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Chapter

Lessons from Baghdad City Conformation and Essence

Haider J.E. Al-Saaidy

Abstract

This chapter aims to address the emergence of Baghdad and the phases of its morphology and transformation. The first era began with the Round City; this originated the first nucleus that later formed Baghdad. The historical parts of most Middle Eastern old cities usually occupy polar places in relation to the rest of their city zones. These historical centres can give a city its own identity and embody exceptional urban assets, if carefully maintained and managed. In this chapter, there are two significant periods, the Abbasid Empire and post-Abbasid Empire. One of the main concerns is the conflict between two trends, old fabric as a traditional pattern and modern thoughts and, consequently, how that could affect in formulating the development plan.

Keywords: urban design, historical urban perspective, development plan, street characteristics, old fabric, modern trend

1. Introduction

Since the beginning of the last century until today, Baghdad in Iraq has remained one of the more unstable cities in the world. Political unrest and wars have played a crucial role in its development. Nevertheless, as the capital of the Islamic Empire for more than 500 years, Baghdad has a vibrant historical fabric and some of the most critical historical sites. However, despite the range of academic and consultancy studies conducted throughout the last 100 years, the city has not received the care that it requires. Social and political unrest and wars have prevented successive regimes from implementing preservation projects, and because of this, Baghdad has lost significant parts of its precious and valuable historical fabric. Although more focus has been paid to the oldest part of Baghdad, this does not underestimate the importance of the modern era and the subsequent growth of the city. The methods to recognise and examine different aspects of the city are varied, although these can broadly be considered under two key foci. The first method of the study concerns advanced programmes, for which computing systems have been developed and tested to examine and analyse the spatial configuration of the urban environment. The second method studies the interrelationship between the people and their surrounding spaces, which particularly relates to the city's street life and social interactions. The current chapter addresses the configurational processes of the emergence of Baghdad.

2. A historical perspective of Baghdad City

Iraq, in general, is one of the wealthiest countries due to its oil revenue; unfortunately, it is also considered a developing country due to issues on all levels, including its architecture, urban design, and planning. This consideration is also based on the magnitude of problems that Iraqi people continue to live with. Notwithstanding, Baghdad is a central destination, both as an administrative capital and as a place that represents a new opportunity for people from other regions of Iraq to secure jobs and experience better livelihoods than those afforded elsewhere in the country [1]. Baghdad is the capital of the Republic of Iraq and considered a significant metropolitan city with a population of approximately 6.77 million people. The city is divided into two regions by the Tigris River, namely Rusafa and Karkh, in an arid zone at 33° 20 N latitude and 44° 23 E longitude [2, 3]. Since its foundation in 762 AD by Caliph Al-Mansur, Baghdad became an attractive location for surrounding foreign powers. Therefore, its history not only witnessed frequent war and domination but also saw the development of a unique variety of various cultures. Based on archaeological evidence, Baghdad's site was occupied by several peoples before the Arab conquest of Mesopotamia in 637 AD. Furthermore, excavations by the famous Michaux Stone, which was founded by a French physician in 1870, discovered that a Babylonian town called 'Bak-da-du' occupied the place of Baghdad as far back as the twelfth century BC. Moreover, due to its strategic location along the banks of the Tigris, it represented an attractive location as the new capital for the Abbasid Caliphate [4].

2.1 Baghdad during the Abbasid Empire

In 800 AD, only four decades after its establishment, Baghdad became a metropolis of more than 300,000 inhabitants. As the capital of the Abbasid Caliphate that stretched from present-day Algeria to Pakistan, Baghdad was the centre of economic and political power in the Islamic world, unrivalled in its artistic, scientific, and cultural achievements [5]. Le Strange refers to Baghdad by describing some of the monuments and historical features that belong to the Abbasid period. The city was characterised by several features: the old wall of the Eastern city with its four gates, the Mustansiriya College as the first school at that time, as well as mosques and holy shrines [6]. Le Strange states that the topography of Baghdad changed due to the shift of the riverbed and the watercourse and canals that constituted its essential features. The primary task of Le Strange was to achieve and prepare a map of old Baghdad and to reconstruct its fundamental elements by tracing the topography of the city in detail. Although it is difficult to access Le Strange's map directly from the primary source, it is still possible to see that Baghdad's character has changed dramatically, particularly within the old fabric of the city [6]. The historical view of Baghdad reflected its general character as the seat of the Abbasid Caliphate. It was a significant kernel in the emergence of the current city; moreover, cultural, religious, and economic influences provided the essential defining characteristics of the city since the construction of the Round City in 1445/762 [7].

The Tigris River, on which Baghdad stands, experienced a multi-faceted transformation in its physical and cultural environment, which resulted from natural and political factors and comprehensive development plans. In the old city, Baghdad's numerous urban features embody different historical periods. The transformation from the Round City to an organic pattern reflected its local physical and socioeconomic characteristics. Currently, the old urban fabric, particularly within Rusafa and Karkh which are located in the city centre of Baghdad, face severe disintegration. This has created segregation as a result of the implementation of unrestricted planning policies and has led to the dramatic loss of Baghdad's heritage, historical architecture,

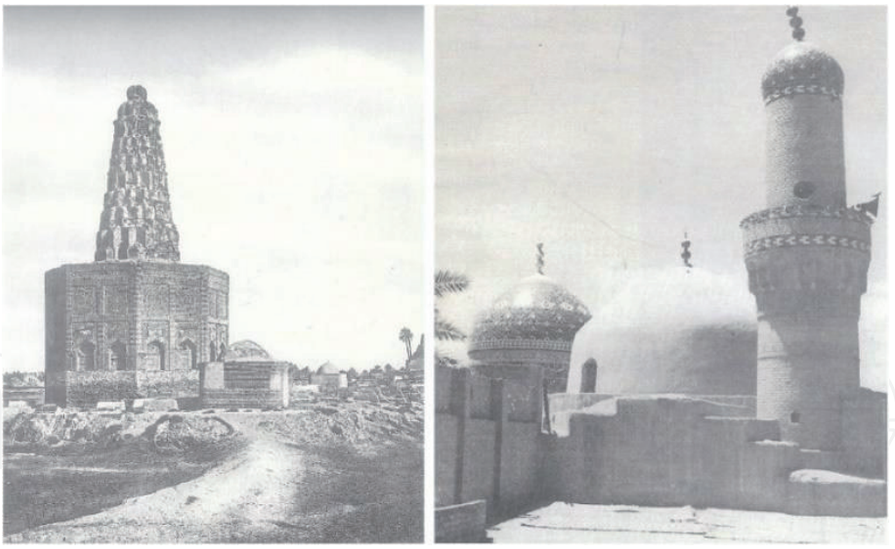


Figure 1.
Zumarrad Khatun's Tomb 1202 AD (left) and Karkhi Mosque 1215 AD (right). Source: ([9], pp. 312–315). All rights reserved for Al-Warrak Publishing Ltd., London, UK.

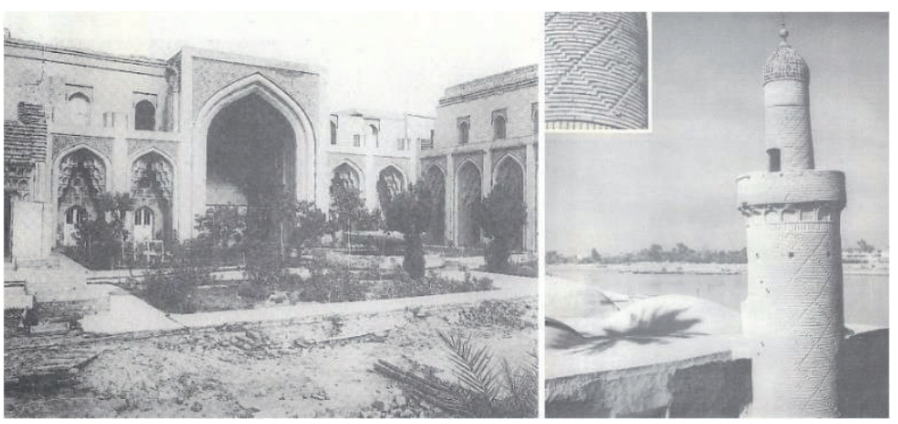


Figure 2.
Sharaibiya Madrasa 1226 AD (left), Qumriya Mosque 1228 AD (right). Source: ([9], pp. 305–311). All rights reserved for Al-Warrak Publishing Ltd., London, UK.

and the identity of its old urban fabric [8]. According to Fathi, the Abbasid period (1152–1258) is immortalised by significant historical monuments and prominent features, such as Zumarrad Khatun's Tomb (1202) and Karkhi Mosque (1215) (**Figure 1**), Sharaibiya Madrasa (1226) and Qumriya Mosque (1228) (**Figure 2**), and Mustansiriya (1234) and Sahrawardi's Mosque (1234) (**Figure 3**) [4]. These monuments and features have played a crucial role in orienting the city network and its traditional neighbourhoods. Furthermore, they have provided indispensable public places for inhabitants throughout history. When tracing an old map, it is possible to recognise the city routes which started and ended at one of these urban points, most notably mosques. Besides its historical buildings, the organic pattern of the street network is another character of the old sector of Baghdad. The importance of Baghdad's inheritance can be studied synchronically and diachronically, including the characteristics of the network and its street edges. Between 762 and 775 AD, Al-Mansur built the Round City of Baghdad (also known as Madinat al-Salam, City of Peace) on the west side of the Tigris between the locations known today as Kadhimiya and Karkh. Gradually, the Abbasid Empire was weakened by internal conflict, which allowed for other surrounding countries to invade Baghdad during various periods of its history, such as the Persian Buwaihids in 946–1055 AD and the Turkish Seljuqs in 1055–1152 AD (**Figure 4**).

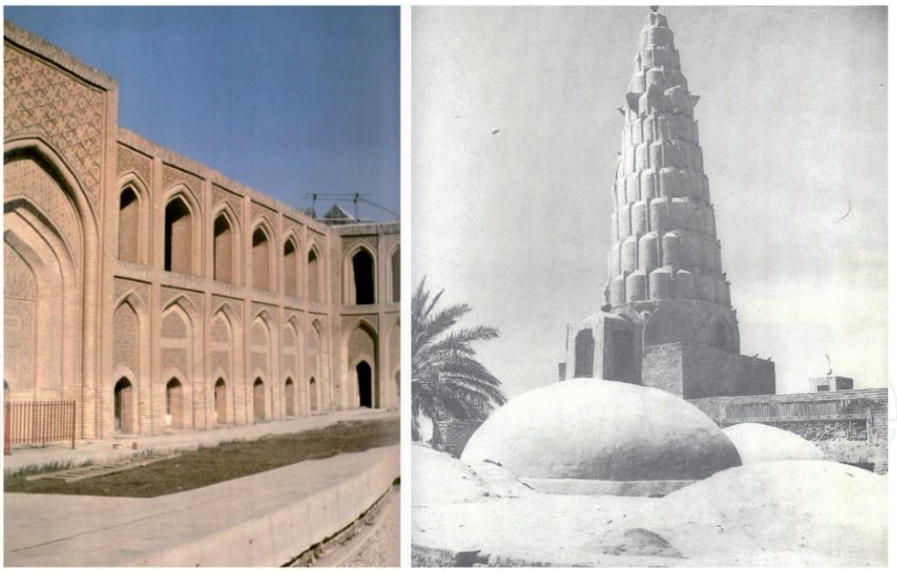


Figure 3.
Mustansiriya 1234 AD (left), Sahrawardi's Mosque 1234 AD (right). Source: ([9], pp. 305–311). All rights reserved for Al-Warrak Publishing Ltd., London, UK.

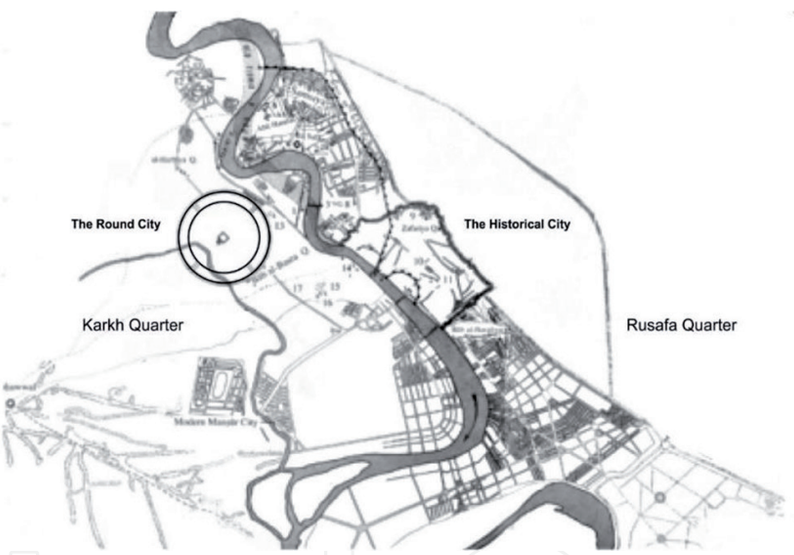


Figure 4.
Baghdad's morphology at the end of the Abbasid Empire. Source: Based on ([8], p. 81).

The Round City emerged as a kernel of Baghdad; moreover, it continued for three centuries. The city was characterised by a significant pattern, which entailed symmetric streets surrounded by geometrical residential blocks beside three walls with four gates. The wall was used to separate the public and private spaces by the third inner wall and to divide the city into private houses and open courtyards, including the governmental buildings, such as the palace and the mosque. Furthermore, essential buildings inside the Round City comprised the Caliphate's Palace and the mosque, while Al-Hasani states that other sectors were allocated for inhabitants but did not offer gardens, recreation space, or statues [8] (**Figure 5**). Unfortunately, the Round City disappeared without a clear reason, and nothing remains except for the carved marble of the Khasaki Mosque, which some historians believe belonged to the Mosque of Mansur [4]. At this stage, the city started to expand beyond its wall as a result of limited space, and more public facilities were required due to its increasing population [8]. Allawi states that two systems shape the Arabic Islamic city. The first is the square system; this has a

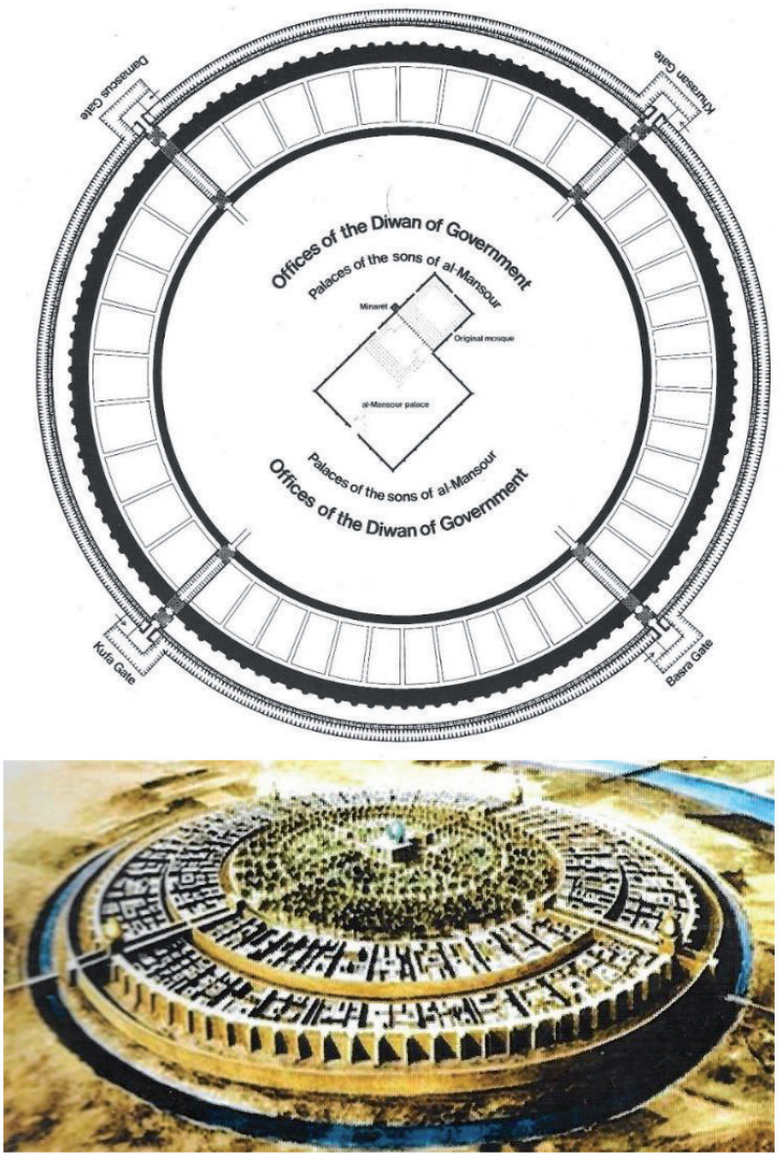


Figure 5.
The Round City. Plan of al-Mansour's Baghdad as originally built. Surrounded by an outer trench and two circular walls and described by historians as the most elaborate fortress city of medieval times (top). Source: ([10], p. 84). Fictive image of the Round City (bottom). Source: ([11], p. 14).

square as its central unit, followed by four surrounding square units. It is generally believed that the five square arrangements denoted the quarters of religious, military, and urban entities. The second system is hexagonal and was known as a system of Asba (sevenths) [12].

Baghdad's Round City plan was described as a turning point in the development of the Islamic city in terms of its urban form and society. This saw a shift from dependent military settlements and expanded tribute collections to investments in private plantations, urban developments, and industrial production. Moreover, the design of the Round City of Baghdad can be discernible as an astrological schema and thus cannot be separated from astrology [12]. Allawi states that Baghdad was created by adopting a stereographic projection of the equator and the Tropics of Cancer and Capricorn where the vertical axis refers to the meridian and the horizontal to the equinoctial line (**Figure 5**). It is important to note that the decline of the Abbasid Empire in Baghdad did not necessarily simultaneously affect urban life; instead, 'this paradox can probably be explained by the nature of the social structure that arose within the framework of Islam' ([12], p. 70).

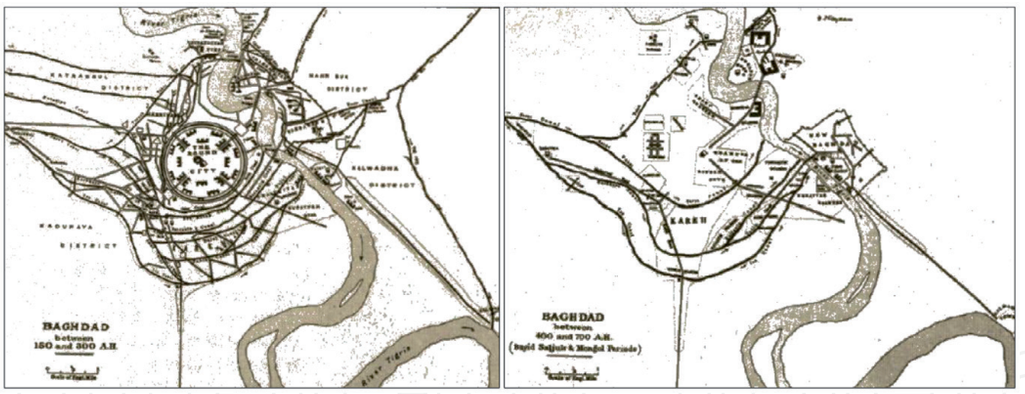


Figure 6.
A general plan of Baghdad during the earlier period between the years 767 and 917 AD (left), during the later period between the years 1017 and 1317 AD (right). Source: ([4], p. 4). The Round City disappeared, and little remains today, except for the carved marbles of the Khasaki Mosque. At the end of the Abbasid Empire, Baghdad City had moved entirely to the east bank of the Tigris River. A new era started after this extraordinary move. Later, this site became the central location for the growth and expansion of Baghdad City. Some remarkable features and historical elements remain resistant to change but will not last forever. Moreover, some no longer exist for different reasons. The current study addresses this phenomenon.

A fundamental transformation occurred in the relationship among the city's components; these included the 'Islamic art, architecture, and urban forms first developed under conditions of rapid change and military expansion. They became an expression of the newly settled conditions of Islamic social life' ([12], p. 71). Following the demise of the Round City, and during the new Abbasid Empire, Baghdad moved to the east bank of the Tigris River (shown as the left image in **Figure 6**). The assets of Baghdad today belong to this historical period of the city with its significant monuments and organic street pattern (**Figure 13**). Otherwise, the urban areas that settled outside the historical zone were designed according to a modern scheme and a modernist ideology.

2.2 Baghdad and post-Abbasid Empire: city pattern

After the Abbasid period, Baghdad was captured by many foreign countries, which left their mark in the urban fabric of the city through the contribution of several prominent buildings that still exist today. Most of those features responded to the existing traditional fabric at that time. Five major occupations manifested their own influences on the historical area of Baghdad, namely, Mongol Hulagu, Jalayirid, Persian Safavids, Ottoman, and the British invasion. In Mongol Hulagu Period (1258–1338), Fathi confirms that, during the Mongol invasion from 1258 to 1338, a significant number of features emerged within Baghdad, such as the minaret of the Caliph's Mosque (1289) and the Aquli Mosque (1328) (**Figures 7** and **8**) [4]. At the end of the Abbasid Empire and at the start of a new era, Baghdad had moved entirely from the east bank of the Tigris River to the present-day Al-Rusafa. This represented the second major growth period after the Round City (**Figure 9**).

Since the Abbasid Caliphate and throughout the Ottoman Empire, the level of the growth and development was restricted and only dealt with specific buildings, for example, mosques, schools, and khans. In Jalayirid Period (1338–1411), Fathi states that the next period was occupied by the Jalayirid era (1338–1411), which was responsible for constructing two significant buildings, the Mirjan Mosque (1356) and the Mirjan Khan (1359) (**Figure 10**) [4]. However, this period saw no drastic changes to the city's shape through its city planning and urban morphology.

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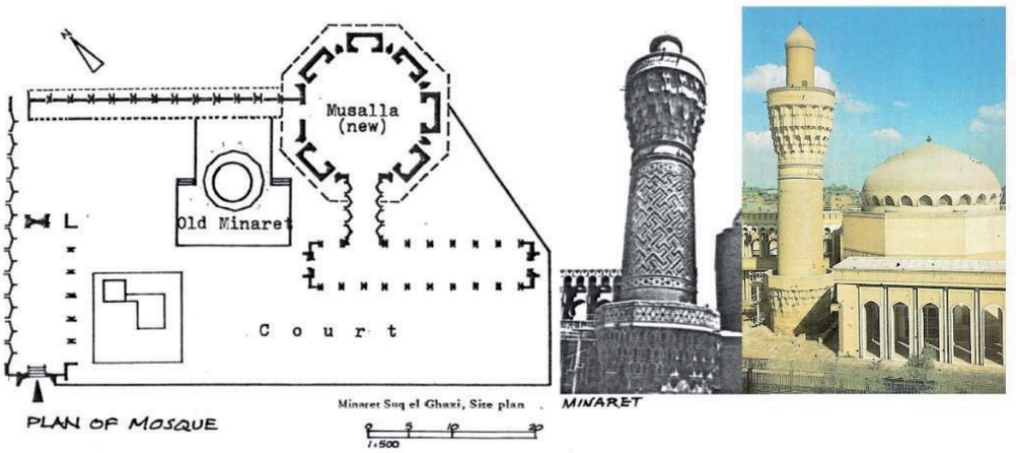


Figure 7.
Caliph's Mosque (1289). Sources: ([13], p. 350, [14], pp. 23–24, [10], p. 48).

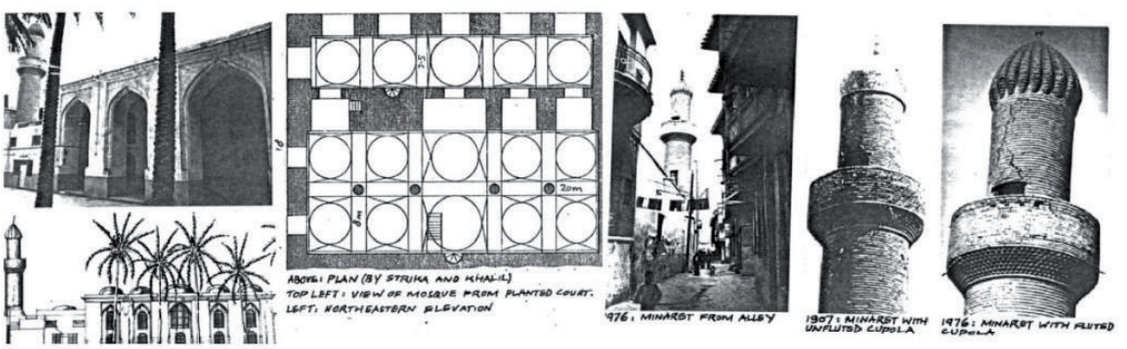


Figure 8.
Aquli Mosque (1328). Source: ([13], pp. 188–189).

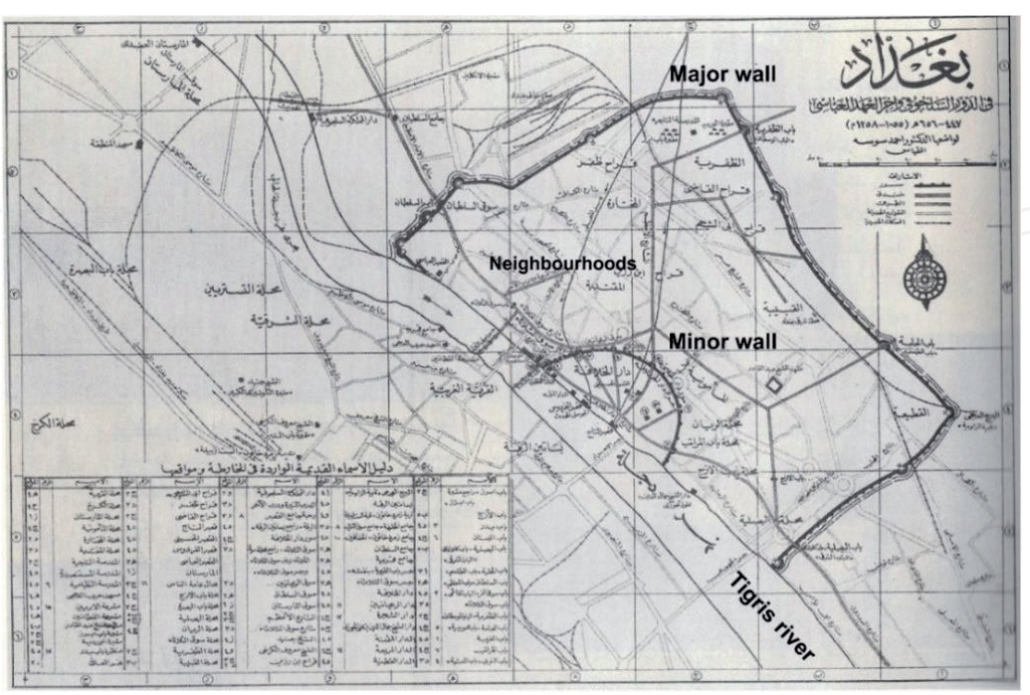


Figure 9.
Baghdad at the end of the Abbasid Caliphate (1055–1258). Source: ([9], p. 59). All rights reserved for Al-Warrak Publishing Ltd., London, UK.

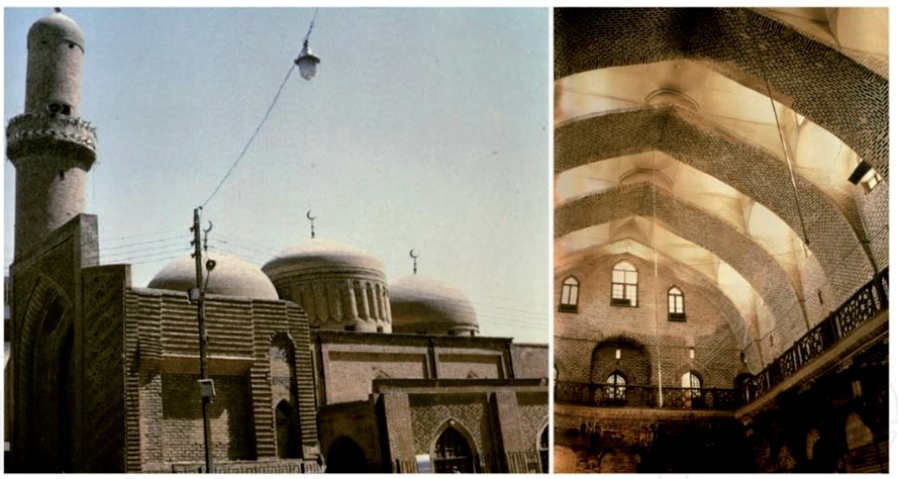


Figure 10.
Mirjan Mosque 1356 AD (left) and Mirjan khan 1359 AD (right). Source: ([4], pp. 40–41).

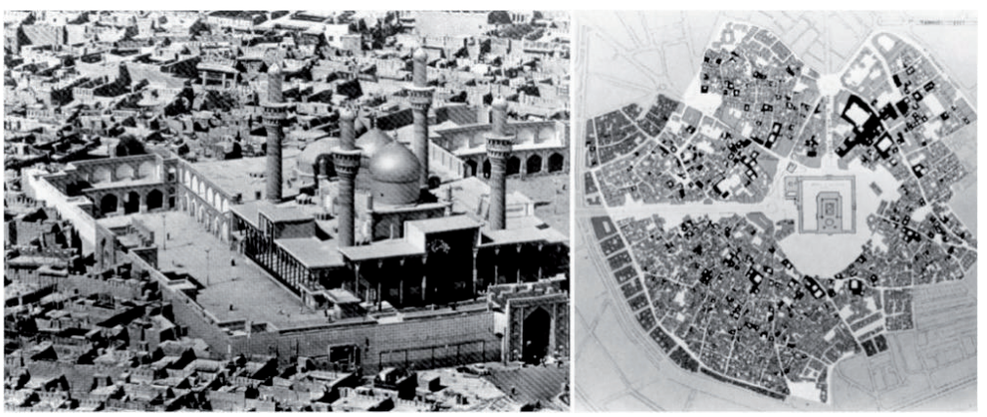


Figure 11.
The Golden Mosque of Kadhimain that was built in 1515 AD. Source: ([15], pp. 148–149).

The Persian Safavid Period (1508–1638), it had a more architectural influence on the city's fabric through the erection of buildings that were characterised by high craftsmanship and impressive monuments, such as the Golden Mosque of Kadhimain that was built in 1515 [4]. This holy shrine was the first development to the north of the walled city and later became the most prominent settlement outside the oldest area of Baghdad. This era saw the same characteristic organic pattern that typified the surrounding neighbourhoods, besides the zigzagged network, which was analogous to the oldest part of Baghdad (**Figure 11**).

The Ottoman period (1638–1917) represented a long-term period of occupation by a foreign government that controlled both Iraq generally and Baghdad particularly. The period lasted about three centuries (1638–1917) and saw the neglect of the city; this led to a reduction in the value of its urban context and historical monuments. However, some significant features survived, such as Gailani Mosque (1534–1638) (**Figure 12**), Imam al-Aadham Mosque (1681), Zurur Khan (1534); Khasaki Mosque (1658); Hussain Pasha Mosque (1684); Sarai Mosque (1704); Alia Madrasa (1726); Ahmadiyya Mosque (1796), and the Souk Area (1802) [2, 4]. Like the earlier periods, the number of individual monuments increased during the Ottoman era; these features were built within the same area of the walled city and surrounded by traditional neighbourhoods (called Mahallas). At the level of the city planning, the central development during this period was to open a new street that cuts through the city from the north to the south; this became known as Al-Rasheed Street. From the maps in **Figure 13**, it can be seen that the city was not subjected

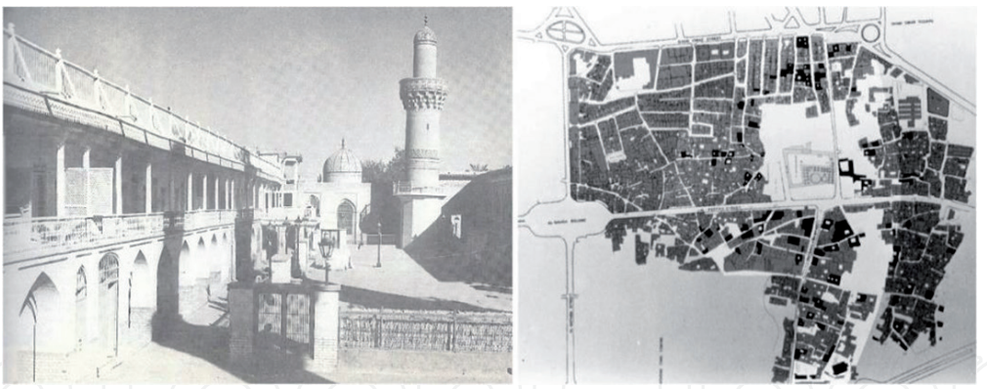


Figure 12.
Gailani Mosque (1534–1638 AD). Source: ([15], p. 150); ([9], p. 318). All rights reserved for Al-Warrak Publishing Ltd., London, UK.

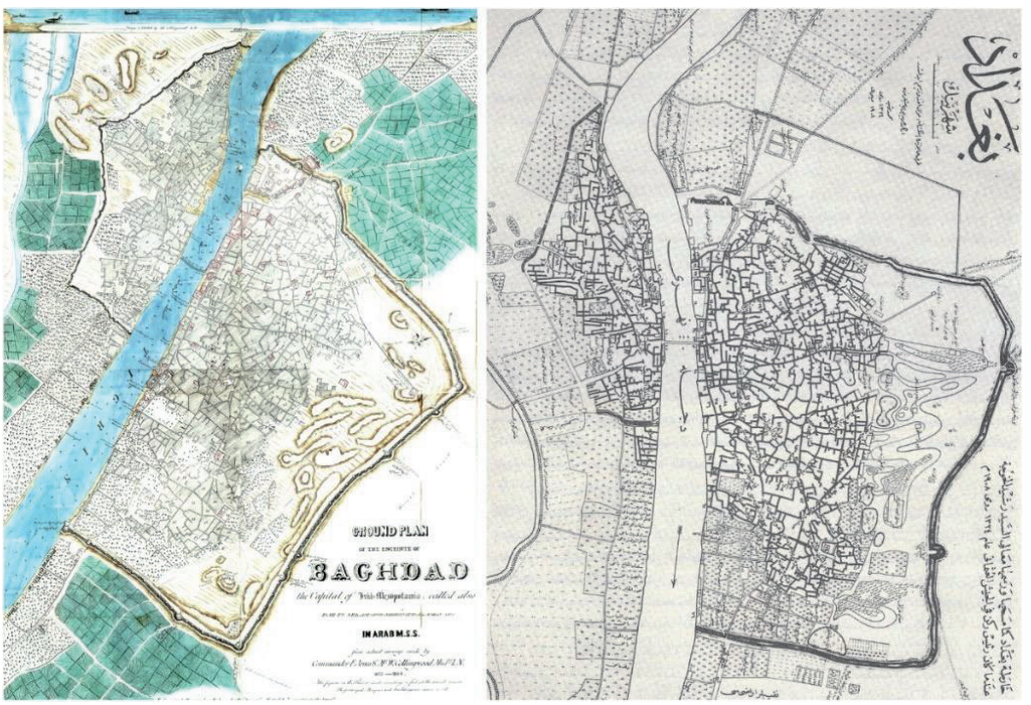


Figure 13.
Baghdad 1854 AD (left) and 1908 AD (right). Source: ([9], pp. 88–430). All rights reserved for Al-Warrak Publishing Ltd., London, UK.

to any central shift in its neighbourhoods and street pattern, except Al-Rasheed Street. The neighbourhood, or mahalla, could be defined as the primary unit in the development and orientation of the street network, which thus formulated significant integration between the two spatial entities, namely, spaces and buildings. According to Al-Ashab, the 'period 1869-1920 can be virtually considered as a forerunner of subsequent morphological phases. It is a transitional phase between the "medieval" and "modern" periods in the urban history of Mesopotamia. It is thus logical to begin the study of the structural evolution and a pattern of the present city with this period' ([16], p. 207).

The British period (1917–1932) and monarchy system until 1958 can be divided into two stages; the first is when Mesopotamia was occupied by Britain from 1917 to 1921 and then subjected to the British mandate from 1920 to 1932; it later became independent in 1932. From 1932 to 1958, the country was governed by a monarchy. Following these radical changes, 14 July 1958 saw the announcement of a new era for the Iraqi Republic, which formed the second stage. In 1918, the British contributed

to the dramatic transformation of the style of buildings and introduced new functions to the urban design of Baghdad and other regions of Iraq. Although some public buildings affected the main character of Baghdad, they were considered a new feature among its old urban fabric, particularly with regard to their form and function. Nevertheless, there was an attempt to make these buildings sympathetic to the existing atmosphere by adopting local materials and local historical and cultural metaphors [4]. One noteworthy development in the vocabulary of this period was the use of new terms and classifications to study the structure of the city. Moreover, these new definitions were adopted in the planning and design of new neighbourhoods that were located outside the old town of Baghdad. Furthermore, Al-Ashab argues that the term 'function' cannot be used precisely as an urban definition in Iraq as the term was developed from studies on British towns and therefore signifies meanings that relate to a different context [16]. According to Al-Ashab, 'the definition of urban status in Iraq seems to lie in the acquisition of certain administrative, commercial and religious functions, embodied in the morphological features of al-Sarai (the main administrative complex), bazaar and Friday mosque' ([16], pp. 82–83). Furthermore, during the British period, a new system to number the city via Mahallas was introduced, when the house owner was given a unique number to denote an exact and unmistakable address. The central trend of development in this period was to shift from inward to outward, not only in terms of the typology of the traditional house but also with regard to the city's pattern. One further fundamental transformation was to remove the city wall entirely (**Figure 14**).

This brief review of the critical stages of planning, urban and architecture, in Baghdad aims to create a general picture of the emergence of the city. Throughout

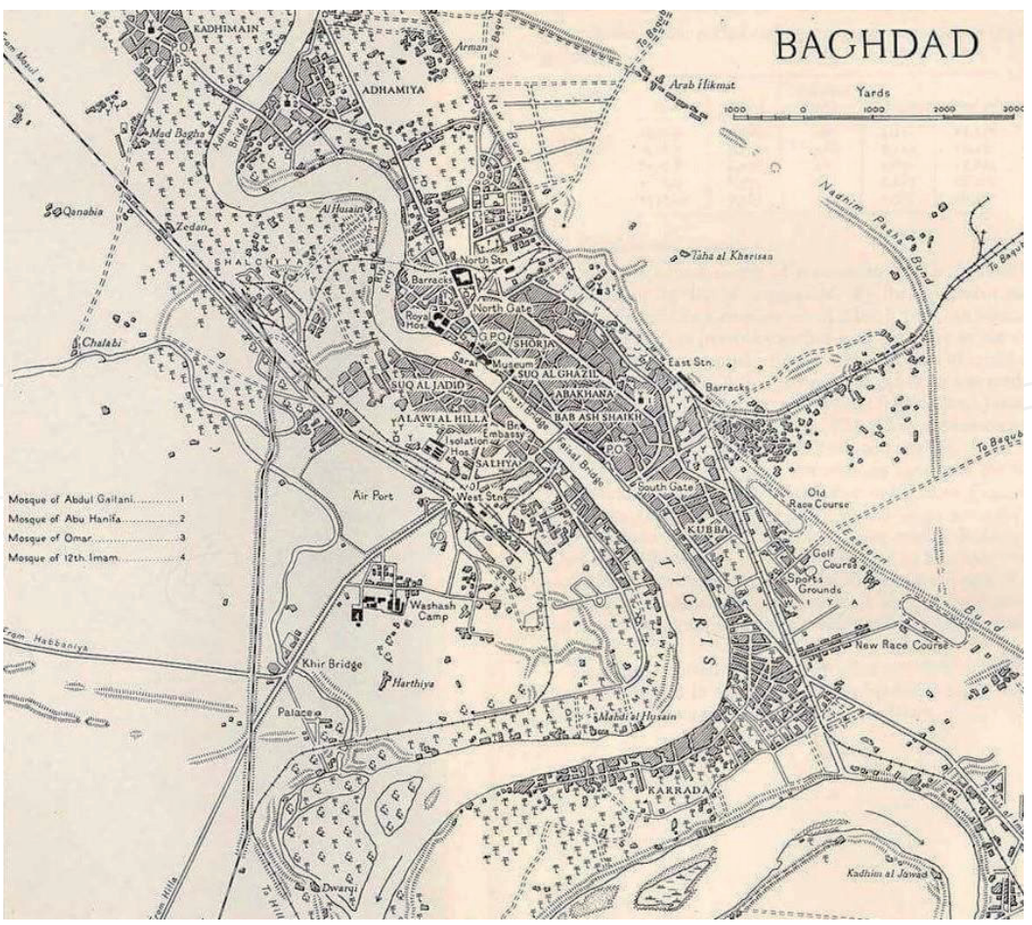


Figure 14.
A plan of Baghdad during and after the British period. Source: [17].

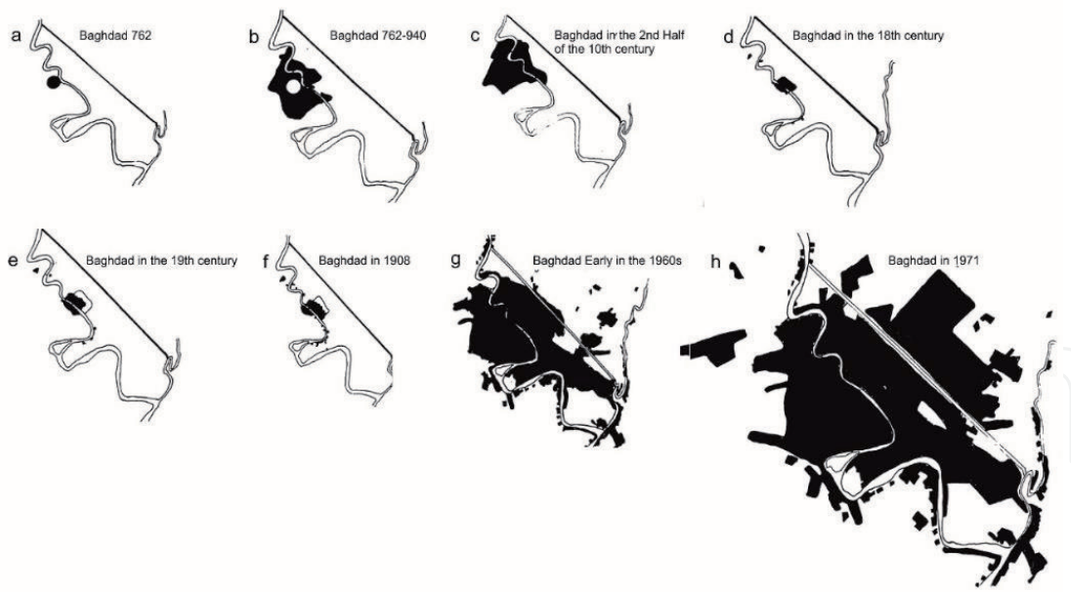


Figure 15.
The growth of Baghdad. Source: ([16], p. 141).

this history, most decision-making was subject to a top-down approach, issued from authorities, and with limited consideration for community needs or social lives. Moreover, there were no sharp, separated lines between these periods of foreign occupation; instead, some continued by adopting similar themes and principles in managing the city. This characteristic also reflects the next phase of Baghdad. In the modern period since 1958, as the capital city of Iraq since 1958, Baghdad adopted significant comprehensive development, whether in the oldest parts or outside the remaining wall. Within the outer areas, and beyond the oldest district of the city, Baghdad extended widely in a semicircular shape, which considered the traditional zone as the centre and thus the starting base for expansion and development (**Figure 15**).

The 8-year war between Iraq and Iran (1980–1988) clearly influenced the progress of development projects, particularly in Baghdad. In addition, state-sponsored projects' progress slowed, particularly those related to Baghdad's city centre; for instance, this affected the substantial project to develop Haifa Street on the Karkh side (1981–1985) [3]. Baghdad's city centre could be characterised as a compact urban structure within the historic fabric, which has a predominantly organic pattern compared with other regions of the city, which seem less compact [3]. Besides the accelerated horizontal expansion of the city, the transformation from the inward (courtyard) to the outward house is the second substantial change in the neighbourhood design prototype. In considering the traditional oldest pattern, the home is the smallest generative unit which cumulatively and spontaneously works with other houses to create al-Mahallas (quarters). In turn, this process leads to the generation of additional urban elements, such as streets and sahahs (squares). In the modern pattern, pre-planned schemes and use-based zoning were the primary tools in designing new neighbourhoods across Baghdad. In this regard, Marshall confirms that the 'land use zones and roads, in a modernist urban structure, [are] represented separately as nodes and links, but in a traditional urban street network, the streets themselves are significant spatial entities' ([18], p. 112). The primary concerns in the traditional area involve not only individual elements (historical and heritage monuments) but also the whole organic fabric of the old city of Baghdad.

3. Baghdad development plan

Before the 1950s, city planning in Iraq had never been well considered; however, in the 1950s the planning firms of Doxiadis Associates (Greek), Minoprio and Spencely, and P. W. McFarlane (both British) prepared general master plans for Baghdad and several other cities in Iraq. Modernisation was therefore supported by a strong European influence; although these developments were slow, they were inescapable and, for many people, acceptable. However, they often led to the destruction of many elegant buildings, such as mosques and bazaars. Al-Rasheed Street is an example of a path which cuts its way remorselessly through an organic pattern and affected outstanding historic buildings. Thus, the emphasis of modern ideology and the adoption of use-based zoning was another concern for the existing urban area [16]. In 1955, the Iraqi government, represented by the Iraq Development Board, asked Doxiadis' firm to prepare a housing programme for Baghdad. Arguably, it was their first large-scale project outside of Greece and solidified the reputation of the firm in this period within the Middle East [19]. Based on the economic policy of Iraq, the National Housing Program was conceived as a long-term territorial plan in an attempt to shape the physical environment. The first phase was to address some urgent needs through a 5-year plan, called 'Basic Foundation Program'. Its aim was to (1) satisfy the most urgent needs, (2) organise the public services concerned with housing and settlements, and (3) create a suitable framework for the further development of all complicated activities [19].

The primary role for Doxiadis Company, as international experts on housing and urban development, was to provide a vital steppingstone for development [20]. An essential motivation in studying the city is to develop a sound understanding of the background of the city life cycle. Since the beginning of the twentieth century, Baghdad has experienced dramatic transformation in its morphological and urban context by changing the rules from the Ottoman invasion to the British occupation. In 1921, during the period of the monarchy, Baghdad became the capital of the new nation; since then, the city has grown substantially in two dimensions, namely, urbanisation and population. Iraq gained its independence in 1931, and since this date, the population of Baghdad has increased dramatically to approximately half a million, and the city has expanded out of the central areas, represented by Rusafa on the east bank of the Tigris river, Karkh on the west bank, and Kadhimiya and Adhamiya towards the north. Regarding the old Baghdad areas, the city has expanded widely in two directions, namely, to the Adhamiya region in the northwest and towards Diyala in the southwest [20]. Doxiadis master plan of Baghdad was based on the concept of linear expansion, namely, 'Dynapolis, meaning a dynamic city' (**Figure 16**).

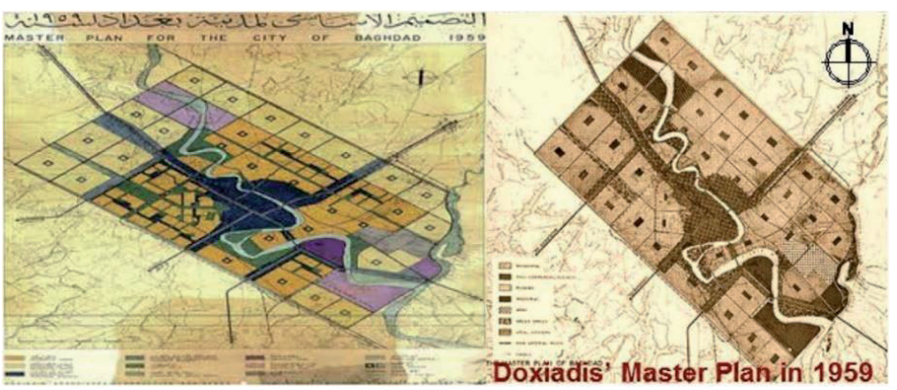


Figure 16.
The Doxiadis' master plan of Baghdad in 1959. Source: ([21], p. 4), referring to the mayoralty of Baghdad.

The Board supervised the construction of several vital projects, not only in Baghdad but also in other regions of the country. This included dams, irrigation and drainage systems, bridges, roads, factories, power plants, housing, schools, hospitals, and public buildings [20]. Moreover, Doxiadis's vision was embodied in its publication entitled *Ekistics*, which emphasised a stable and scientific version of urbanism, developed through apolitical authority; this defined human settlements under a scientific approach. Moreover, *Ekistics* can be understood as a multidisciplinary approach that involved various sciences, such as economics, geography, sociology, anthropology, and other disciplines. This represented an attempt to reduce the influence of designers' arbitrary self-expression and reconceptualised architecture and planning as rational processes that accommodated human need [20]. Within a modern ideology that coordinated the whole system of knowledge about the physical environment, Doxiadis's vision, through *Ekistics*'s multidisciplinary approach, adopted two aims. The first was to emphasise basic human needs and non-functionalism and to further technological concerns. This would accommodate housing and resource shortages as well as other post-World War II urban impasses. It would achieve this by contributing to reforming in earlier modernist urbanism through refusing the concept of the individual designer. The second aim attempted to reinvent designers and planners as experts in urban development. This recognised the importance of the physical environment in promoting socioeconomic development, and this could be achieved by advancing social restructure through applying the paradigm of the industrialised West through global urbanisation, industrialisation, and socioeconomic modernisation [20]. Moreover, through adopting Doxiadis's aims, the intention of the Iraq Development Board was to establish the architectural symbols of a modern state by sharing the ideal of national identity and pride.

When the Iraq Development Board assigned Doxiadis the task of preparing a new master plan for Baghdad, Baghdad had an old centre, which was represented by its old urban fabric; this later became the location for new businesses. The master plan was supposed to provide a comprehensive framework within which various building projects would be integrated. However, in 1956, a British company, Minoprio and Spencely and P. W. Macfarlane, was also assigned by the Iraqi government to create a master plan. It had proposed a road system to connect the premodern urban fabric core with new river bridges and included outlined zoning principles (**Figure 17**). In this proposal, the historical area of Baghdad was given four colours classifying land use, and one of these was defined as commercial or business use. However, at that stage of the city, its urban structure conditions were not competent to meet the requirements of the new era.

The city developed along the central axis of the Tigris River; this represented a natural feature in the city that emerged as a central spine in the evolution of Baghdad. The future city was expected to develop bidirectionally along the river axis, constituting a rectangular grid pattern [19]. However, the study of Baghdad's urban history highlights some key paradigms of modern planning and raises significant questions about the formation of the contemporary city. One of the strategies adopted by Doxiadis was 'self-contained urbanism', and this manifested in the planning of some residential areas and the cul-de-sac network in the city [19]. The Iraqi government dealt with the problems of population growth and mass immigration in Baghdad by inviting other European companies, such as the British firm Minoprio, Spencely, and Macfarlane, to develop and prepare comprehensive development plans that considered the old area as a vital part of the city. In 1956, the plan by the British firm was completed; this referred to new land use, the clearance of slum areas, the construction of a rural belt, and the development of transportation systems [19].

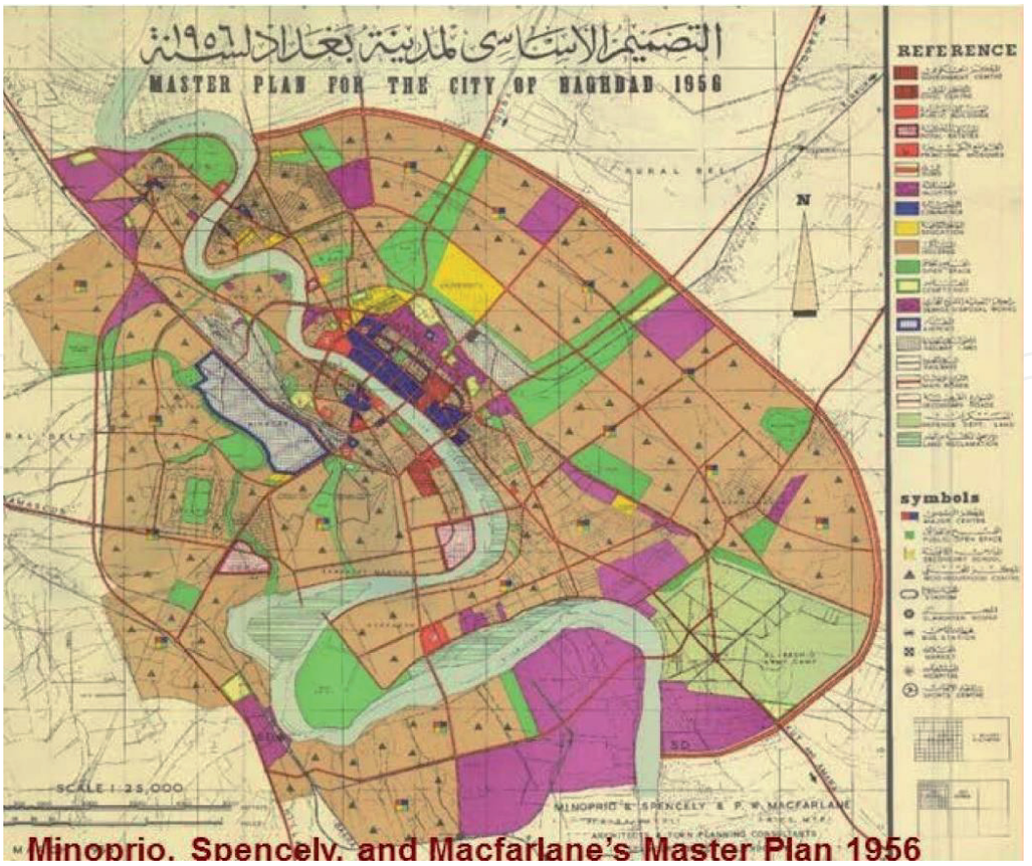


Figure 17.
Minoprio and Spencely and P. W. Macfarlane's master plan of Baghdad in 1956. Source: ([21], p. 4), referring to the mayoralty of Baghdad.

The Tigris River has been a significant feature since the emergence of the original city, also functioning as a central axis of growth. Thus, the ideal population figure suggested by Doxiadis gives maximum limits for Baghdad's expansion, which is defined by an elongated rectangle oriented along the central northwest-southwest axis of the Tigris (**Figure 16**). Doxiadis's proposed master plan subdivided the existing main roads by using a system of road patterns but also suggested the creation of new networks compatible with a rectilinear pattern. Residential areas were arranged by adopting the same concept of a rectangular grid system [20]. Failing to recognise and neglecting the public's critical role in the old urban dense areas meant the importance of the colourful souks and bazaars and other traditional and historical components were overlooked. However, these embodied the old important urban fabric of Baghdad. The city represented specific social values within its urban context that were characterised by its organic pattern; these aspects represented a big challenge for firms and any comprehensive development plan. Doxiadis Company prepared a detailed documentary study of the old urban fabric in the city centre that included numerous photos, sketches, and detailed analyses of past houses. In an attempt to sidestep much of the old street fabric of Rusafa and Karkh, Doxiadis stipulated that only the future expansion of the commercial and business areas should be recognised according to the rectilinear grid of master plan.

Theoretically, Doxiadis demonstrated greater sensitivity and interest in the old urban fabric than the actual plan that was implemented, which saw the opening of a different set of two main longitudinal thoroughfares, namely, Al Jumhuriya and Haifa. Both modern streets produced a colossal loss when extensive areas of the historical and cultural environment, and irreplaceable features such as mosques, souks, schools, and houses were destroyed [20]. Baghdad was a rapidly growing city

that gave considerable scope for the development of a physical environment that met people's needs and to promote the quality of living conditions. Road, rail, water, and air transportations were a fundamental aim in developing Baghdad and were considered an appropriate advanced network system to further support urban development projects [22]. The map of the master plan prepared by Doxiadis deliberately avoided extending and imposing the same rectilinear grid on the old city centre. This was a significant dimension in recognising the value of the old fabric and its vitality and to retain these as essential features of Baghdad [23]. On the one hand, greater sensitivity towards the old city centre and an attempt to optimise the relationship between the old core and its surroundings were needed, while, on the other hand, the relationship among the components of the old fabric itself was also essential.

Thus, the historical zone of Baghdad represented a serious urban issue that needed to be appropriately considered. Dealing with this type of urban fabric meant treating it with sensitivity, not only as an ancient area but also in consideration of what it meant to many people. Therefore, the city's characteristics were reflected in its old context for both inhabitants and visitors and bore witness to the city's and inhabitants' deep history and its multilayered vision. In the mid-1960s, the Iraqi government asked Polservice, a Polish planning team, to replan the city and prepare a proposal for a Comprehensive Development Plan for Baghdad to be achieved by 2000. Accordingly, three zones were suggested: greater Baghdad, the inner city, and Baghdad's suburban zone. Also, Polservice organised the city centre by proposing eight secondary sub-centres. This attempted to reduce the pressure on the current city centre through the non-centralisation of activities and services. One of its accomplishments was the establishment of a hierarchy, from the residential quarter to the district and its neighbourhoods (**Figure 18**).

The company determined the area for the civic centre and offered a proposal to establish a space, situated between Khulafa Street to the west, King Ghazi to the east, Al-Kilani Street to the south, and Al-Wathbah Square to the north. Also, the company suggested a new division for the city centre by creating a central business district (CBD) and a central region. The developmental study offered the first ring road as the boundary of the city centre, which started from the north side of

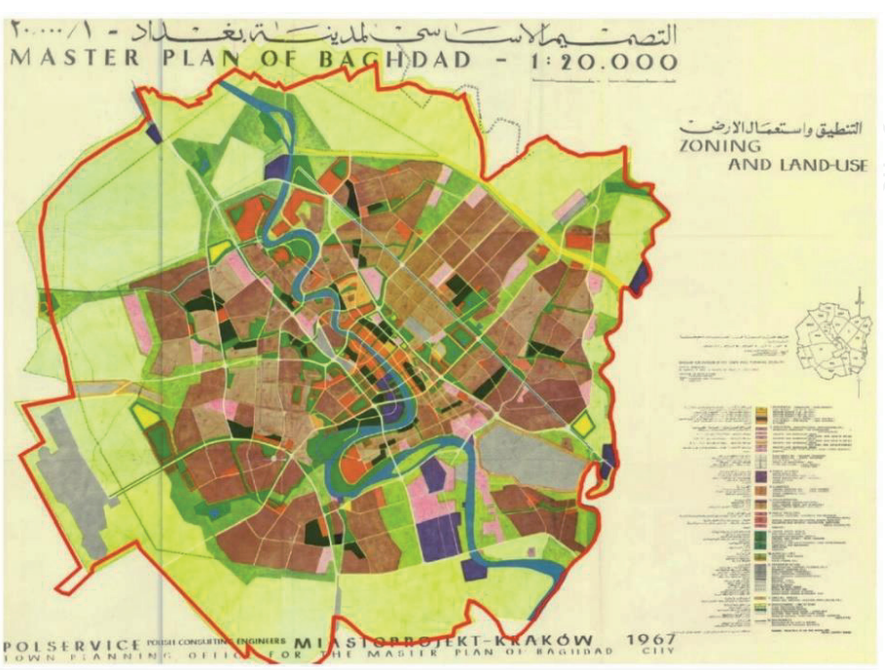


Figure 18.
Polservice's master plan of Baghdad in 1967. Source: [21], Referring to the mayoralty of Baghdad.

14th July Road and the Muhammad Qasim Freeway. The study stated that the new centre of Baghdad would cover an area of approximately 1.700 hectares. According to Al-Akkam, 'the proposals of the study (Comprehensive Development Plan of Polservice, 1973) pointed to complaints about the city centre regarding a lack of commercial, cultural and recreational opportunities' ([3], p. 61). More recently, after 2003, several firms identified new opportunities when the Iraqi government launched a comprehensive programme to prepare development plans for different Iraqi cities, including Baghdad. The big challenge in the capital was to fill the gap between the former master plan, in terms of what had already been implemented, and the new one. Moreover, addressing important developments helped to establish whether they responded to the prior master plan. Khatib and Alami prepared the general master plan of Baghdad, which identified different aspects of the dramatic changes in city growth since 1967.

One of the primary concerns about the comprehensive development plan was, for example, the old part of Baghdad which was defined by use-based zoning. The origin of the traditional city arose spontaneously, rather than through the mechanism of land use or zoning. This represented a critical point within the urban development projects. The network pattern and layout of the buildings in the area were complicated; therefore, there was a need to prepare specific criteria and regulations to protect the identity of old Baghdad as well as recognise the contemporary ambitions of the new city. The complexity of the network in the old part is not declared today, but many related studies and projects refer to it in different ways. In this respect, Al-Rahmani states that land use was incompatible and inappropriate, due to the greater population in the old quarters. Moreover, there was no integration between old and new developments. Many old areas had been demolished and replaced by new developments on the pretext that they were modern and thus compatible with the needs of a contemporary era. However, the result was unsuccessful as far as functionality and compatibility were concerned [15].



Figure 19.
Study on the conservation and redevelopment of the historical centre of Baghdad City, Rusafa. Source: Mayoralty of Baghdad ([14], pp. 23–24).

Besides its comprehensive development plan, Baghdad also witnessed other development processes. These were related to the historical area of the city and included both Rusafa and Karkh. The first attempt to conserve and redevelop the historical centre of Rusafa started in 1983 by JCP Inc. from Japan and in association with a consultant group. The study was important because it dealt with different levels of development that covered comprehensive analyses, the urban structure, conservation plans, and urban design schemes. However, the implementation programme unfortunately stumbled (**Figure 19**). This study focused on the street level and the key characteristics that formed both its opposite edges, thus promoting the historical spines of the city and the traditional environment of Baghdadian people (**Figure 20**). The study presented the implementation of the proposed structure plan that consisted of three levels; primary action up to 1990, secondary action up to 1995, and tertiary action up to 2000. Despite a significant programme

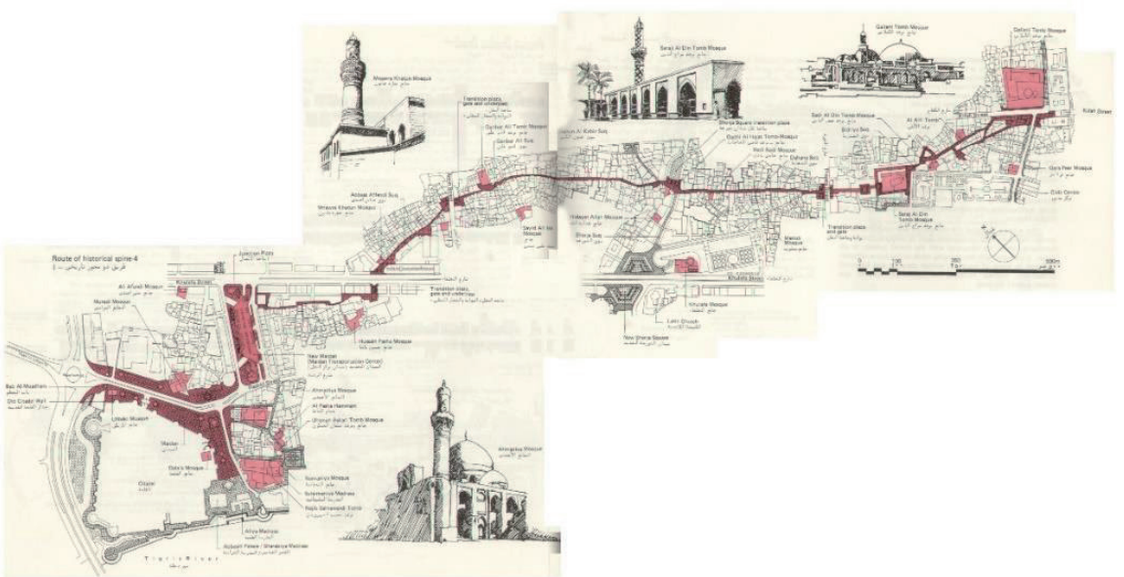


Figure 20.
A historical route in the study on conservation and redevelopment of the historical centre of Baghdad City, Rusafa. Source: Mayoralty of Baghdad ([14], pp. 49–50).

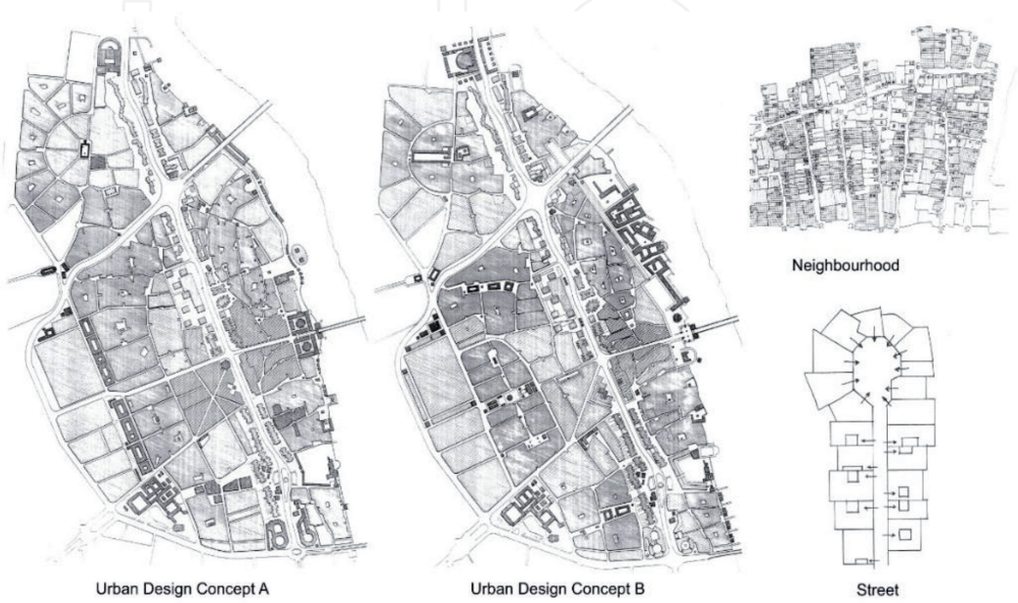


Figure 21.
Al Karkh development. Source: Mayoralty of Baghdad, Alousi ([24], p. 86, 101, 370–371).

of implementation, none of the actions took place as recorded. Instead, historical parts are still suffering from neglect today, while individual monuments and the street network have similarly been ignored. The Al-Karkh region is the second historical area of Baghdad; this saw a significant development plan in 1982 which was prepared by Alousi Associates and Reinick Consultants, who were from Dublin in Ireland, with Parsons Brown Consulting Engineers, from Bristol in England. Unlike the previous comprehensive plan, this study dealt with an existing traditional area where the street and plot pattern were complicated (**Figure 21**); thus, the study's aims were not pursued. Haifa Street saw one of the main changes where adjacent high-rise residential buildings were constructed on both sides of the street. Even though these projects were designed to address the historical areas of Baghdad, none of their aims were fully achieved. After 2003, the Mayoralty of Baghdad contracted with local bureaux to study and analyse traditional parts of Baghdad; Al-Rasheed Street in the Al-Rusafa quarter and the Al-Karkh quarter were the main two renovation projects. The primary concerns about these urban renewal plans were the administrative policy and the implementation phases.

4. The essence of Baghdad

The essential morphological pattern and structure of the old city in Rusafa remained, in general, unchanged until the first decade of the twentieth century [4]. The main architectural and urban context character of old Baghdad could be typified as a series of spatial patterns and a hierarchy that was based on introversion. The nature of the environment with its socioreligious and socio-climatic dimensions seemed to have experienced fewer typological changes than stylistic ones. This means that the typical scheme of traditional residential areas in Baghdad continued to depend on the concept of the internal courtyard and the inward-facing direction. The non-adoption of rigid space-use corroboration and the increasingly needed formal and aesthetic considerations meant that form, particularly in domestic architecture, was much more important than function, which was mostly stereotyped and multipurpose [4]. In comparison, the modern design gave as much priority to its functional dimensions and use patterns. However, medieval Islamic cities, such as Baghdad, were defensive and inward-oriented in their overall design and through their organic urban fabric.

Moreover, the city was surrounded by a wall which held gates that lead to the heart of the city where many self-contained residential quarters, called Mahallas, were located; these faced the main routes into the countryside. The main character of the old city in Rusafa could be seen through the pedestrian labyrinth of narrow alleyways which amassed together and led to inward-looking courtyard houses. Meanwhile, the centre of the city was covered by significant buildings, such as the Friday Mosque, souks, Khans, hammams, and coffee-houses. The commercial souk sector was situated in the heart of the city, the 'Medina', and often included huge areas with complex networks which led to specific markets, khans, and workshops. Each type of work was situated according to a distinct functional hierarchy, which was based on the needs of merchants, guilds, artisans, and craftworkers. Baghdad exhibited an atmosphere of spontaneity and informality which was represented by its old urban fabric and historic buildings and some of its limited cultural activities [4].

The essential element in the old urban fabric of this ultradense context was a local variant of a central courtyard hosh, meaning house. The traditional Baghdadi house was characterised by an introverted habitat with solid brick walls that directly faced the street with one access door. Furthermore, shanashils were the main feature of the street; these carved wood projections, with railings and

windows, were used for lighting and viewing [25, 26]. During the Ottoman occupation, essential changes occurred in several major typological transformations. The housing regulations were issued following the Ottoman occupation of Baghdad and continue today; however, these rules were subjected to three phases. The first phase began in 1869 and continued until the First World War; this was initiated by the Ottoman period under the Tanzimat reforms in Iraq. The second phase started with the monarchy of Iraq and continued throughout the colonial and independent period. The final stage commenced with the revolution of 1958, which saw Iraq shift from a monarchy to a republic. It is important to note that the third phase has also passed through several transitions since 1958.

The first phase witnessed the Ottoman invasion, and its urban and physical form reflected the typical characteristics of Islamic cities through quarters, mosques, bazaars, and other several public institutions. This was also echoed in the character of the traditional house with its courtyard and inward direction [27]. Moreover, the first modernisation that took place in Baghdad occurred during the reign of Midhat Pasha, who was a governor of the Baghdad Vilayet. He ordered the demolishment of the wall of Rusafa and invested its materials in the construction of many significant public buildings. He also prompted the introduction of modern municipal services besides new roads. In 1915, during the same Ottoman period, German engineers established the first railway line, which connected Baghdad and Europe. This coincided with the use of new materials, such as steel, and was later adopted by local masons [28]. The successive occupation of Baghdad finally included the British in 1918; this marked a significant turning point in Iraq's modern history, not only in Baghdad but also in other Iraqi cities. At this stage, a considerable number of public buildings were constructed that affected the main character of Baghdad and its urban context.

In the mid-1950s, the Iraq Development Board invited well-known architects to contribute to a set of projects that aimed to develop the urban structure of the city and to meet a new standard of function. These architects included Frank Lloyd Wright, Le Corbusier, Alvar Aalto, Walter Gropius, and Doxiadis Associates, as well as Captain Philip Hirst, Ellen Jawdat, Hans Muller, Platinov, and Adler and partners [28]. The value of historical detail lies in its importance in sustaining a national architecture; such detail occupies a wide area in the city centre of Baghdad. Traditional detail is not limited to houses but also includes various urban components and networks. The benefit of such features is that historical buildings can not only be saved but also invested in through their housing of different types of activities, not just as museums [29]. Allen states that traditional areas aim to educate the public about the importance of the historical regions (as an endangered urban area) of Baghdad, including its residential zones [30]. This attempts to activate the conservation of ancient and irreplaceable architecture.

The modern city of Baghdad includes four historical areas, namely, Rusafa, Karkh, Adhamiya, and Kadhimiya (**Figure 14**). These areas stand in the remains of four interspace townships and are surrounded by contemporary urban features that include modern buildings, extensive public squares, and an orthogonal network. The four inherent sectors are a vital resource of expression of a past traditional period and provide a cultural and historical chain that could be continued for future generations [4]. Between 1869 and 1872, governor Midhat Pasha attempted to implement a transport system in the old urban fabric. The city wall was partially demolished to open the first entrance at Karkh for a horse-drawn tram. However, urban expansion remained within the same range of the historical city. Between 1915 and 1917, German engineers established a new street to reach between the North Door (Bab Al Mu'adham) and the South Door (Bab Kulwadha), namely, New Street and the present-day Al-Rasheed Street. However, the modern machinery of urban development generally endured sluggish progress when dealing with Baghdad [26].

The existing old fabric, which included a network system, historical neighbourhoods, and heritage buildings, faced the ideology of modernisation, which led to the creation of a new urban morphology within a current traditional structure. This was achieved either by reconfiguration or by removing old structures. Self-organisation was the central concept in the configuration of the old fabric; in contrast, the new urban context relied on planning. Consequently, the two different patterns occurred and led to an interrupted urban pattern which reflected a lack of continuity, coherence, and integration with the surrounding environment [8]. The characteristics embodied in the urban context of Baghdad were (1) the quality of use and the nature of urban space, which was based on different spatial concepts, urban patterns, and building typologies, and (2) specified markets along with public buildings and the river frontage which provided defined and active public spaces [8]. According to Al-Hasani, Baghdad's urban space can be classified under two typologies based on its accessibility and the relationship between privacy and publicity. These two topologies are traditional-surviving spaces and modern-emerging spaces, the latter of which is divided into hybrid urban spaces and entire modern urban spaces [8]. In the same context, Al-Hasani states that urban space revitalisation strategies could be based on space hierarchies and could focus on managing the integration between urban morphologies and contemporary needs [8]. In the past, Baghdad integrated its various urban patterns in order to reduce ambivalence towards the transformation process which historically tended to be continuous and subject to self-organised acts. It was achieved by creating the smallest urban form cells that dealt with hierarchy, land use, and building rules and enhanced human activities by concentrating more on the hierarchy space and accessibility [8].

4.1 Street characteristics

Its contemporary streets represent one of the components of the comprehensive plan of Baghdad. However, the street basically follows the same principles of new urbanism under the term of modernity. New roads are wide and long in comparison with traditional ones; they tend to span more than 3 kilometres with tall buildings on both sides and are far removed from the human scale. In addition to this, these new streets replaced the demolished previous, irreplaceable traditional fabric, which included souks, houses, and mosques. Moreover, the massive gap that emerged between the old urban structure and the new urban context under the same terms, westernisation and modernization, cannot be readily ignored [26]. Rasheed Street is one of the oldest streets that cut through the historic central areas to link the north and south of ancient Baghdad and runs parallel to the Tigris River. It was begun by the Turks in 1915 but was completed by the British in 1918. Its width is varied where the maximum is about 40 metres, including 10 metres of commercial development on either side. It is almost 3.8 kilometres in length [31]. The importance of Al-Rasheed Street comes from the characteristics of the adjacent buildings and their distinctive architectural style.

Porticos, with various facade styles, constitute Al-Rasheed Street; it adopts human-scale dimensions and has an integrated, harmonious architectural unity. Such environmental elements give enough protection for pedestrians against undesirable climates. The street reflects a cohesive alignment of buildings which contains the highest diversity in elevation, and its characteristics represent different types of architecture [32]. Therefore, Al-Rasheed Street reflects a panorama that vividly portrays the long history of buildings and the evolution of architectural patterns. Although crucial events occurred throughout the life of Al-Rasheed Street, each event tells its own story [32]. Al-Haidary states that there is a lack of important construction legislation and conservation monitor programmes for planning and

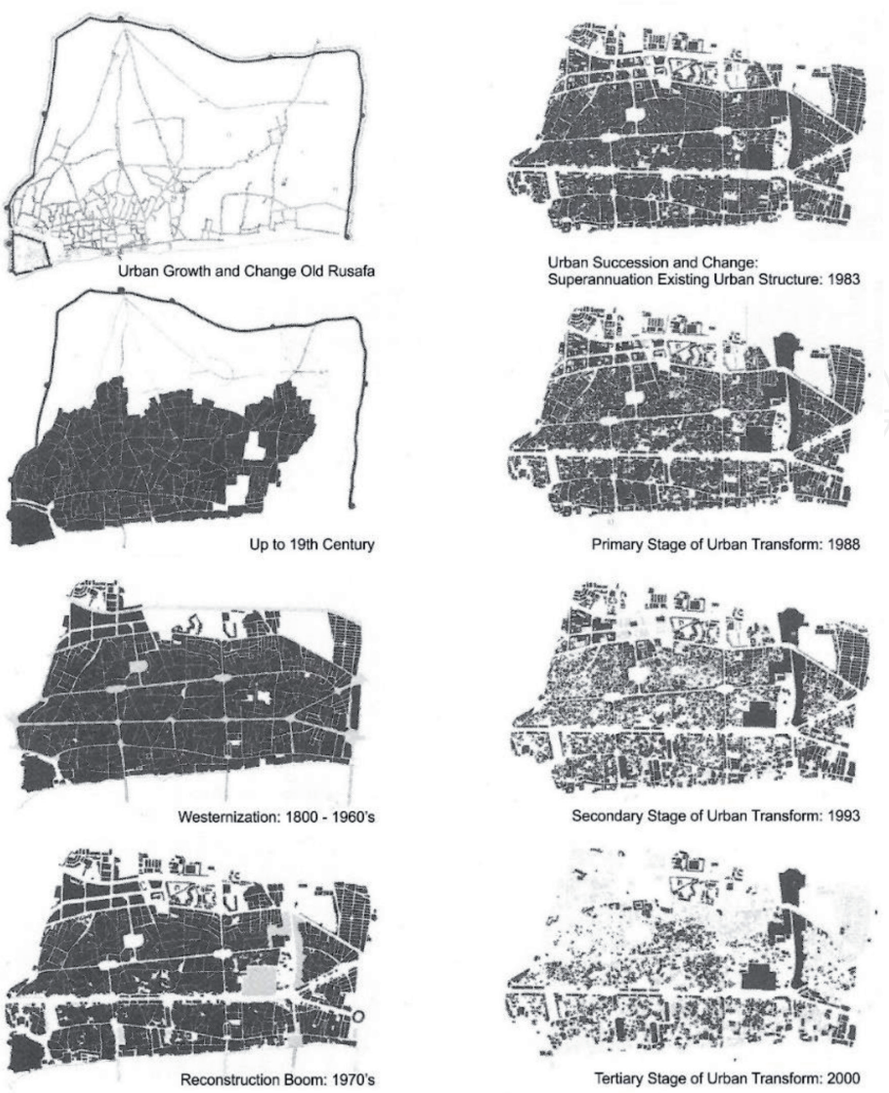


Figure 22.
Urban space transformation in Baghdad. Source: ([33], p. 107) based on [14].

urban design and a similar lack of commitment to restrict initiatives to ensure they adapt to traditional patterns. Concentrating more on the maintenance and restoration of significant heritage buildings within their urban context can be considered an essential factor that positively affects the old urban fabric, for example, Kifah Street, which, in 1936, was orientated through Rusafa. Its width is 50 metres, which includes 15 metres for commercial development on both sides, while its length is about 3.2 kilometres. Unfortunately, this new route also caused severe damage in the traditional urban area of Rusafa. The third street was Al Jumhuriya Street, which in 1954 passed through Rusafa [31] (**Figure 22**).

The drastic changes in the urban spatial structure of the city affected the streetscape in terms of the street's edges. It developed a new definition of the relationship between private and public, while priority was given to the motorised-based scale rather than the human scale. To a large extent, this newly defined relationship led to the adoption of new behaviours and social interactions that responded to the street's edge (**Figure 23**). Adopting a fine-scale classification by analysing the street pattern seems to be a more efficient means of recognising the urban characteristics of streets over large-scale classifications. There is a definite pattern of activity about the classification process of compound parameters, which increase in an area or within defined spatial dimensions. In contrast, large-scale

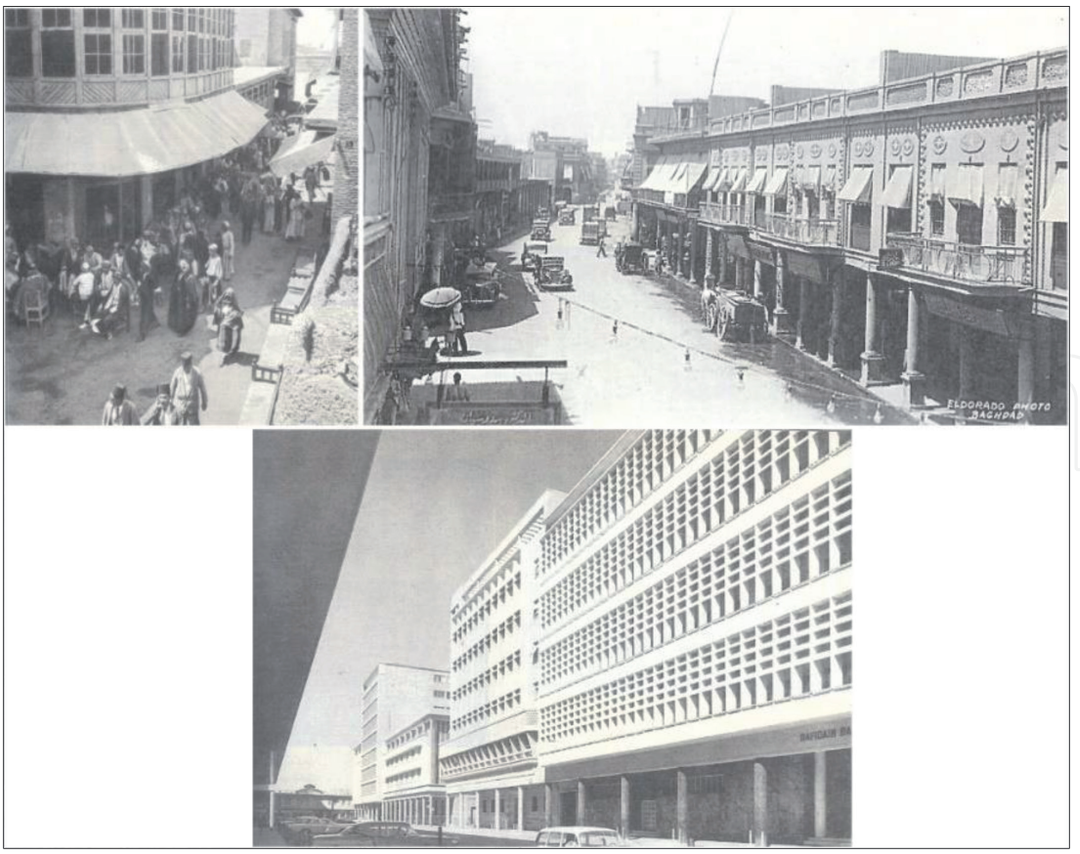


Figure 23.
The historic area of Baghdad witnessed an extraordinary change in the spatial structure of its street edges. Source: ([10], pp. 260, 349–350) all rights reserved for Al-Warrak Publishing Ltd., London, UK.

classification is affected by minimum or single parameters, and this can refer to the comprehensive analysis method of streets, which are likely to be irrelevant in creating distinctive urban characteristics for the whole city. The entire spectrum when distinguishing the urban attributes of streets tends to seek difference rather than similarity [31]. Overall, in terms of its morphological dimensions, the main characteristics of Baghdad Street would be the level of difference and disparity between the original and modern streets. Both types, historical and modern, are subject to two different generative systems: spontaneous (bottom-up approach) and pre-planned (top-down procedure).

4.2 The old fabric and the modern trend

Hillier argues that there is apparently fear of doing anything in a historical part of a city, except to retain the old street system. However, the old street network emerged by incremental dynamic processes over time that reflected the growth and change through different generations. Each generation tended to partially modify street networks to better meet their needs [34]. Al-Haidary highlights that 'the city for man, and in the city's philosophy the general should precede the individual, that is, the society's requirements should come before the personal desire, and the city's identity has to be preserved, and it can be expanded via green and red veins' ([32], p. 71). Regarding the old urban fabric in Baghdad, Alobaydi and Rashid state that, since its establishment as the capital of the Abbasid Empire to the end of Ottoman occupation in 1917, the city was characterised by spontaneous urban growth. Their key findings at the diachronic level are that the core of the old city of Baghdad manifested a robust correlation with its commercial centre until the 1940s when modernist developments were undertaken throughout the city. Also, before the

1940s, the nature of the relationship between the social dimensions and economic factors in the old patterns of Baghdad expressed a mutual correlation. Later, the relationship was subjected to a considerable number of modifications that were instigated by comprehensive and modern development projects [35].

Apart from the degree of implementation and quality, a considerable number of plans were conducted to maintain the old areas and the historical urban form of the city. However, serious practical steps were needed, such as setting laws, regulations, guidelines, and financial resources and raising the level of awareness among communities about their own heritage. Moreover, where existing buildings from the modern era become part of the urban context of the city, any attempt to deal with these buildings is achieved by composing a bridge between modernisation and heritage via a thoughtful conversion with the old environment. This enables such initiatives to be viable, dynamic, and resilient; they have the potential to involve development process with remaining historic essences that have heritage value [32]. The prevalent character of Baghdad becomes the scope of neglect for the old fabric, whether as an individual building or as a network system. The deficiency of infrastructure and unhygienic conditions, irregularity, and the lack of maintenance can lead to the exploitation of an area for various unregulated purposes. In Baghdad, this resulted in chaos and the loss of priority in sustaining the meaning of civilised life, particularly in the old regions of the city, such as Rusafa and Karkh. Thus, the importance of preservation and maintenance should be considered, not only for individual units, such as houses or public buildings, but also for the urban fabric in general which represents a vital network system [32].

The old urban fabric and its morphologies were, formally or informally, influenced by the wave of modernism and replaced later by the new urban context, which resulted in the loss of the relationship between built forms and streets [36]. The urban renewal operation that took place as a part of a comprehensive development plan in Baghdad critically recognised the old urban fabric and determined an efficient process to preserve this vital sector of the city. Two dimensions identify any attempt to develop old areas: firstly, the entirely or partially neglected area of the old urban fabric, and secondly, the direct or indirect reliance on foreign technicians to deal with national heritage and historical, cultural dimensions that shaped the urban context of the old sector of Baghdad [32]. Most of the traditional urban areas have modest conditions and qualities but are still considered an attractive destination. However, the main concern is for functional transformation, which leads to topological depth alteration and can change morphological patterns in an old urban structure. The revolution against what humanity has produced through its long-rooted history has led to unpredictable and unsatisfactory results, with modernism at the forefront of such results [37]. Hall argues for maintaining beneficial, comforting old buildings and communities from 'the bomb' of urban renewal, where not all new ideas and objects are necessarily desirable nor all old thoughts and developments substandard [38]. Cities, however, have many places and sometimes only a few historic buildings or a cluster of outstanding features which merit preservation. These buildings and elements within their own context afford continuity with the past and lend diversity to cities.

Kropf argues that 'the degradation of neglect is reinforced by the active effacement caused by the replacement of old by new buildings which share few of the characteristics of the former. The cumulative effect is that the historical and regional character of the town is being eroded' ([39], p. 721). According to Cullen, the history of a city involves several historical layers, where most cities are constructed on old foundations, and their fabric exhibits evidence of different periods in their architectural and urban patterns and in the diverse accidents which are recorded and conserved by various layers of history [40]. The relationship between

the old fabric and the trends of modern urbanism in Baghdad is the foremost priority in defining spatial affiliation and in dealing with the city's significant cultural and historical heritage. It is possible to identify two essential perspectives that determine the relationship of the oldest urban area of Baghdad to the contemporary urban progress of the city. The first is the vertical perspective, which stands for the modernisation of the city centre itself and its adoption of the modern ideology. The second is the horizontal perspective, which addresses the extended urban areas that are adjacent to the traditional centre of Baghdad. This relationship, however, could include the fine scale of the city in examining the ability of the street to promote social interaction as a public space for people. Furthermore, different interfacing patterns could also be performed in the street.

4.3 The dialectic between traditional and modern thoughts

Since the end of the Second World War, the rapid growth of Baghdad was partially uncontrolled, whether in the oldest zone or the surrounding regions. The built-up area increased from a mere 6 square kilometres in the first decade of the nineteenth century to about 240 square kilometres in 1970; this will be extended in the future unless there will be more thoughtful planning. This has since been achieved since starting the study. The more significant diffusion of Western ideas and the concept of modernity and technology coincided with the colonial and independent phases of Iraq that attempted to instil reform and development. The aim was to open up Iraq to the capitalist global economy by adopting Western patterns of society and their physical environments. In this respect, giving more attention to the central region of Baghdad is needed, meaning that the management of these traditional areas must be thoughtful and methodical in order to improve inhabitants' quality of life and to promote urban sustainability [27].

The influence of such rapid growth on the old fabric was overwhelming during the last three decades of the twentieth century. The growth of urbanisation generally led to an increase in demand for more physical environments, which severely damaged the old urban fabric of the Rusafa area. In contrast to Baghdad, a considerable number of other countries with ancient regions intentionally affected urban expansion outside the boundary of their historical regions [4]. The debate between modernity and identity in the scope of architecture has always been raised, whether by specialists or the public. To a large extent, the concept of Westernisation is evidenced by modernisation and modernity [41]. Thus, historical debates between the two sides (modernisation/Westernisation and traditional/East) should be reviewed in view of their conflict and their influence on the loss of Iraqi identity. The concept of cross-cultural references would be a more efficient way to drive an active role in reshaping and configuring both imported concepts and local objectives in the interaction between different cultures and counties or societies. This could be considered a healthier transformation in the interrelationship and exchange of experiences among communities [41].

Reviewing the brief archaeology of firms that worked in Iraq, Doxiadis prepared the development plan for Baghdad in 1958; the concept adopted was to keep the compact pattern of the traditional central area and to construct new adjacent streets. However, these plans were not largely realised although some housing projects and an Army Canal were carried out [41]. Despite the storming of the Middle East by modernity, particularly in relation to lifestyle, architecture, urban design, and planning, the traditional themes still gave a sense of balance with their socio-climatic traditional components. However, in the 1970s, Polservice designed traffic networks for Baghdad that disregarded the old urban fabric in the city centre [41]. A significant disadvantage in urban space is caused by the intersection between the historic fabric

and the power of market orientation. Also, the tendency towards augmentation regardless of the historical and cultural environment generally leads to the creation of a vacant area, which mediates between two contradictory contexts in terms of history, culture, and urban structure. The old fabric of the city splits into different sectors through creating new urban spaces that unfortunately work as segregation perimeters. The loss of system regulation, control, and monitors on urban development plans, besides the level of bureaucracy and administrative systems, collectively led to more devastation for traditional buildings and street patterns [8].

Reshaping the city to reflect the Iraqi identity entails a major preliminary survey and the first administrative framing of its heritage. However, a considerable number of architects tended to pervert such legacies by using modern techniques in design, materials, and construction within the framework of traditional Arab architecture. This procedure has been adopted many times by architects trying to gain acceptance for their designs [41]. Accordingly, some attempts have been made to employ a local, traditional vocabulary in decorating new buildings in order to reduce the disparity and develop a new iconographical strategy. However, according to Pieri, 'public architecture neglected the fact that identity is a matter of sedimentation and not of decision: under the pretext of reviving the past Arab and Mesopotamian grandeur as the foundation of a newly built collective identity' ([41], p. 36). The Iraqi identity, in general, belongs to the history of ancient civilisations where part of its artefacts emerged as a fertile and fundamental basis for the nation that is undergoing a revival in the modern era.

Considering the old area in Baghdad, urban public space can be described through monuments, which include emblematic statements that carry a new iconography through the synthesis of a national repertory with a modern style. The notion of value in the old fabric of the city seems to be on the opposite side to high-rise buildings, which demonstrate inconsistency with the surrounding horizontal environment, particularly around the central area of Baghdad. The moment that the new European style emerged under the terms modernisation and Westernisation, Baghdad no longer remained a typical Arab-Islamic city. Al-Haidary asserts that modernisation and the implementation of rapid, dramatic changes by increasing economic growth and population sizes resulted in unregulated buildings in the old urban fabric of Baghdad [32]. Pieri refers to urban identity as a language with a syntax that is composed of both built and natural and tangible and intangible realities. Thus, architectural themes have their own exclusive urban character [41].

Despite the paradox that the old urban fabric and its characteristics belong to its historical roots, its ability to survive within new urban developments is considered significant in so many countries. The old structure in a city offers unique opportunities to deal with its urban components to promote and develop an urban environment that meets human need throughout its social, economic, and environmental qualities ([42], cited in Al-Akkam 2012). Moreover, Pieri states that 'to preserve a balance between material layouts and collective memory, urban form and content, it becomes imperative to study the materiality of the built environment or urban design in its various contexts. Architecture and urban planning belong to cultural systems of representation and are part of long-term durability. Tradition should be a laboratory of collective memory so that it becomes easier to conceive of architecture and urban planning as societal choices' ([43], p. 20).

The urban and architectural history of Baghdad should be taken into consideration as part of global urban heritage. From this point of view, Baghdad faces a significant challenge to the reconstruction of the old part of the city. According to Pieri, this challenge must be settled for the long term, not only for urban and architectural patterns but also for the people who live in the city [43]. Mohammed Makiy calls this a micro-vision which plays a significant role in softening the

aggressiveness of large-scale developments, where the ideology of the human scale provides a guiding route. The debate of the modern movement has often taken place in architectural reviews as one of the crucial transformation points in the history of architecture. The theme of reductionism is a modern ideology; nostalgia for the city's past and the characteristics of humanity has become one of the most critical issues in contemporary architectural writings, conservation projects, and the maintenance of the architectural history of the city, both on the level of structural scope or urban design. Therefore, there is a need to move from 'the rationalised modernist views that deconstructed so many towns and cities in the 20th Century' to meet the desire and 'need to unpack and reconstitute the synoptic art of city-making that was substantially lost during the so-called machine age of the 20th Century' ([44], p. 8).

5. Deriving the urban gap

A cross-reading of the literature concerning the emergence and development of Baghdad to the present-day helps to outline the research gap. The awareness of the value of heritage and history, particularly in the oldest sector of the city, has increasingly become an essential kernel for the emergence and diversity of ideas, which help to maintain and develop this part of the city. The characteristics of the old area reflect a considerable number of criteria, such as limited travel distances, lower car dependence, and greater opportunities for people to walk. These encourage community life with better surveillance that enhances public safety [45]. Thus, these characteristics, particularly in the old fabric of the city, underpin the quality of social life by reducing motorised-based use, minimising external pollution, concentrating activities, adopting multimodal street networks, mixing land use, enabling high occupancy rates, and highlighting the value of heritage and cultural elements. Another incentive is to help forge a relationship between the old centre and the city that reflects the concept of a living museum, based on real, coexisting life. A living museum explicitly offers positive opportunities at all levels, such as entertainment, culture and historical experiences, economic support, and social activities; it provides an attractive location for people and helps to underpin tourism ([46], p. 368, [47]).

The city centre of Baghdad is a 'mosaic of memory' that contains unique features, whether related to its physical dimensions or collective memory. The traditional core has varied characteristics, which consist of many activities and ancient architectural components as well as a complex urban fabric [3]. The functional definition of the street is subject to the top-down approach to authority, even in the historical area of Baghdad that originally came from a long-established bottom-up approach. Shamsuddin and Ujang state that streets in an urban context are places of economic and social significance; great cities are often identified by their main streets, and the nature of these streets reflects the image of the city. Furthermore, one of the key functions of the street is to convey the main characteristics of a city and its particular identity. A street can represent the general perception of a city's character, identity, and image due to its bonding with individual experiences [48].

For fine-scale approaches, particularly in historic towns, the priority is the human scale, which is typified by the enclosure of spaces that are shaped by the boundary of buildings. The thoroughness of the building pattern combined with the design of the spaces is essential to give a sense of identity. In contrast, isolationism and introversion become the main features of modernist buildings. The influence of the modern wave was not only witnessed on the public space but also on the social and cultural meaning of space, where human aspects were not fully considered. Four objectives were identified by Gehl with respect to the human dimension,

and these are as follows: firstly, 'lively, safe, sustainable, and healthy cities'; secondly, a city's ability to invite individuals to walk through as the sign of a coherent structure; thirdly, a 'short walking distance, attractive public spaces, and a variety of urban functions'; and finally, the city offering an invitation to walk and cycle which form a natural and integrated element of daily routines and a non-negotiable part of a unified health policy ([37], pp. 6–7).

Therefore, transformations in the behavioural system can occur rapidly in comparison to alterations in buildings and the urban context. Although this does not deny the role of the built environment and its influence on the community, the rate of change seems more explicit in human behaviour than in physical surroundings. For example, specific historical areas or buildings continue to exist as before, while each generation has their own experiences in an urban environment. Gehl and Svarre pose many questions about public life in a city. These questions are based on the relationship of people to urban spaces and their interactions with the surrounding environment and other people. The fundamental questions posed are 'how many' regarding quantitative data related to people and their activities. The second question is 'who', which gathers knowledge about people's behaviours in the public space. 'Where' is the third question that addresses 'where people are expected to go and to stay'. The final question concerns whether the city can generally provide specific knowledge of the type of activities undertaken [49].

6. Conclusion

This chapter addressed the emergence of Baghdad and the stages of its morphology and transformation. The oldest periods began with the Round City; this created the first nucleus that later formed Baghdad. The city then moved from the west to the east riverbank of the Tigris. Moreover, the main historical characteristics of the urban structure survived until the British occupation in 1917. The physical environment was typified by two fundamental urban components: street network and Mahallas (traditional neighbourhoods). These two elements have a close interrelationship and an overlapping pattern. Spontaneity follows the bottom-up approach, where the community manages its own built environment; this is derived from the order and regulation that informed the norms and values of inhabitants and their beliefs.

Morphologically, the historical region of Baghdad was distinguished by an organic pattern for both the street network and its built units. Moreover, the street pattern was also subject to a series of definitions according to the degree of privacy and other functions. This chapter highlighted the main points that differentiate the historical pattern of the city and the modern era. Those points were considered under four main headings: (1) the essence of Baghdad City, (2) its streets' characteristics, (3) the old fabric and modern trends, and (4) the dialectic between traditional and modern concepts. Modern areas in Baghdad follow the top-down approach to generate neighbourhoods that are distinct from the fine-scale or micro level of street life. However, this mainly depends on the expectations of future programmes through predetermined land use. Due to the new strategies and regulations introduced by master plans, the urban structure of Baghdad drastically changed, not only in the centre but also in the surrounding regions. One of the main aspects of these transformations in the urban structure is its street life and how might people respond to the street edge and how their social interactions are influenced. Furthermore, this impacts the underlying system in terms of its street pattern and the network characteristics, including the centrality value.

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