The commercial node, serving as a focal point for movement and social interaction, combines multiple functions and land uses, becoming the heart of the estate. This area can be seen as a concrete example of a vibrant centre that emerges from the strong integration of streets and the support of mixed-use developments. The presence of varied social spaces, including cafes, restaurants, both local and large-scale shopping centres, and essential services like banks, along with key social activity centres such as libraries and leisure facilities, significantly enhances the spatial diversity of the area. These elements contribute to the vibrancy of the space, promoting continuous activity and facilitating both planned and spontaneous social interactions. Moreover, the two active façades further reinforce the area's role as a dynamic centre, creating a sense of flow and engagement that maintains its liveliness throughout the day. Simultaneously, the area serves as a site where people stop, rest, and engage in both passive and active interactions, fostering opportunities for social connection. The benches situated in front of the shops create a vital transition space between movement and stationary activities, aligning with Jan Gehl's concept of spaces that invite people to linger. This area effortlessly transforms into a meeting point, seamlessly integrated into daily routines, where necessary activities converge with moments of rest and social interaction. People stop, linger, converse, and engage in informal encounters, reinforcing a sense of belonging and promoting a lively and sociable urban environment.

The Top Valley estate, the third suburban-style estate in the study, stands out as the area that promotes the least interaction. The concentration of spatial diversity around a large shopping mall, situated in an area disconnected from the street patterns of the

rest of the estate, offers a clear reflection of the modern era's approach to separating the city based on functions. Evaluated within the context of the estate, the lack of spatial diversity along the main roads, which have a higher spatial integration potential than internal roads, limits the vibrant urban experience. Furthermore, street layouts that favour car use over pedestrian movement promote increased reliance on cars. Underpasses, especially at the intersections of main roads, diminish the pedestrian experience and create unsafe areas. This situation may lead to a negative perception of the walking experience and discourage pedestrians from choosing to walk. These spatial arrangements in Top Valley undermine social life by restricting interaction and mobility, ultimately adversely affecting urban vitality.

The observational studies on the Victoria Centre and its surroundings reveal distinct characteristics that set it apart from the other three case studies in every respect. Unlike the suburban housing estates analysed, the Victoria Centre is a high-rise residential complex in the city centre, consisting of flats rather than individual houses. This unique urban setting significantly influences its spatial practices. The street with the highest integration value in the city emerges as one of the most vibrant and dynamic areas, characterised by both vehicular and pedestrian movement. This axis is crucial in fostering social interaction, facilitating spontaneous encounters, and supporting consumption activities. Council tenants, who regularly use the shopping centre's entrances to access their homes, are directly exposed to the vitality of urban life and its chaos. The immediate surroundings of the Victoria Centre reflect a microcosm of the city's economic, social, and ethnic diversity, offering tenants easy access to various urban amenities. This proximity to a diverse urban environment provides a significant advantage for tenants regarding social experience and mobility. However, a contrasting spatial practice is evident in the more isolated areas, which are likely to remain unexplored by city visitors. The rear facade of the centre, marked by undefined surfaces and limited functional variety, is primarily encountered by tenants who must pass through the shopping centre to reach their residences. Despite the area's high spatial integration in terms of configuration, this isolated pattern sharply contrasts with the vitality of the urban centre. It reveals the fragmented nature of certain spaces, where pronounced border effects and a lack of human-scale design diminish the overall quality of the environment.

6.5. Exploring the Lived Space

As an estate and a neighbourhood, each selected case in this research exhibits its own unique rhythms, shaped by daily activities, spatial configurations, and social interactions. These rhythms are not static; they evolve through the interaction of people, space, and time. Understanding the narrative of lived space becomes possible through the discovery and analysis of these rhythms. In this context, a specific area

within each case study has been chosen for detailed examination, as it has the potential to represent the estate's lived space.

Analysing the factors influencing rhythm and the resulting rhythms reveals a distinct connection between pedestrian mobility and spatial configuration. Moreover, the impact of mixed-use zones is crucial in converting mobility into significant activity. In this context, mixed-use developments are recognised as a vital factor influencing urban rhythm. As Gehl (2011) suggests, there is a strong correlation between the quality of physical space and the emergence of optional activities. In this context, factors that improve the quality and diversity of space—such as excellent weather in the Clifton estate, the Friday market, and the availability of benches in front of the store—act as catalysts for pedestrian engagement. This reveals a rhythmic diversity. In contrast, the analysis of the Top Valley estate reveals a steady and unchanging rhythm throughout the day and across different days of the week. The area exhibits a predominantly stable rhythm, with changes occurring only due to variations in essential daily tasks. This predictable rhythm shows minimal variation, reflecting a lack of temporal diversity within the urban environment. In the Aspley estate, a contrasting dynamic is revealed, characterised by an arrhythmic relationship between spatial arrangement and diversity. This mismatch leads to lower quality and less effective spatial outcomes, limiting the area's vibrancy. The lack of coherence between spatial intersections and mixed-use areas hinders the development of a vibrant urban rhythm. Moreover, the transformation of the church into a mosque over time is a remarkable example of the socio-cultural changes in the region. This transformation was not merely a spatial alteration but also a significant indicator of how social practices and perceptions in the area evolved. This structure clearly illustrates how conceived space transitioned into lived space over time and how the region was re-appropriated by various communities. This indicates that space is not only produced once in the physical context but also continuously reproduced through social and cultural dynamics.

The Clifton estate demonstrates greater spatial coherence, hence improving its ability to present a recognisable image of the place. The area achieves a high degree of eurhythmia—a harmonious alignment between spatial form and activity—resulting in a well-structured urban rhythm. The mutual reinforcement between space and activities creates an environment where rhythms are aligned, strengthening the spatial identity and contributing to the overall vitality of the area. The Victoria Centre and its surroundings exhibit a vibrant urban environment characterised by spatial diversity and pedestrian mobility, where the layered polyrhythmic character of the city emerges. Each social actor can alter the spatial arrangement, thus contributing to the overall rhythm of the area. For instance, a low wall becomes a place where pedestrians can sit and rest. The increasing pedestrian density around the entrance to the centre defines the rhythm that arises as a reflection of the economic and commercial potential of the space. Furthermore, the presence of bus stops embodies the linear

rhythms of contemporary life, exemplifying the integration of human activity with transport patterns and reinforcing the polyrhythmic nature of the environment. The interplay of movement and gathering generates a complex and dynamic rhythm that mirrors the fluctuations of urban life.

Moreover, garden arrangements in these areas offer important clues about how space is used, indirectly providing information about the residents' preferences. As Roberts (1996) highlights, semi-detached suburban gardens were a prominent phenomenon of the interwar period, offering significant discursive depth and providing powerful settings for personal experience (Francis & Hester, 1991). The role of gardens as indicators of social class has also been extensively discussed in the literature (Rubenstein et al., 1991; Bhatti, 2006; Hollow, 2011). In this context, various types of use were observed throughout the observations, from gardens that emphasise privacy with higher fences to those that have been functionalised by organising the area as a car parking space. Additionally, there were gardens with meticulously pruned trees and seasonal flowers, as well as gardens occupied by construction waste. Each of these reflects important dynamics of the lived space in the area. When the cases are evaluated in this context, distinct patterns of garden maintenance and organisation emerge across the estates. In Aspley, poorly maintained gardens are more commonly observed; in contrast, the Clifton area features better-organised and well-maintained gardens, which may indicate a stronger attachment to place and a desire to convey a sense of order and respectability. In Top Valley, the dominance of high hedges, particularly around houses bordering the main road, reinforces the perception of boundaries and privacy. These hedges serve not only as physical barriers but also emphasise separation from the surrounding urban environment, contributing to a more enclosed and isolated atmosphere.

6.6. SWOT Analysis

A SWOT analysis was performed to gain a comprehensive understanding of the characteristics and dynamics of the selected estates. This strategic tool systematically assesses each estate's internal strengths and weaknesses, along with the external opportunities and threats that influence their development. Table 6.6 summarises the discussions related to the cases. Considering the various factors affecting the formation of the urban environment, SWOT analysis is an effective method for organising and structuring information. However, relying on only one method or data source may be insufficient to discover the different dimensions of the phenomenon under study. Therefore, the findings obtained from both the qualitative and quantitative methods employed in the study support the analytical approach and provide a more comprehensive assessment.

	Aspley Estate	Clifton Estate	Victoria Centre	Top Valley Estate
Strength	High global integration Diverse community Young population Quality architecture Advanced public transportation	High local integration Strong, vibrant local urban centre Easy access to green areas Integration of social areas into the street pattern Tramway transportation line Easy access to diverse shopping areas	Highly Active Urban Location Mixed-Use Environment Easy to access the city's facilities Close proximity to university campuses and student accommodation Potential for urban regeneration	Direct access to the main arterials road Proximity to educational facilities Easy access to green spaces Residential areas offering a quiet environment isolated from traffic
Weakness	Low local integration Absence of a local centre Limited social spaces Low-income level population	Low global integration Distance from the city centre may encourage car dependency Limited ethnic diversity	Limited access to green space Poor quality architecture No private open space Traffic and noisy environment Limited residential identity	Distance of the city centre Lack of social and leisure activity spaces Low-income level Unsafe street layouts: does not promote walkability Car-dominated road network
Opportunity	Proximity to a highly integrated urban area Urban regeneration possibilities Youth engagement and social programs	University campus nearby Potential for social programs Regeneration potential	Urban regeneration and mixed-use development Sustainability initiatives Integration of smart city solutions	The construction of new housing areas
Threat	Potential for social segregation	Risk of isolation from broader urban networks	Overcrowding and pollution	Further social marginalisation

	Limited housing diversity	Potential social segregation due to dominant ethnic structure Car dependency	Over-commercialisation	Increasing fragmentation in the urban pattern Increase in crime rate

Table 6.6 SWOT analysis

When the findings are combined with SWOT analysis, the significance of a multi-dimensional perspective obtained using mixed methods emerges. In particular, the triangulation of qualitative data with quantitative data sourced from space syntax analysis revealed different layers of awareness regarding the spatial, social, and functional dynamics of the urban environment. While the space syntax method objectively measures movement patterns and accessibility, it cannot fully capture the diversity of human experience and social dynamics. Nevertheless, urban quality is a multi-dimensional concept shaped not only by spatial connectivity but also by social, cultural, economic, and environmental factors. For instance, although the Aspley area has high global integration, it does not have land use patterns that can be considered a high-quality urban environment.

Furthermore, the study's methodological framework interprets its findings through Lefebvre's spatial triad model, encompassing the perceived, conceived, and lived dimensions of spatial experience. This theoretical perspective highlights the complex nature of space production, revealing that neither the strengths and weaknesses arising from internal factors nor the opportunities and threats stemming from external influences can be restricted to a single dimension. In this context, when analysed through Lefebvre's model, it becomes evident that strength in only one dimension—whether in physical-spatial arrangements (perceived space), planning and policy frameworks (conceived space), or social and lived experiences (lived space)—is insufficient for ensuring sustainable or effective urban development.

Consequently, this study again highlights the necessity of a holistic approach in urban analysis—one that recognises the interplay between physical structures, conceptual frameworks, and lived experiences. By integrating these dimensions, the study offers a more nuanced understanding of how internal and external factors shape urban environments and provides a more comprehensive basis for strategic planning and decision-making.

7

CONCLUSION

7.1. Introduction

This chapter summarises the key findings of the research, discusses the contributions to theory and practice, and offers suggestions for future studies.

7.2. Summarising Main Issues and Review of the Main Findings

This study aimed to understand the impact of council housing areas built in different periods on urban life. To refer back to the research problem and question, this study initially focused on the space production of council housing estates across different eras and how these spatial configurations currently create the lived space.

Council housing literature has demonstrated how housing policies have historically been shaped and how socio-economic and political processes have influenced the production of space. During the interwar period, council housing primarily focused on addressing the housing needs of the working class and creating healthier living environments. However, in the post-war period, rather than developing residential areas for a single social class, a more comprehensive approach was adopted, aiming to create mixed-use and sustainable communities that integrated various socio-economic groups. Nonetheless, in both periods, housing was constructed using a suburban-style spatial model, featuring two-storey buildings and low density, encouraging urban sprawl. By the 1960s, high-rise council housing was being constructed due to changing market conditions, the evolving demographic structure, and the collective modernisation efforts of the era. This development, which appeared to offer a solution

to the urban sprawl caused by the low-density areas built in earlier periods yet introduced new issues, was short-lived and led to the demolition of numerous high-rise housing units. Following this unsuccessful attempt, low-rise housing construction resumed. The year 1980 marked the official end of council housing production, thus concluding the state-supported housing initiatives that not only shaped British cities physically but also had social implications. Initially intended as a remedy for the housing crisis, council housing was now viewed by the state as a system that had itself become problematic. The council housing areas, symbolic of a top-down production model, were dismantled by a top-down decision, leaving behind millions who are facing the repercussions of policies that have evolved over time alongside physical spaces that can be examined. The Aspley, Clifton, Victoria Centre, and Top Valley estates explored in this research reflect significant changes in the history of council housing production.

This study aims to investigate how the selected council housing estates present environments today. Lefebvre's spatial triad approach was adopted to provide a comprehensive understanding of the spatial outcomes of housing estates. As defined in the literature and the works of Henri Lefebvre, the concept of conceived, perceived, and lived space plays a critical role in understanding the relationship between urban form and daily life. This research examined the extent to which different periods of council housing estates successfully created spaces that supported vibrant community life and social relations. These areas were not morphologically developed; they were designed by decision-makers. Consequently, they were evaluated and discussed in the context of the policies of the time, Lefebvre's definition of conceived space, and the ongoing effects of past decisions were revealed.

Many researchers have criticised interwar council housing estates as areas that are isolated from the city and public spaces, fostering suburban urbanisation characterised by low-density housing (Burnett, 1986; Richards, 1973; Clapson, 2003; Ravetz, 2003; Thompson, 1990). However, Bayliss (2001) has highlighted the necessity of re-evaluating this generalising perspective on housing within the context of such settlements. The Aspley council housing estate, examined considering the interwar legacy, demonstrates that spatial diversification holds limited potential. Nonetheless, as previously mentioned, the potential of any individual component alone is inadequate to foster urban diversity.

When the post-war period is examined in general, it becomes evident that the importance placed on 'diversity' has increased. Although housing spatial arrangements continue to be similar to those of the interwar period, political approaches have begun to incorporate a stronger emphasis on diversity in both social and spatial dimensions. The primary concern of this period was not only to create healthy living spaces through physical interventions but also to foster more socially integrated environments based

on past experiences. The concepts of 'ideal neighbourhood', 'complete ''community',' social well-being', and 'social balance' were emphasised in the planning reports (Dudley Report, 1944; Burnett, 1986; Hardy, 1991; Ravetz, 2003). Decision-makers of the interwar period began to evaluate the outcomes, and as Hall (2014) noted, a bottom-up feedback mechanism was implemented. Within this context, the Clifton council housing estate, constructed in the 1950s and examined in this research, stands out as a significant example of the era. This area, designed in line with the neighbourhood concept, faced criticism at the time of its construction, but today, it is regarded as one of the most successful housing developments when compared to other estates. The social spaces planned during its conception and developed over time provide residents with an active lifestyle and foster community life.

The high-rise building period signifies a major shift in council housing, transitioning from low-density suburban homes to high-density, high-rise buildings in city centres, with modern flats replacing traditional houses. Unlike earlier periods, these developments benefitted from access to city-centre services such as education, healthcare, and social amenities (Glendinning & Muthesius, 1994; Burnett, 1986; Ravetz, 2003). Criticism of high-rise housing estates emerged in the late 1960s in the context of social breakdown and crime rates; subsequently, the impact of these structures on social dynamics, health, and family structure has been subject to intense criticism in the literature (Kearns et al., 2010). However, in this study, the case of the Victoria Centre was assessed not through the lens of high-rise housing issues but by appreciating the advantages of its central location. Due to its high integration and accessibility, the Victoria Centre presents a more successful model compared to other case studies. Nonetheless, this period exhibits unique characteristics that cannot be directly compared to other housing production phases using the same criteria. Jacobs (1961) and Cervero (1986) argued that suburban areas undermine social cohesion due to car dependency and a lack of social interaction. Jabareen (2006) characterised sustainable urban form with design principles such as compactness, density, mixed land use, and sustainable transport. Likewise, the New Urbanism movement opposed urban sprawl and emphasised the advantages of compact cities (Ellis, 2002). In keeping with these approaches, Victoria Centre presents a model of sustainable urban living with its mixed-use, robust transport connections, and layout that fosters social interaction. Multi-storey housing, which was previously regarded as low status, now has the potential to be a vital component of a sustainable and socially vibrant urban form (Tower, 2000).

This study has once again demonstrated the importance of employing a mixed method based on the results obtained. By integrating qualitative and quantitative approaches, the study could address the limitations of each method. This supports the argument made by Greene (2007), who emphasises that mixed-methods research facilitates data triangulation, thereby enhancing the validity of the findings and providing a more

comprehensive view of the subject under investigation. In this study, the quantitative analysis through space syntax was complemented by qualitative observations, allowing for a deeper exploration of both the physical and social dimensions of urban spaces. Throughout the research, space syntax emerged as a key method for evaluating the spatial configuration of the selected estates in the context of the conceived space, revealing significant differences in integration and choice across eras. The findings demonstrate that areas with different street configurations result in distinct movement patterns. However, the lived space and, hence, the formation of neighbourhoods extend beyond these spatial dynamics. As Hillier (1996) argues, spatial configuration represents only one aspect of this process. Although the layout of the conceived space can encourage mobility and intersections, fostering urban vitality and social life in residential areas necessitates the integration of more comprehensive elements. The full reflection of the potential offered by spatial arrangement within lived spaces depends not only on the physical layout but also on the promotion of mixed-use development (Jacobs, 1961), the provision of high-quality environmental conditions (Gehl, 2011), and the effective utilisation of public spaces. Despite their configurational potential, areas with single functions that lack opportunities for social interaction limit the development of urban vitality and social interactions. In this context, it becomes clear once more that design strategies must embrace a multidimensional approach that encompasses both the physical environment and social practices. The findings, when aligned with phenomenological observations and rhythmanalysis, also suggest that human interaction is shaped by a complex set of factors, including safety, socio-demographics, and accessibility.

The spatial configuration of Nottingham City was analysed across different historical periods prior to in-depth discussions on the case studies. The analysis centred on the city’s integration structure, specifically investigating how the street morphology evolved alongside the development of council housing areas. In this context, it was identified that the construction of housing estates through a top-down production process, as opposed to the organic growth of the city, led to a decline in the intelligibility of the urban environment.

This research aligns with the notion that combining observation with space syntax analysis provides insights into both spatial configuration and lived experiences. Integrating these methods helps to reveal 'the full richness and diversity of human experience of the environment' (Hillier, 2005). Such an approach also highlights key phenomenological themes, including real-world immersion, the convergence of spatial configurations into dynamic patterns like 'place ballet', and the intimate relationship between people and the spaces they inhabit (Seamon, 2007). This research demonstrated the interactional locations through observations and identified where residents engage with one another. At this juncture, different results were found regarding whether spatial configuration serves as a determinant of social interaction,

which is one of the sub-questions of the research. According to the observations made on streets with high integration values, areas supported by mixed use exhibited high levels of interaction; however, areas with low spatial quality remained more isolated despite their high integration. This indicates the dependence of movement and interaction on the quality of space and mixed use (Jacobs, 1961; Gehl, 2011).

Moreover, spatial configuration shapes movement patterns, which in turn foster co-presence and create opportunities for 'encounter fields' (Hillier, 1996). These encounter fields refer to spaces where spontaneous social interactions are more likely to occur as individuals' paths intersect through shared spatial layouts. In this context, when evaluating three suburban-style cases, Aspley provides residents with the chance to meet people from the city due to its high global integration value, while the Clifton estate features a street network that encourages residents to interact with one another. Social interaction at the neighbourhood level is a crucial element in the formation of a sense of community. In this regard, Clifton boasts a structure where social interactions are concentrated, offering a higher level of mobility and coexistence compared to Aspley and Top Valley.

Based on the spatial configuration, observation data, and rhythmanalysis results, the Clifton council housing area was identified as the most successful example of urban qualities among the cases examined. The integration of housing with mixed land use, accessible public spaces, and effective transportation infrastructure generated positive effects on urban vitality and social interaction. While other areas displayed certain strengths, the Clifton estate provided a balanced environment that supported an integrated and dynamic community where spatial accessibility and daily life rhythms were in harmony. In this context, Clifton is regarded as a model for council housing by achieving a balance between high integration and functionality. Although the Clifton estate's spatial structure is not fully integrated with the city, a strong integration has been achieved at the local scale, preventing the area from remaining isolated and lifeless. The basis for this success lies in the correct implementation of the planning policies of the period, the completion of construction processes in accordance with city planning decisions, and the impact of the transportation infrastructure that developed over time. Furthermore, the overlap of physical and functional diversity with areas that encourage movement embedded in the spatial structure has enhanced the area's vitality. Furthermore, although the Clifton estate initially faced the threat of segregation due to its peripheral location and inadequate transportation infrastructure, it has realised its potential through the implementation of neighbourhood concepts and principles of diversity. The perceived space, shaped by user experience, has evolved over time and has better met the needs of the residents. The complaints of the early residents regarding the lack of facilities have been addressed over time; the environment has improved through appropriate interventions, thanks to the high integration values of the main axes, and leisure areas

that promote social interaction have been established. Today, the Clifton estate makes significant contributions to urban life as a sustainable model that fosters spatial diversity and social integration.

7.3. Contributions to Theory and Practice

Through a literature review of council housing estates, space production theories, and neighbourhood formation, this research proposes a comprehensive framework for evaluating urban quality. The framework is based on Lefebvre's conceptual triad—conceived, perceived, and lived space. The framework proposed by Lefebvre offered a solid theoretical basis for providing a dialectical approach. His triad emphasises that urban areas are not static entities but dynamic environments shaped by multiple forces. Although one of the main challenges is translating Lefebvre's abstract theoretical concepts into empirical research on the production of urban space, as Stanek (2011) emphasises, Lefebvre's ideas have the potential to bridge the gap between theory and practice. However, there is a lack of empirical research on the especially lived space theory (Stanek, 2011). Therefore, within the scope of the research, I have discussed Lefebvre's theory not only in terms of its philosophical grounding and abstract meanings but also in the context of the physical and social production of space. In this regard, I proposed an empirical framework that would facilitate the exploration of human movements, activities, daily usage patterns, and rhythms by utilising diverse methods.

The theoretical strength of Lefebvre's conceptual framework lies in its ability to provide a comprehensive understanding of the complex relationship between space and social processes. The significance of these concepts has been clearly demonstrated in the analysis of council housing estates that hold political value, particularly in developing solutions to the housing shortage. In this context, the historical research conducted within the scope of the study has deepened our understanding of how the effects of power representatives and ideological approaches from different periods impact the built environment, as well as the evolution of planning ideologies over time. Nonetheless, spatial research demands investigation that goes beyond historical analysis. For this reason, space syntax is also employed in this step to understand the conceived space. Analysing spatial patterns using this method has added an additional analytical layer to our understanding of the outcomes of ideological decisions from a historical perspective and thus enhanced the comprehensibility of the conceived space. This layer not only supports but also enriches Lefebvre's model, providing a deeper understanding of how space is experienced and used in practice. This step, which aims to explore the dynamics that shaped the areas produced in the past and their current outcomes, continued with the question of *'how'* daily relations are produced in these spaces. The question of *'how'*, which is asked for the discovery of

the perceived and lived space, was investigated with field studies. This research revealed that the spatial potentials of the conceived space are shaped and transformed by the current physical conditions. The descriptive narrative of the results of the observations carried out, together with Lefebvre's framework, emphasised the importance of lived experience by revealing the inconsistencies between the conceived and perceived spaces. The perceived and lived space was evaluated as a dynamic phenomenon that encompasses both the current state of daily life practices and the embedded potentials that may emerge over time. This perspective recognises space not as a static physical entity but as an evolving framework shaped by human interactions, rhythms, and socio-cultural influences. Rhythmanalysis further captures the distinctive temporal patterns of spatial use, reinforcing the idea that space is a socially constructed and continuously transforming process. Through concrete case studies, this research validates and enriches Lefebvre's framework, demonstrating its relevance in contemporary spatial analysis. Consequently, the primary aim of adopting this framework is to emphasise the multifaceted nature of space production, avoiding confinement to merely a philosophical or physical dimension and illustrating once again the necessity of examining it from a comprehensive perspective. In sum, this study contributes to Lefebvre's framework by demonstrating its continued relevance in analysing contemporary spatial dynamics, enriching it with new methodological and theoretical insights. The research establishes a foundation for future studies that seek to explore the complex and evolving relationships between space, society, and power, thereby making Lefebvre's abstract theories more accessible and applicable to future spatial analyses.

This research contributes to the understanding of social phenomena by adopting a micro-level perspective to investigate the lived experiences within council housing estates across various periods. Instead of merely concentrating on broader social structures or policies, the study emphasises individual interactions, daily practices, and residents' experiences to reveal how space is utilised, perceived, and transformed over time. Furthermore, the study challenges top-down official narratives that generalise the successes or failures of housing estates across periods. It argues that while council housing areas may reflect certain period-based urban planning discourses, their success or failure should not be assessed solely on this basis. Instead, the research emphasises the need to analyse each estate on its own terms, reflecting the unique dynamics, rhythms, and socio-spatial configurations at the local level.

One significant contribution of this research is that by selecting Nottingham and examining four distinct areas in detail, it offers an alternative perspective to the prevailing narrative in the literature about major cities like London, Liverpool, and Manchester. As a medium-sized English city, the thorough investigation of Nottingham's historical and spatial heritage provides a valuable addition to the

literature regarding the roles of such cities in urbanisation and housing production processes.

This research offers practical contributions for urban practitioners, designers, and policymakers by providing insights into the functioning and evolution of existing housing estates over time. For practitioners involved in future developments, the findings highlight the importance of understanding the specific context of each area. The study emphasises that while designers remain crucial in shaping urban spaces, their role must be reconsidered in terms of the unique social, spatial, and cultural dynamics of each context. Understanding how to differentiate design strategies within unique environments is essential for creating spaces that align with the needs and rhythms of the communities inhabiting these areas. In this regard, the research provides valuable guidance on producing sustainable urban forms that encourage social interactions and address the complexities of lived experiences. The practical contribution of this research lies in its potential to inform future developments, particularly by offering a framework that ensures design decisions are sensitive to local conditions.

7.4. Limitations and Future Recommendations

An essential part of thorough empirical research is recognising its inherent limitations, which can influence the study's design, methodology, and results. Identifying these limitations helps to contextualise the results and provides a foundation for future research improvements. The limitations of the concepts underlying the empirical research design must also be acknowledged. The subjective nature of the rhythmanalysis approach may reveal a lack of precision in operationalising rhythms. In addition, while it usually provides rich, detailed results due to its capacity to focus on context-specific examples, it should also be considered that it may result in descriptive findings with limited generalisability. Additionally, while the concepts of polyrhythmia (multiple coexisting rhythms), eurhythmia (harmonious rhythms), and arrhythmia (disruptive or conflicting rhythms) offer valuable theoretical insights, they can also complicate the establishment of clear criteria for defining and categorising rhythms due to their highly interpretive and context-dependent nature.

Considering the limitations of this study, recommendations for future research can be summarised as follows: The theoretically based mixed method developed for this research will enable broader comparisons by incorporating different case studies. While the study analyses four distinct areas of a city, this approach could be extended to encompass multiple regions constructed during the same period. Additionally, we can achieve a more comprehensive and holistic understanding of the council housing legacy by including examples from various cities. Moreover, the methodological framework, grounded in Lefebvre's spatial triad, effectively generated meaningful insights. However, to gain a broader and more nuanced perspective, future research

could integrate personal interviews and surveys alongside existing methods. Integrating personal interviews and surveys would facilitate a more profound comprehension of the concept of lived space by capturing individual experiences and perceptions. Furthermore, extending the observation period would allow for a more detailed analysis of the impact of seasonal changes, significant events, and social activities on urban spaces, further enriching the rhythmanalysis approach.

Consequently, evaluating the outcomes of the built environment through a comprehensive and holistic approach enables the transfer of lessons learnt from both successful and unsuccessful urban areas to new design processes. This evaluation enhances the understanding of the social, economic, and physical impacts of spaces created during various periods. Insights from past experiences aid in developing proactive solutions to potential challenges that may arise in new projects. In this manner, local governments and designers can create more sustainable, integrated, and liveable urban areas by not only addressing current needs but also anticipating future challenges.

BIBLIOGRAPHY

Aldridge, M. (1979). *The British New Towns: A Programme without a Policy*. London: Routledge & Kegan Paul.

Alexander, C. (1964). *Notes on The Synthesis of Form*. Harvard University Press.

Alexander, C., Ishikawa, S., Silverstein, M., Jacobson, M., King, I. F., & Angel, S. (1977). *A Pattern Language*. Oxford University Press.

Allen, J., & Pryke, M. (1994). The Production of Service Space. *Environment and Planning D: Society and Space, 12*(4), 453–475.

Alvarez, L. B. (2018). *Morphological, Social and Perceptual Dimensions of Public Places in British Neighbourhoods* (Doctoral thesis, University of Nottingham).

Anciaes, P. R., Jones, P., & Mindell, J. S. (2016). Community severance: Where is it found and at what cost? *Transport Reviews, 36*(3), 293-317.

Augé, M. (1995). Non-places: Introduction to an Anthropology of Supermodernity. Verso.

Augoyard, J. F. (2007). *Step by step: Everyday Walks in a French Urban Housing Project*. University of Minnesota Press. (Original work published 1941).

Balchin, P., & Rhoden, M. (1998). *Housing: The Essential Foundations*. London: Routledge.

Ball, M. (1983). *Housing Policy and Economic Power: The Political Economy of Owner Occupation.* (1st ed.). Taylor & Francis Group.

Ball, M., Gray, F., & McDowell, L. (1989). The Transformation of Britain: Contemporary Social and Economic Change.

Bayliss, D. (2001). Revisiting The Cottage Council Estates: England, 1919–39. *Planning Perspectives*, *16*(2), 169-200.

Beckett, J. (2006). An industrial Town in The Making, 1750-1830. In J. Beckett (Ed.), *A Centenary History of Nottingham* (pp. 189-219). Manchester: Phillimore.

Benevolo, L. (1971). The Origins of Modern Town Planning. MIT Press.

Bhatti, M. (2006). When I'm in the Garden I Can Create My Own Paradise: Homes and Gardens in Later Life. The Sociological Review, 54(2), 318–341.

Boer, R. (2015). *Marxist Criticism of The Hebrew Bible* (2nd ed.). Bloomsbury Publishing.

Bowley, M. (1944). *Housing and the State*. London: Allen & Unwin.

Branson, N., & Heinemann, M. (1971). *Britain in The Nineteen Thirties*.

Brown, S., & Sessions, J. G. (1997). Housing, Privatization and the 'Right to Buy'. *Applied Economics*, *29*(5), 581-590.

Broxholme, P. (2013). Back to the future? The Tory Party, paternalism, and housing policy in Nottingham 1919-1932. *Midland History, 38*(1), 99-118.

Bryson, E. (1974). Portrait Of Nottingham. London

Bulos, M., & Walker, S. (1988). Britain's Tower Blocks: The Demolition Controversy. *The Netherlands Journal of Housing and Environmental Research*, 39-59.

Burnett, J. (1986). *A Social History of Housing, 1815-1985* (2nd ed.). Methuen.

Burrows, R. (1997). *Contemporary Patterns of Residential Mobility in Relation to Social Housing in England*. Centre For Housing Policy, University of York.

Byrne, J. A. (2021). Observation for Data Collection in Urban Studies and Urban Analysis. In *Methods in Urban Analysis* (pp. 127–149). Springer Singapore.

Calthorpe, P. (1995). Neighbourhood And Community. Urban Design Quarterly, Topic: Urban Components, Issue 53

Can, I. (2012). *In-Between Space and Social Interaction: A Case Study of Three Neighbourhoods in Izmir* (Doctoral Dissertation, University Of Nottingham).

Canter, D. V. (1977). *The Psychology of Place*. Architectural Press.

Carp, J. (2008). “Ground-Truthing” Representations of Social Space: Using Lefebvre's Conceptual Triad. *Journal Of Planning Education and Research, 28*(2), 129–142.

Carr, C. M. H., & Whitehand, J. W. R. (2001). *Twentieth-Century Suburbs: A Morphological Approach*. Routledge.

Carter, I. (2021). *The Lived Experience of Post-War Multi-Storey Council Housing: Reassessing Sheffield’s Park Hill and Manchester’s Hulme* (Doctoral Dissertation, University Of Sheffield).

Castells, M. (1976). *The Urban Question: A Marxist Approach* (A. Sheridan, Trans., 2nd Ed.). Edward Arnold.

Castells, M. (1977). *The Urban Question* (1st Ed.). Cambridge, MA: MIT Press.

Castells, M., & Lebas, E. (1978). *City, Class and Power*. Macmillan.

Cervero, R. (1986). *Suburban Gridlock*. Center For Urban Policy Research, Rutgers University, New Brunswick, NJ.

Chang, D., & Penn, A. (1998). Integrated Multilevel Circulation in Dense Urban Areas: The Effect Of Multiple Interacting Constraints On The Use Of Complex Urban Areas. *Environment And Planning B: Planning and Design, 25*(4), 507–538.

Chen, Y. (2016). *Practising Rhythmanalysis: Theories and Methodologies*. Rowman & Littlefield.

Cihanger, D. (2018). *Spontaneity And Urban Design: Exploring Everyday Life Practices and The Formation Of Lived Space In Yüksel Street* (Doctoral Dissertation, Ghent University).

Çil, E. (2006). Bir Kent Okuma Aracı Olarak Mekan Dizim Analizinin Kuramsal Ve Yöntemsel Tartışması. *YTU Arch. Fac. E-Journal, 1*(4), 1–16.

City Estates Surveyor. (1966). Appendix VI: Nottingham's Housing Record. In K. C. Edwards (Ed.), *Nottingham and Its Region* (P. 538). British Association for The Advancement of Science.

Clapson, M. (1998). *Invincible Green Suburbs, Brave New Towns: Social Change and Urban Dispersal in Post-War England*. Manchester University Press.

Clapson, M. (2003). *Suburban Century: Social Change and Urban Growth in England and The United States*. Berg.

Cooney, E. W. (1974). High Flats in Local Authority Housing in England and Wales Since 1945. *Multi-Storey Living, Croom Helm, London*.

Creswell, J. W. (1998). *Qualitative Inquiry and Research Design: Choosing Among Five Traditions*. Sage Publications.

Creswell, J. W. (2003). *Research Design: Qualitative, Quantitative, And Mixed Methods Approaches*. Sage Publications.

Cullingworth, J. B., & Nadin, V. (2006). *Town And Country Planning in The UK* (14th Ed.). Routledge.

Czerkauer-Yamu, C. (2012). *Strategic Planning for The Development of Sustainable Metropolitan Areas Using a Multi-Scale Decision Support System: The Vienna Case* (Ph.D. Thesis). Université De Besançon/Université De Franche-Comté, France.

Dalton, N. (2001). Fractional Configuration Analysis and A Solution to The Manhattan Problem. In J. Peponis, J. Wineman, & S. Bafna (Eds.), *Proceedings of the 3rd International Space Syntax Symposium*. Georgia Institute of Technology, Atlanta.

Daunton, M. J. (1987). *A Property-Owning Democracy? Housing In Britain*. London: Faber.

Day, N. M. (1988). *The Role of The Architect in Post-War State Housing: A Case Study Of The Housing Work Of The London County Council, 1919-1956* (Doctoral Dissertation, University Of Warwick).

Doratli, N., Hoskara, S. O., & Fasli, M. (2004). An analytical methodology for revitalization strategies in historic urban quarters: A case study of the Walled City of Nicosia, North Cyprus. Cities, 21(4), 329-348.

Edensor, T. (Ed.). (2012). *Geographies Of Rhythm: Nature, Place, Mobilities and Bodies*. Ashgate Publishing, Ltd.

Edwards, K. C. (1962). *Nottingham: The Planners' Legacy*. University Of Nottingham.

Elden, S. (2004). *Understanding Henri Lefebvre: Theory And the Possible*. London: Continuum Press.

Ellis, C. (2002). The New Urbanism: Critiques And Rebuttals. *Journal Of Urban Design, 7*(3), 261–291.

Engels, F. (1968). *The Condition of The Working Class In England* (1st Ed.). Stanford, CA: Stanford University Press.

Ewen, S. (2000). 'Mutual Antagonism'? An Analysis of The Relationship Between Nottingham City and The County Council During The Interim Development Of The Clifton Housing Estate, 1943 To 1951. *Midland History, 25*, 162-179.

Fen, E. (2012). Rhythmanalysis Perspective for Mobile Places Studies. *Journal Of New Frontiers In Spatial Concepts, 4*, 48–52.

Fishman, R. (1977). *Urban Utopias in The Twentieth Century: Ebenezer Howard, Frank Lloyd Wright, And Le Corbusier*. New York: Basic Books.

Forty, A. (2000). *Words And Buildings: A Vocabulary of Modern Architecture* (Vol. 268). Thames & Hudson.

Francis, M., & Hester, R. T. Jr. (Eds.). (1991). *The Meaning of Gardens: Idea, Place, And Action*. Cambridge: Cambridge University Press.

Gehl, J. (1971). *Life Between Buildings: Using Public Space*. Island Press.

Gehl, J. (2010). Cities For People. Island Press.

Gehl, J. (2011). *Life Between Buildings: Using Public Space*. Island Press.

Gehl, J., & Svarre, B. (2013). *How To Study Public Life* (Vol. 2). Island Press.

Ghulyan, H. (2017). *Mekânın Üretimi Kuramı Ve Türkiye'de Kentsel Mekânın Üretimi: Ankara Örneği* (Doctoral Dissertation, Ankara University).

Giddens, A. (1990). *The Consequences of Modernity*. Stanford University Press.

Gifford, R. (1997). *Environmental Psychology: Principles And Practice* (2nd Ed.). Boston: Allyn & Bacon.

Giggs, J. (2006). Housing, Population, And Transport. In J. Becket (Ed.), *A Centenary History of Nottingham* (Pp. 435-462). Phillimore.

Given, L. M. (Ed.). (2008). *The SAGE Encyclopedia Of Qualitative Research Methods*. Sage Publications.

Glendinning, M., & Muthesius, S. (1994). *Tower Block: Modern Public Housing in England, Scotland, Wales, And Northern Ireland*. New Haven: Yale University Press.

Godfrey, W. (1966). *Majority Verdict. A Social Survey of Clifton Estate*. Clifton Community Care Group.

Gottdiener, M. (1984). Debate On Theory of Space: Towards an Urban Praxis. In M. P. Smith (Ed.), *Cities in Transformation*. Sage Publications.

Gottdiener, M. (1994). *The Social Production of Urban Space*. University Of Texas Press.

Green, R. (1999). Meaning And Form in Community Perception of Town Character. *Journal Of Environmental Psychology, 19*(3), 311-329.

Greene, J. C. (2007). *Mixed Methods in Social Inquiry*. Jossey-Bass.

Gyte, D. (1981). *The Provision and Use of Services in Clifton, Nottingham* (Master Dissertation, University of Nottingham).

Hall, P. (2014). *Cities Of Tomorrow: An Intellectual History of Urban Planning and Design Since 1880*. John Wiley & Sons.

Hall, P., & Ward, C. (1998). *Sociable Cities: The Legacy of Ebenezer Howard*. Wiley &Sons, Chichester.

Hallman, H. W. (1984). *Neighborhoods: Their Place in Urban Life*. Beverly Hills, CA: Sage Publications.

Hardy, D. (1991). *From Garden Cities to New Towns: Campaigning for Town and Country Planning 1899-1946.* (1st Ed.). Taylor & Francis Group.

Harvey, D. (1985). *Consciousness And the Urban Experience: Studies in The History and Theory of Capitalist Urbanization* (1st Ed.). Baltimore, MD: The Johns Hopkins University Press.

Hayes, N. (2006). The Government of The City, 1900-1974: The Consensus Ethos in Local Politics. In J. Beckett (Ed.), *A Centenary History of Nottingham* (Pp. 463-479). Manchester: Phillimore.

Highmore, B. (2005). *Cityscapes: Cultural Readings in The Material and Symbolic City*. Palgrave Macmillan.

Hill, T., & Westbrook, R. (1997). SWOT analysis: It's time for a product recall. Long Range Planning, 30(1), 46-52.

Hillier, B. (1996a). *Space Is the Machine*. Cambridge University Press.

Hillier, B. (1996b). Cities As Movement Economies. *Urban Design International, 1*, 41

Hillier, B. (1999). Centrality As a Process: Accounting for Attraction Inequalities in Deformed Grids. *Urban Design International, 4*, 107–127.

Hillier, B. (2005). Between Social Physics and Phenomenology. *Proceedings Of The 5th International Space Syntax Symposium*, Delft, Netherlands.

Hillier, B., & Hanson, J. (1984). *The Social Logic of Space*. Cambridge University Press.

Hillier, B., & Iida, S. (2005). Network Effects and Psychological Effects: A Theory of Urban Movement. In *Proceedings of the 5th International Space Syntax Symposium* (Pp. 553–564). TU Delft, The Netherlands.

Hillier, B., & Sahbaz, Ö. (2005). High-Resolution Analysis of Crime Patterns in Urban Street Networks: An Initial Statistical Sketch from An Ongoing Study of A London Borough. In A. Van Nes (Ed.), *Proceedings of the 5th International Space Syntax Symposium*

Hillier, B., & Shu, C. F. (2000). Crime And Urban Layout: The Need for Evidence. In S. Ballintyne, K. Pease, & V. Mclaren (Eds.), *Secure Foundations: Key Issues in Crime Prevention, Crime Reduction, And Community Safety* (Pp. [Specific Pages If Available]). London: Institute For Public Policy Research.

Hillier, B., & Vaughan, L. (2007). The City as One Thing. *Progress In Planning, 67*(3), 205–230.

Hillier, B., Hanson, J., & Peponis, J. (1987). Syntactic Analysis of Settlements. *Architecture & Comportement/Architecture & Behaviour, 3*, 217–231.

Hillier, B., Penn, A., Hanson, J., Grajewski, T., & Xu, J. (1993). Natural Movement: Or Configuration and Attraction In Urban Pedestrian Movement. *Environment And Planning B: Planning and Design, 20*, 29–66.

Hillier, B., Turner, A., Yang, T., & Park, H. (2007). Metric And Topo-Geometric Properties of Urban Street Networks: Some Convergences, Divergences, And New Results. In *Proceedings of the 6th International Space Syntax Symposium* (Pp. 001.01–22). Istanbul Technical University.

Hobsbawm, E. (1962). The Age of Revolution: Europe 1789–1848. London: Weidenfeld & Nicolson.

Hollow, M. (2011). Suburban Ideals on England's Interwar Council Estates. *Journal Of the Garden History Society, 39*(2), 203–217.

Howard, E. (1902). *Garden Cities of To-Morrow*. London: Swan Sonnenschein & Co. Ltd.

Irving, A. (1993). The Modern/Postmodern Divide in Urban Planning. University Of Toronto Quarterly, Summer, 477–484. In P. Calthorpe & W. Fulton, The Regional City: Planning for The End Of Sprawl. Washington: Island Press.

İnal-Çekiç, T., Kozaman-Aygün, S., & Bilen, Ö. (2023). Reflections On "Place Attachment": Perceptions of Urban Redevelopment in An Informal Neighborhood In Istanbul. *Journal Of Housing and The Built Environment, 39*(1), 1–20.

Jabareen, Y. R. (2006). Sustainable Urban Forms: Their Typologies, Models, And Concepts. *Journal Of Planning Education and Research*, *26*(1), 38-52.

Jacobs, J. (1961). *The Death and Life of Great American Cities*. New York: Vintage Books.

Karimi, K. (2012). A Configurational Approach to Analytical Urban Design: 'Space Syntax' Methodology. *Urban Design International, 12*(4), 297–318.

Kleinhans, R., & Van Ham, M. (2013). Lessons Learned from The Largest Tenure-Mix Operation in The World: Right to Buy In The United Kingdom. *Cityscape*, 101-117.

Koch, D., & Sand, M. (2010). Rhythmanalysis: Rhythm as Mode, Methods and Theory for Analysing Urban Complexity. In *Urban Design Research: Method and Application, 3-4 December 2009, Birmingham, UK* (Pp. 61–72). Birmingham City University.

Kubat, A., & Ozer, O. (2007). Walking Initiatives: A Quantitative Movement Analysis. In *Proceedings of the 6th International Space Syntax Symposium*. ITU Faculty of Architecture, Istanbul.

Kumar, R. (2011). *Research Methodology: A Step-By-Step Guide for Beginners* (3rd Ed.). Sage Publications.

Leary, M. E. (2009). The Production of Space Through A Shrine And Vendetta In Manchester: Lefebvre's Spatial Triad And The Regeneration Of A Place Renamed Castlefield. Planning Theory & Practice, 10(2), 189–212.

Leary, M. E. (2013). A Lefebvrian Analysis of The Production of Glorious, Gruesome Public Space In Manchester. *Progress In Planning, 85*, 1–52.

Lefebvre, H. (1991). *The Production of Space* (N. Donaldson-Smith, Trans.). Oxford, England: Basil Blackwell. (Original Work Published 1974).

Lefebvre, H. (2003). *The Urban Revolution*. University Of Minnesota Press.

Lefebvre, H. (2004). *Rhythmanalysis: Space, Time and Everyday Life*. New York: Continuum.

Lefebvre, H. (2008). *Critique Of Everyday Life, Vol. 2: Foundations for A Sociology of The Everyday*. Verso.

Leary-Owhin, M. (2009). Lefebvre's Spatial Triad and The Regeneration of a Place Renamed Castlefield. *Planning Theory & Practice, 10*(2), 189–212.

Liepmann, K. K. (1937). English Housing Policy Since the War. *The Journal of Economic Review*, 503-518.

Lund, H. (2002). Pedestrian Environments and Sense of Community. *Journal Of Planning Education and Research, 21*(3), 301-312.

Lynch, K. (1981). A theory of good city form. Cambridge, MA: MIT Press.

Lynch, K. (1960). The image of the city. MIT press.

Major, M. D., Penn, A., & Hillier, B. (1999). The Urban Village and The City of Tomorrow Revisited. In *Second International Space Syntax Symposium Proceedings* (Vol. 2)

Malpass, P. (2004). Fifty Years of British Housing Policy: Leaving or Leading the Welfare State? *European Journal of Housing Policy*, *4*(2), 209-227.

Malpass, P. And A. Murie (1994). *Housing Policy and Practice*. London, Macmillan.

Martin, D. G. (2003). Enacting Neighborhood. *Urban Geography, 24*(5), 361-385.

Mass-Observation. (1943). *An Enquiry into People's Homes: A Report Prepared by Mass-Observation For The Advertising Service Guild, The Fourth Of The" Change" Wartime Surveys* (No. 4). Advertising Service Guild.

Matthews, C. (2019). *Homes & Places: A History of Nottingham's Council Houses* (2nd Ed.). Nottingham: Nottingham City Homes.

Mccann, E. J. (1999). Race, Protest, And Public Space: Contextualizing Lefebvre in The U.S. City. *Antipode, 31*(2), 163–184.

Mckenna, M. (1986). The Development of Suburban Council Housing Estates in Liverpool Between the Wars (Doctoral Dissertation, University Of Liverpool).

Mckenna, M. (1989). Municipal Suburbia in Liverpool, 1919-1939. *The Town Planning Review*, 287-318.

Merrett, S. (1979). *State Housing in Britain*. Routledge And Kegan Paul.

Merrifield, A. (1993). Place And Space: A Lefebvrian Reconciliation. *Transactions Of the Institute Of British Geographers, New Series, 18*(4), 516–531.

Merrifield, A. (2006). *Henri Lefebvre: A Critical Introduction*. London: Routledge.

Milgrom, R. (2008). Realizing Differential Space? Design Processes and Everyday Life In The Architecture Of Lucien Kroll. *Capitalism Nature Socialism, 13*(2), 75-95.

Montgomery, J. (1998). Making A City: Urbanity, Vitality and Urban Design. *Journal Of Urban Design*, *3*(1), 93-116.

Mumford, L. (1945). The Garden City Idea and Modern Planning. In E. Howard (Ed.), *Garden Cities of Tomorrow* (2nd Ed.). Cambridge: MIT Press.

Mumford, L. (1954). The Neighborhood and The Neighborhood Unit. *Town Planning Review*, *24*(4), 256.

Mumford, L. (1961). *The City in History: Its Origins, Its Transformations, And Its Prospects*. Secker & Warburg.

Mumford, L. (2000). What Is a City? In R. T. Le Gates & F. Stout (Eds.), *The City Reader. (Pp. 110-114).* London: Routledge.

Murie, A., Niner, P., & Watson, C. J. (1976). *Housing Policy and The Housing System*.

Namini, R., Loda, M., & Meshkini, A. (2021). SWOT analysis and developing strategies for the realisation of urban livability in Tehran. International Journal of Urban Sustainable Development, 13(1), 117-129.

Natrasony, S. M., & Alexander, D. (2005). The Rise of Modernism and The Decline of Place: The Case Of Surrey City Centre, Canada. Planning Perspectives, 20, 413–433.

Oldfield, G. (2003). *The Illustrated History of Nottingham's Suburbs*. Breedon Book Publishing.

Olechnowicz, A. (1997). *Working-Class Housing in England Between the Wars: The Becontree Estate*. Oxford University Press.

Orbach, L. F. (1977). Homes For Heroes: A Study of The Evolution of British Public Housing, 1915-1921

Osman, K. M., & Suliman, M. (1995). The Space Syntax Methodology: Fits and Misfits. *Architecture & Comportement/Architecture & Behaviour, 10*(2), 189–204.

Park, R. E. (1915). The City: Suggestions For The Investigation Of Human Behavior In The City Environment. *The American Journal Of Sociology, 20*(5), 577-612.

Parker, T. (1994). The Land Use—Air Quality Linkage: How Land Use and Transportation Affect Air Quality. *Sacramento.*

Pawson, H. (2006). Restructuring England's Social Housing Sector Since 1989: Undermining or Underpinning the Fundamentals Of Public Housing? Policy Review. *Housing Studies*, *21*(5), 767-783.

Peach, C., & Byron, M. (1994). Council House Sales, Residualisation and Afro Caribbean Tenants. *Journal Of Social Policy*, *23*(3), 363-383.

Penn, A. (2003). Space Syntax and Spatial Cognition Or Why The Axial Line? *Environment And Behavior, 35*(1), 30–65.

Penn, A., Hillier, B., Banister, D., & Xu, J. (1998). Configurational Modelling of Urban Movement Networks. *Environment And Planning B: Planning and Design, 24*, 59–84.

Peponis, J., Allen, D., French, S., Scoppa, M., & Brown, J. (2007). Street Connectivity and Urban Density: Spatial Measures and Their Correlation. In A. S. Kubat, Ö. Ertekin, Y. I. Güney, & E. Eyüboğlu (Eds.), *Proceedings of the 6th International Space Syntax Symposium*. ITU Faculty of Architecture, Istanbul.

Peponis, J., Major, M., Amorim, L., & Dufaux, F. (1997). On The Generation of Linear Representation of Spatial Configuration. In M. Major, L. Amorim, & F. Dufaux (Eds.), *Proceedings of the 1st International Space Syntax Symposium*. University College London.

Pickton, D. W., & Wright, S. (1998). What's SWOT in strategic analysis? Strategic Change, 7(2), 101-109.

Power, A. (1993). *Hovels To High Rise: State Housing in Europe Since 1850*. Routledge.

Power, A., & Segal, G. (1997). *Estates On the Edge: The Social Consequences of Mass Housing In Northern Europe*. London: Macmillan.

Ratti, C. (2004). Space Syntax: Some Inconsistencies. *Environment And Planning B: Planning and Design, 31*, 487–499.

Ravetz, A. (2003). *Council Housing and Culture: The History of A Social Experiment*. Routledge.

Read, S. (1999). Space Syntax and The Dutch City. *Environment And Planning B: Planning and Design, 26*(2), 251–264.

Reeve, A. (2019). Exercising Control at The Urban Scale: Towards A Theory of Spatial Organisation and Surveillance. In *Surveillance, Architecture and Control* (Pp. 19-56). Springer International Publishing.

Relph, E. (1987). *The Modern Urban Landscape*. London: Croom Helm.

Richards, J. M. (1973). The Castles on The Ground: The Anatomy of Suburbia. London: J. Murray.

Ritter, P. (1964). Nottingham: City Centre Project. *The Architects' Journal*, 203-204.

Roberts, J. (1996). The Gardens of Dunroamin: History and Cultural Values With Specific Reference To The Gardens Of The Inter-War Semi. *International Journal of Heritage Studies, 1*(4), 229–237.

Ruá, M. J., Huedo, P., Cabeza, M., Saez, B., & Agost-Felip, R. (2021). A model to prioritise sustainable urban regeneration in vulnerable areas using SWOT and CAME methodologies. Journal of Housing and the Built Environment, 1-25.

Rubinstein, A., Andrews, A., & Schweitzer, P. (Eds.). (1991). *Just Like the Country: Memories of London Families Who Settled the New Cottage Estates 1919-1939*. London: Exchange Books.

Salama, A. M., Thierstein, A., & Wiedmann, F. (2012). A Framework for Investigating Urban Qualities in Emerging Knowledge Economies: The Case of Doha. *Archnet-IJAR, International Journal for Architectural Research, 6*(1), 42–56.

Salar, M., & Salar, O. (2014). Determining pros and cons of franchising by using SWOT analysis. Procedia-Social and Behavioral Sciences, 122, 515-519.

Salingaros, N. A. (2000). Complexity And Urban Coherence. *Journal Of Urban Design*, *5*(3), 291-316.

Sandercock, L. (1998). Towards Cosmopolis: Planning for Multicultural Cities. Chichester: Wiley.

Savas, H. (2020). *The Interpretation of Taksim Square in Terms of Spatial Production in The Context of The Theories by Henri Lefebvre, Michel De Certeau and Henri Bergson* (Master Thesis). Yıldız Technical University, Institute of Science.

Schmid, C. (2014). The Trouble with Henri: Urban Research and The Theory of The Production of Space. In Ł. Stanek, C. Schmid, & Á. Moravánszky (Eds.), *Urban Revolution Now: Henri Lefebvre in Social Research and Architecture* (Pp. 29-49). Routledge.

Seamon, D. (2007). A Lived Hermetic of People and Place: Phenomenology and Space Syntax. In *6th International Space Syntax Symposium*, Istanbul, Turkey.

Sengül, T. H. (2001). Sınıf Mücadelesi Ve Kent Mekânı. *Praksis, 2*, 7-21.

Shepherd, M. (2022). *Midlands Megastructure or High Street Heterotopia? The Victoria Centre, Nottingham* (Master Thesis, University College London).

Shields, R. (2005). *Lefebvre, Love and Struggle: Spatial Dialectics*. Routledge.

Short, J. R. (1982). *Housing In Britain: The Post-War Experience*. Methuen.

Simpson, P. (2012). Apprehending Everyday Rhythms: Rhythmanalysis, Time-Lapse Photography, And the Space-Times Of Street Performance. *Cultural Geographies, 19*(4), 423–445.

Soja, E. W. (1996). *Thirdspace: Journeys To Los Angeles And Other Real-And-Imagined Places*. Blackwell.

Soliman, A. M. (2012). Building bridges with the grassroots: Housing formalization process in Egyptian cities. Journal of Housing and the Built Environment, 27, 241-260.

Stanek, L. (2011). Henri Lefebvre On Space: Architecture, Urban Research, And the Production of Theory. Minneapolis: University Of Minnesota Press.

Swenarton, M. (1981). *Homes Fit for Heroes: The Politics and Architecture of Early State Housing In Britain*. London: Heinemann.

Swenarton, M. (2002). Tudor Walters and Tudorbethan: Reassessing Britain's Inter-War Suburbs. *Planning Perspectives*, *17*(3), 267-286.

Talen, E. (1999). Sense Of Community and Neighbourhood Form: An Assessment of The Social Doctrine of New Urbanism. *Urban Studies, 36*(8), 1361–1379.

Taylor, N. (1967). The Failure of Housing. *Architectural Review*, *142*(67), 341-342.

Thomas, C. J. (1968). *Geographical Aspects of The Growth of The Residential Area of Greater Nottingham In The 20th Century* (Doctoral Thesis, University Of Nottingham).

Towers, G. (2000). *Shelter Is Not Enough: Transforming Multi-Storey Housing* (1st Ed.). Bristol University Press.

Tuan, Y. F. (1977). *Space And Place: The Perspective of Experience*. University Of Minnesota Press.

Turner, A. (2000). Angular Analysis: A Method for The Quantification of Space. *Working Paper Series* (Paper 23). Centre For Advanced Spatial Analysis, University College London.

Turner, A. (2007). From Axial to Road-Centre Lines: A New Representation for Space Syntax and A New Model Of Route Choice For Transport Network Analysis. *Environment And Planning B: Planning and Design, 34*(3), 539–555.

Turner, A., Penn, A., & Hillier, B. (2005). An Algorithmic Definition of The Axial Map. *Environment And Planning B: Planning and Design, 32*(3), 425–444.

Turner, C., & Partington, R. (2015). Homes Through the Decades. The Making of Modern Housing. *NHBC Foundation, Milton Keynes*.

Turner, R. S., & Murray, M. S. (2001). Managing Growth in A Climate of Urban Diversity: South Florida's Eastward Ho! Initiative. *Journal Of Planning Education and Research*, *20*(3), 308-328.

Unwin, R. (1913). *Town Planning in Practice: An Introduction to The Art of Designing Cities and Suburbs*. T. Fisher Unwin.

Van Nes, A., & López, M. (2010). Macro And Micro Scale Spatial Variables and The Distribution of Residential Burglaries and Theft From Cars: An Investigation Of Space And Crime In The Dutch Cities Of Alkmaar And Gouda. *The Journal of Space Syntax*, *1*(2), 314.

Van Nes, A., & López, M., De Bonth, L., Verhagen, D., & Waayer, S. (2017). Spatial Tools for Diagnosing the Degree of Safety And Livability, And To Regenerate Urban Areas In The Netherlands. *Research In Urbanism Series, 4*(1), 139–156.

Van Nes, A., & Yamu, C. (2021). *Introduction To Space Syntax in Urban Studies* (P. 250). Springer Nature.

Walliman, N. (2011). *Research Methods: The Basics*. Routledge.

Wang, W., Dubois, B., & Lu, Z. (2024). Home Triad: A New Exploration of Home for People Living with Dementia Based on Lefebvre's Spatial Triad. *HERD: Health Environments Research & Design Journal, 17*(1), 253–269.

Watkins, C. (2005). Representations Of Space, Spatial Practices and Spaces of Representation: An Application of Lefebvre's Spatial Triad. *Culture And Organization, 11*(3), 209–220.

Weber, M. (1958). *The City* (D. Martindale & G. Neuwirth, Trans. And Eds.). New York: Free Press.

Whyte, W. H. (1980). *The Social Life of Small Urban Spaces*. Project For Public Spaces Inc.

Wiedmann, F., & Salama, A. M. (2019). Mapping Lefebvre's Theory on The Production of Space to An Integrated Approach for Sustainable Urbanism. In *The Routledge Handbook of Henri Lefebvre, The City and Urban Society* (Pp. 346-354). Routledge.

Wight, L. (1973). Victoria Centre, Nottingham. *The Architectural Review, 153*, 184.

Wilson, L. F. (1970). *The State and The Housing of The English Working Class, With Special Reference to Nottingham, 1914-1945* (Doctoral Thesis).

Wirth, L. (1938). Urbanism As a Way of Life. *American Journal of Sociology*, *44*(1), 1-24.

Wright, B. (2000). *Clifton, Nottingham 1945-1955.*

Wunderlich, F. M. (2008). Walking And Rhythmicity: Sensing Urban Space. *Journal Of Urban Design, 13*(1), 125–139.

Yin, R. K. (2014). *Case Study Research: Design and Methods* (5th Ed.). Sage Publications.