

REFLECTIONS OF LAND PRICES ON THE URBAN ENVIRONMENT IN THE HOLY CITY OF KARBALA

¹Salim Hussain Jassim

University of Karbala – College of Education for Human Sciences- Department of Geography
slemhusen1980@gmail.com

²Prof. Dr. Samir Falih Hassan Al-Mayali

University of Karbala – College of Education for Human Sciences- Department of Geography
Samir.f@uokerbala.edu.iq

Abstract

The research aims to show the impact resulting from the variation in land prices on the urban environment at the level of the neighborhoods of the city of Karbala, consisting of (68) residential neighborhoods, the high prices, the style of construction, the techniques used and the random all reflect the economic level and the condition of the population in the city, therefore, the research was interested in shedding light on the impact of change and variation in the price of land, through the study of some aspects and tracking the research found that the rise in prices in the old city resulted in a change in the form of the old morphology, which was taking the form of a curved convex, its center is the two shrines and its lower edges are the main streets and replaced by a concave morphology centered on the two shrines and its upper edges are the main streets, the research also found that the functional change has contributed to the rise in the price of land to a degree, at the level of the old city, the street surrounding the shrines witnessed the highest percentage change in the price of land, the price of land (80%) increased from the surrounding residential or located behind the street, while the lowest change was in Maytham Al-Tammar Street (11.1%), this price was translated into high-rise buildings that contributed to changing the morphology of the street, the research also found that green areas were more vulnerable to random, as random constituted (18%) of the total random areas in the study area, and it was also concluded that the high prices had caused not the emergence of a quantitative housing deficit, but there was a qualitative housing deficit as well.

key words: Land Prices ‘the Urban Environment ‘Holy City of Karbala

Introduction:

The geography of cities is concerned with the functions of cities, their origin, development and internal structure, focusing on the distributions, patterns and spatial organizations of phenomena within cities to highlight the variation in one or more characteristics in one city, it is interested in studying the Land Economics and the extent of its impact on the internal structure of urban areas by focusing on economic variables, as well as the concept of bid rent, which indicates that the prices of land in cities are formed through the process of the land market¹, the price of any piece of land is linked to many factors, including its location and ease of access and the desire of individuals and the level of the economic system and the size of the city and the type of use and the area of land available and the intensity of movement and these are all driven by the religious factor that has become a major factor in attracting the population from various provinces of Iraq and the associated services and investments have reflected their impact on the price of land and allowance Land use rents in the city of Karbala, prices have become a

controlling factor in directing uses, and in shaping the features of the street, neighborhood or any place in the city, therefore, this research came to find out the most important reflections generated by the price, especially after the spread of the phenomenon of change in land uses and the emergence of modern construction techniques.

First: Research Problem:

The problem of geographical research is a prerequisite for the establishment of scientific research and the study of problems, and represents modern trends in geographyⁱⁱ, and the main research problem is determined by the following question "What are the reflections of land prices on the urban environment in the holy city of Karbala) and this has been formulated into other sub-questions came as follows:

- 1- What is the impact of land prices on the morphology of the city of Karbala? And what form did you produce?
- 2- Is there a huge difference in prices between commercial and residential use as a result of the functional change witnessed by the neighborhoods?
- 3- Are there any reflections on land prices? And how influential is it?

Second: Research Hypothesis:

- 1- Land prices affected the city of Karbala, at the level of the old city, it produced a morphological form different from the previous one, in the past it was represented by a convex curve centered on the shrines and its edges are the main streets, while the modern morphology took a concave shape centered on the shrines and its upper edges the main streets.
- 2- There is a vast difference in prices between residential and commercial, as the lowest increase in the commercial price was over residential (11.1%) and the highest (85%).
- 3- Many reflections have emerged as a result of the variation and rise in prices, including their impact on construction techniques, career change, lack of parks and housing deficit.

Third: Research Objective:

- 1- Revealing the impact of variation in land prices on the urban environment of the holy city of Karbala.
- 2- Knowing the size of the change or functional change resulting from the variation in prices at the level of the holy city of Karbala.
- 3- Identify the impact of high and low prices in the holy city of Karbala.

Fourth: Research Methodology:

The research relied in presenting its data, drawing conclusions and achieving its objectives on the descriptive approach, the analytical method, and the technology of geographic information systems, in addition to using the field study to document the variation in land prices at the level of the neighborhoods of the city of Karbala.

Fifth: Research Limits:

Geographical studies and research are concerned with two main dimensions, namely the temporal dimension, which is concerned with determining the duration of the research, so that the researcher is responsible for examining the variables of the phenomenon during the period of the studyⁱⁱⁱ, while the spatial boundaries are concerned with the study area in which the phenomenon is located, and therefore the two dimensions are:

Time limits: It was represented by studying the reality of the state of the study area based on the available data for the year (2021-2022).

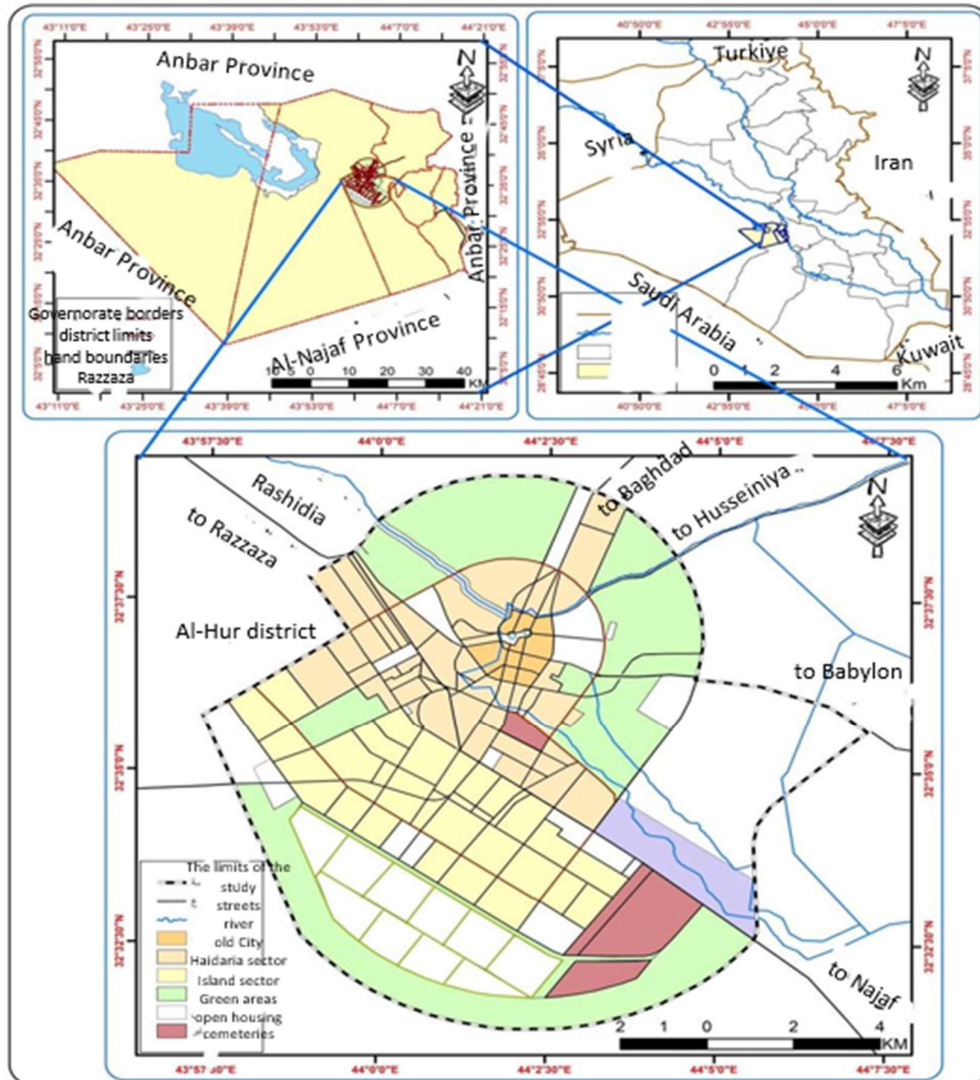
Spatial Limits: represent the most important steps of scientific research in geographical studies, and the study included prices for land uses (current reality), within the boundaries of the basic design of the holy city of Karbala, which was developed from (2009-2030), and this is represented in the following:

- **Astronomical location:** The city of Karbala is located between latitudes (31 32-40 32) north and longitudes (12 44 - 43 45) east.
- **Geographical location:** The city of Karbala is located in the northeastern part of the province, bordered to the north and northwest by Al-Hur side, to the south the desert lands, to the east Al-Hindiya district and Al-Husseiniya district, and to the west Ain Al-Tamr district, map (1), with these limits, the study area occupies an area of (14850.1)^{iv} hectares, of which residential neighborhoods occupied an area of (3807.9) hectares distributed over (68) residential neighborhoods.

Sixth: Study Terminology:

- 1- **Price:** linguistically "estimate the thing or its value and the price is what the price is based on and determined its price, has been expressed by economists at the rate of exchange between the commodity and money^v.
- 2- **Urban environment:** an artificial environment created by the human ability to develop tools and use them in the field of interaction with the natural environment, which includes the uses of land that changed the natural environment to serve human needs, such as the establishment of residential communities, industrial and commercial areas, as well as public services such as roads, drainage and irrigation networks and various social and economic activities^{vi}.
- 3- **Morphology of Town:** means the interaction of form with functions to result in a town scape or the visible part thereof, including the street system, building forms, plots of land and uses above or settling on part of it^{vii}.
- 4- **Change of land uses:** change in the linguistic sense (change) source of the verb is and it indicates the change of the situation to another case, and here the change of the thing to a state means its transformation and change unlike what it was, as for idiomatically, change is a transformation without adding (change) or by adding (change) and here the difference between change and change, is that (change) means the transformation of something from case to case automatically, suddenly and categorically, the consequences of the results of what will be the situation surrounding it, either (change) is the transformation based on thinking and prior management, so the (change) leaves effects be more negative than the successor (change) the results of change calculated more than change^{viii}.
- 5- **Functional change:** It is the conversion and change in one of the aspects of land uses in a manner contrary to what is planned in the basic design and may leave uncalculated effects affecting the population and may create conditions that are not compatible with the quality of life within cities^{ix}.

Map (1) Location of the study area of Karbala Governorate and Iraq for the year (2022)



Source: Researcher depending on:

- 1- Republic of Iraq, Ministry of Water Resources, General Survey Directorate, Administrative Map of Iraq at a scale of 100,000:1, 2010.
- 2- Republic of Iraq, Ministry of Municipalities and Public Works, Directorate of Urban Planning, Administrative Map of the Holy Province of Karbala, Plate No. 10, scale 1:400,000, 2012.
- 3- Republic of Iraq, Ministry of Municipalities and Public Works, Directorate of Urban Planning, map of updating the basic design of the city of Karbala and Al-Hurr (2007-2030) at a scale of 1: 25000.

1.1 The reflection of the variation in land prices on the Old City of the Holy City of Karbala:

The old city represented the first nucleus of the emergence of the current city of Karbala, as its beginnings were simple unplanned residential shops, the winding streets and their narrow, dead-end alleys in some places were the prominent feature of their morphology, but it quickly began to change, especially in the time of the Ottoman governor (Midhat Pasha) after he added a new part of the city and opened a number of streets^x, which caused a change in prices within the city resulting in changes that reflected on the morphology of the old city, which came through:

1.1.1 The reflection of the impact of the functional invasion on land prices and the morphology of the ancient holy city of Karbala:

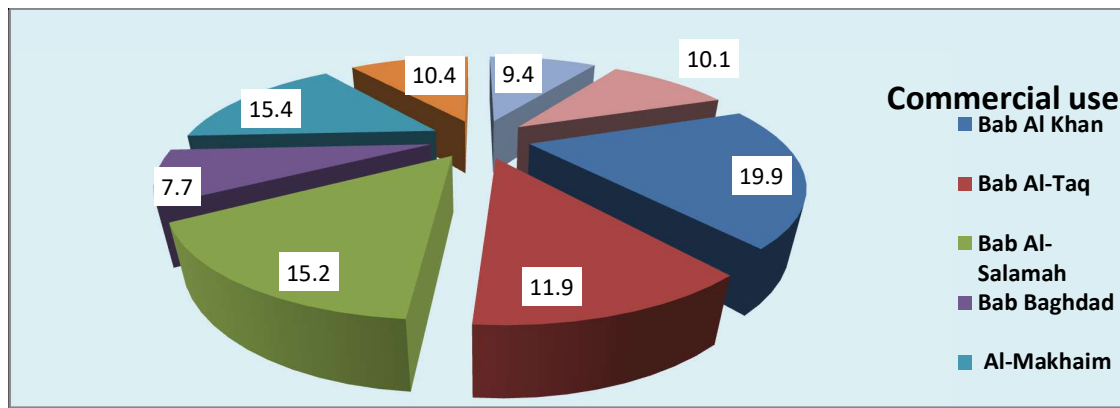
There are several factors that have contributed to the functional invasion, including (changes in transport lines, population movements, expansion in parts of one area at the expense of another neighboring area, demolition of houses and their exposure to collapse due to the deterioration of their condition, changes in the economic basis that lead to the redistribution of income or a change in economic activities)^{xi}, as for the city of Karbala, the streets were the main and effective factor in bringing about the functional change at the level of the neighborhoods of the old city of Karbala, and table (1) and Figure (1) can show the change caused by the streets in the uses of land at the level of the neighborhoods of the old city of Karbala, as the area of this change reached (14.601) hectares, the highest percentage of change from residential to commercial was in (Bab Al-Khan), as it amounted to (19.9%) of the total area of functional change in the old city, while (Bab Baghdad) witnessed the lowest percentage of (7.7%), and the level of functional change in other neighborhoods varies between these two percentages.

Table (1) Functional Change Caused by Streets at the Level of the Old City of Karbala Neighborhoods

S.	Residential Neighborhood	Variable use area/hectare	Percentage%
1	Bab Al Khan	2.911	19.9
2	Bab Al-Taq	1.732	11.9
3	Bab Al-Salamah	2.217	15.2
4	Bab Baghdad	1.131	7.7
5	Al-Makhaim	2.246	15.4
6	Bab Najaf	1.515	10.4
7	Eastern Abbasiya	1.378	9.4
8	Western Abbasiya	1.471	10.1
Total		14.601	100

Source: Researcher based on ArcGIS.10.7.1 and the baseline design update map for the holy city of Karbala and Al-Hurr for 2007-2030, at a scale of 1:25000.

Figure (1) Functional change ratios at the level of the neighborhoods of the old city of Karbala



Source: Researcher based on Table (1) data.

As for the impact of the streets on the prices of land or on the morphology of the old city,

it can be said that commercial use invades these streets, which made them turn from residential use to commercial or industrial, offices or clinics for doctors, bakeries and ovens ...etc., table (2) shows the most prominent of these streets, which are as follows:

- A- Al-Abbas Street (peace be upon him):** opened in (1916 AD) and was the first straight street in the city of Karbala, extends in the neighborhoods of (Bab Al-Najaf, Western Abbasiya, Eastern Abbasiya, Bab Al-Khan) it witnessed a change in residential use in it to commercial, as its highest rates were in Bab Najaf (5.6%) and the lowest in Bab Al-Khan (1.5%), while the percentages varied between the other neighborhoods that the street passes through, and this change caused a rise in the price of commercial compared to residential, as we find that the highest price of residential (4,000,000) million per (m2) in Bab Najaf and Bab Al-Khan while commercial (7,000,000) million, that is, it changed by (42.9%) from its original price, as for the lowest price of housing (2,500,000) million in Eastern Abbasiya compared to commercial (7,000,000) million, and a change in price (64.3%) and the high price caused a rise in commercial buildings in order to optimize the use of land, and thus this is reflected on the morphology of the street in particular and the old city in general.
- B- Al-Makhaim Street:** Since its opening, there has been a change in use, as residential buildings in the neighborhoods where the street extends, such as the neighborhoods of Bab Al-Najaf and Al-Makhaim, gradually changed until the changed part of the camp became equal to (3.5%) of the neighborhood area of (25.1) hectares, while the share of Bab Najaf was (2.7%) of the neighborhood area of (7.5) hectares, and this was reflected in the land prices, as we find that the lowest price for residential (4,000,000) million corresponds to (10,000,000) million for commercial in the same neighborhood, meaning that the price increased by (60%) than commercial, and this reflected its impact in the form of high buildings, which affected the morphology of the street in particular and the city in general.

Table (2) Streets that contributed to the morphology change of the old city

S.	Street name	The neighborhood where the street extends	The area of the neighborhood in which the street extends /hectare	The area of the part changing from residential to commercial /hectare	Commercial percentage	The lowest price of residential land in the neighborhood where the change occurred	The lowest price of the commercial land overlooking the street where the change took place	Price difference between residential and commercial variable	Percentage of price change towards the rise
1	Al Abbas Street	Bab Najaf	7.5	0.424	5.6	4.000.000	7.000.000	3.000.000	42.9
		Abbasiy	17.2	0.769	4.5	3.000.000		4.000.000	57.1

	(pbuh)	a/W							
		Abbasaya/E	26.2	0.781	2.9	.500.0002		4.500.000	64.3
		Bab Al Khan	29.6	0.446	1.5	4.000.000		3.000.000	42.9
2	Al-Makhaim street	Al-Makhaim	25.1	0.88	3.5	4.000.000	10.000.000	6.000.000	60
		Bab Najaf	7.5	0.201	2.7	4.000.000		6.000.000	60
3	Qibla Imam Hussein Street (pbuh)	Bab Najaf	7.5	0.313	4.2	4.000.000	6.000.000	2.000.000	33.3
		Al-Makhaim	25.1	0.825	3.3	4.000.000		2.000.000	33.3
		Abbasiy a/W	17.2	0.817	4.8	3.000.000		3.000.000	50
4	Al, Alqami Street	Bab Baghdad	36.4	0.485	1.3	4.000.000	8.000.000	4.000.000	50
		Bab Al Khan	29.6	0.49	1.7	4.000.000		4.000.000	50
5	Maytham Al, Tammam Street	Abbasaya/E	26.2	0.445	1.7	.500.0002	4.500.000	2.000.000	44.4
		Bab Al Khan	29.6	0.615	2.1	4.000.000		500	11.1
		Bab Baghdad	36.4	0.497	1.4	4.000.000		5.00.000	11.1
6	Republic Street	Bab Najaf	7.5	0.429	5.7	4.000.000	9.000.000	5.000.000	55.5
		Bab Al Khan	29.6	1.285	4.3	4.000.000		5.000.000	55.5
7	Sidra Street	Bab Al-Taqa	11.7	0.581	4.9	3.000.000	10.000.000	7.000.000	70
		Bab Al-Salalma	12.6	0.563	4.5	4.000.000		6.000.000	60
8	The street surrounding the two	Bab Baghdad	36.4	0.183	0.5	4.000.000	20.000.000	16.000.000	80
		Bab Najaf	7.5	0.393	5.2	4.000.000		16.000.000	80
		Bab Al-	11.7	0.167	1.4	3.000.000		17.000.000	85

	holy shrines	Taq						0	
		Bab Al-Salama	12.6	0.689	5.5	4.000.000		16.000.000	80
		Bab Al-Khan	29.6	0.412	1.4	4.000.000		16.000.000	80
9	Imam Mahdi Maqam Street (AJ)	Bab Al-Taq	11.7	0.199	1.7	3.000.000	4.500.000	1.500.000	33.3
		Bab Al-Salama	12.6	0.452	3.6	4.000.000		5.000.000	11.1
10	Al-Shuhada Street	Tag Door	11.7	0.416	3.6	3.000.000	12.000.000	9.000.000	75
11	Bab Baghdad (1)	Bab Baghdad	36.4	0.366	1	4.000.000	10.000.000	6.000.000	60
		Bab Al-Salama	12.6	0.394	3.1	4.000.000		6.000.000	60
12	Bab Baghdad (2)	Bab Al-Salama	12.6	0.9	7.1	4.000.000	10.000.000	6.000.000	60
13	Saadia Street	Al-Makhaim	25.1	0.841	3.4	4.000.000	6.000.000	2.000.000	33.3
Total			665.6	14.601	2.5				

Source: Researcher depending on:

- Table (1).
- General Tax Authority in Karbala, Commercial Land Price Controls for the Old City Sector, unpublished data, 2021.

Commercial change rate = area of the part changed from residential to commercial / area of the neighborhood in which the street extends * 100

C- Qibla Imam Hussein Street (pbuh): Opened in (1949) to facilitate the movement of visitors, extends in (Bab Al-Najaf, Al-Makhaim, Western Abbasiya) the residential part on which it is located has gradually transformed into commercial until the highest percentage of change in Western Abbasiya (4.8%) of the total area of the neighborhood of (17.2) hectares, while the lowest in the camp (3.3%) of the area of the residential neighborhood of (25.1) hectares, this change was reflected in the price of land, as we find that the highest price of housing in Bab Najaf and Al-Makhaim is (4,000,000) million and the lowest is (3,000,000) million in Western Abbasiya, while the lowest price for commercial (6,000,000) million, and

accordingly the rate of price change in (Bab Najaf and Al-Makhaim) (33.3%) respectively and (50%) in Western Abbasiya, and this increase was translated into the height of buildings on the street.

- D- Al-Alqami Street:** It extends in (Bab Baghdad and Bab Al-Khan) witnessed a gradual functional change from residential to commercial, the highest percentage of which was in Bab Al-Khan (1.7%) and the lowest in Bab Baghdad (1.3%), this change resulted in an increase in the prices of the part converted into commercial (8,000,000) million compared to the price of residential (4,000,000) million, this means that the price of land after the change of use has increased (50%) from the previous level.
- E- Maytham Al-Tammar Street:** extends in the eastern outskirts of the neighborhoods (Eastern Abbasiya, Bab Al-Khan, Bab Baghdad) this extension has caused a gradual change in uses from residential to commercial, as we find that the highest rates of change in Bab Al-Khan (2.1%) and the lowest in Bab Baghdad (1.4%) accordingly, the prices varied between residential and commercial in the same neighborhood, as we find the lowest price for housing in the eastern Abbasiya (2,500,000) million, corresponding to the highest price in Bab al-Khan and Bab Baghdad (4,000,000) million, while the lowest price for commercial (4,500,000) million, and accordingly the highest rate of price change appeared in Western Abbasiya (44.4%) and the lowest (11.1%) in Bab Baghdad and Bab al-Khan respectively.
- F- Republic Street:** The opening of this street has brought about a change in the morphology of the old city, after the removal of housing and the opening of the street, the residential use that extends on both sides in the neighborhoods of (Bab Al-Najaf, Bab Al-Khan) began to gradually change to commercial, until the highest percentage of this change reached in Bab Al-Najaf (5.7%) and the lowest in Bab Al-Khan (4.3%) this showed a change in prices between residential and commercial within the same neighborhood, as the residential price reached (4,000,000) million while commercial (9,000,000) million, and therefore the percentage change in prices reached (55.5%) for both neighborhoods.
- G- Al-Sidra Street:** The opening of this street witnessed the demolition of many houses, which left an impact on the morphology of the old city, after the completion of its opening, the houses began to change their function to commercial in (Bab Al-Taq, Bab Al-Salama) by (4.9%) (4.5%) respectively, which resulted in the variation in prices between residential and commercial, the highest price of housing was (4,000,000) million per (m²) in Bab al-Salamah and the lowest was (3,000,000) million in Bab Al-Taq, while the lowest price for commercial was (10,000,000) million in the same neighborhoods where the change occurred, and accordingly, the rate of change in prices reached (70%) in Bab Al-Taq and (60%) Bab Al-Salama.
- H- The street surrounding the shrines:** The street surrounding Imam Hussein was opened in (1948 AD) and the surrounding Imam Abbas in (1955 AD), and it is adjacent to (Bab Baghdad , Bab Najaf , Bab Al-Taq, Bab Al-Salama, Bab Al-Khan) from the side of the honorable shrines and has greatly affected the morphology of the old city, as soon as this street was opened after the removal of the houses, the residential use in it quickly changed to commercial, as the highest rates of change in Bab Al-Salama (5.5%) and the lowest in Bab Al-Taq and Bab Al-Khan (1.4%) and this change reflected its impact on the price of the land, as the part changed to commercial witnessed a crazy rise in the price was the lowest value of (25,000,000) million per (m²), while the lowest housing prices located behind the changed

commercial part were (3,000,000) million, meaning that the commercial price has changed by (85%) from residential.

- I- Imam Mahdi Shrine Street (AJ):** This street brought about a morphological change in the Old City, after the removal of the houses in Bab Al-Taq and Bab Al-Salama and the opening of the street, residential use on both sides began to change to commercial, the highest percentage was in Bab Al-Salamah (3.6%) and the lowest (1.7%) in Bab Al-Taq, this change imposed varying prices between residential and commercial, for example, the residential in Bab Al-Taq witnessed the lowest price (3,000,000) million per (m²), while commercial (4,500.00) million, and thus the percentage change in price was (33.3%), while the lowest price for residential in Bab Al-Salama was (4,000,000) million / m² and commercial (4,500,000) million for (m²), so the price change rate was (11.1%).
- J- Al-Shuhada Street:** It extends in Bab Al-Taq and since its opening, the residential use extended on both sides of it has been changed to commercial, it reached (3.6%), and this change imposed a variation in land prices between residential and commercial, as we find that the lowest price for residential (3,000,000) million per (m²), while it corresponds to the lowest price of commercial (12,000,000) million and a change in price (75%), meaning that it increased three times the original price after the change, and this was reflected in the height of the buildings spread on the sides, and thus on its morphology.
- K- Bab Baghdad Street (1):** extends in Bab Al-Taq and Bab Al-Salama and since its opening took residential use that is located on both sides of it by changing to commercial, the highest percentage was in Bab al-Salama (3.1%) and lowest in Bab Baghdad (1.0%) this change has played a role in the price variation between residential and commercial located within the neighborhood, accordingly, we find that the lowest price for residential (4,000,000) million for (m²) while the lowest price for commercial (15,000,000) million, and thus the percentage change in price in both neighborhoods is (60%).
- L- Bab Baghdad Street (2):** Construction after the demolition and removal of many residential houses in Bab Baghdad has brought about a gradual change in residential use to commercial, as the percentage of change reached (7.1%), which had an impact on creating a spatial disparity between residential and commercial use, the residential price is (4,000,000) million per (m²), while commercial (15,000,000) million, and therefore the percentage change in price is (60%).
- M- Al-Saadia Street:** The extension of this street in the camp has had a significant impact on making functional changes amounting to (3.4%), this percentage resulted in a spatial discrepancy between the prices of residential land, the lowest of which was (4,000,000) million per (m²) and the commercial land, which was the lowest (6,000,000) million, in other words, its price increased by (33.3%) from the residential, and this rise in price reflected its impact through the height of buildings on both sides of the street, which affected the morphology of the street in particular and the city in general.

1.1.2 Reflection of land prices on building and construction techniques in the Old City*:

Urban characteristics are one of the most important indicators when studying land prices as they give indications about the ratio of the price of land to the housing unit, urbanism is the science, art and technology of organizing the field (place) and human facility^{xii}, therefore, building and construction techniques came as a result of keeping pace with technological development and improving the economic situation, which affected all aspects of public life, including architecture,

after buildings were a mixture of simple and different building materials only, today they have become a kind of high-performance machines due to rapid technological progress, smart facades are one of the most important parts of a smart building because they represent the first line of defense of the building, and perform the basic function of the building's façade^{xiii}, in the city of Karbala (Old City), these technologies gave a clear reflection of the price of land on commercial use, buildings and residential houses with good locations, as architecture and reinforced concrete structures replaced traditional construction methods, this change came as a result of several considerations, the most prominent of which was the city's important position, in addition to the improvement of the economic level and the reflection of all this on the rise in the price of land in it, which resulted in the optimal exploitation of resources and land, as construction techniques were present in all the streets of the city, especially Qibla Imam Hussein (pbuh) Al-Alqami Street, Bab Baghdad and Al-Makhaim, it was characterized by the emergence of multi-storey buildings and facades in which advanced materials were used.

In light of this, as Daifuku pointed out that most architects, planners and residents of Middle Eastern cities see that multi-storey buildings have become a symbol of the developed city, as a solution to the developed industrial society, the importance generated by these buildings has given importance to the materials used in them, which affected the nature of the traditional materials used in the Arab city, which led to the creation of negative spaces of the inhuman scale generated from these buildings, a break in the continuation of the modern urban fabric with the old^{xiv}, as for the other commercial streets within the old city, it is customary to restore the commercial institutions located on them and modify their facades using various modern techniques and materials, this is aided by the financial return of commercial establishments in the Old City, and can be seen in the trendy Souq Al Hussein Street.

In addition to applying these technologies to some residential units and buildings as a result of the high price of land, it is clear from Table (3), that the price of (m2) for commercial and residential land is what determines the value of the building in the city of Karbala, the price of (m2) commercial, which is less than (150.000 thousand), is estimated at a good building of (400.000 thousand) and the average (250.000 thousand), while the normal is estimated at (200.000 thousand), the higher the price of the land, the higher the building price on which it is located, the price of (m2) that exceeds (500.000 thousand) has a good building price (750.000 thousand) and the average (600.000 thousand) and the normal (350.000 thousand), as for residential use, if the price of (m2) is equal to (100.000 and less), the price of building the excellent class (350.000 thousand) and the armed first class (300.000 thousand) while (the regular musalah, Akkada and Shelman, Ginkgo wood) are (200.000, 100.000, 85.000) respectively, when the value of the land rises to (more than 250.000 thousand) it is (premium grade, first class musalah, ordinary musalah, Akkada and Shilman, ginkgo wood) (700.000, 450.000, 350.000, 200.000, 150.000 thousand) respectively.

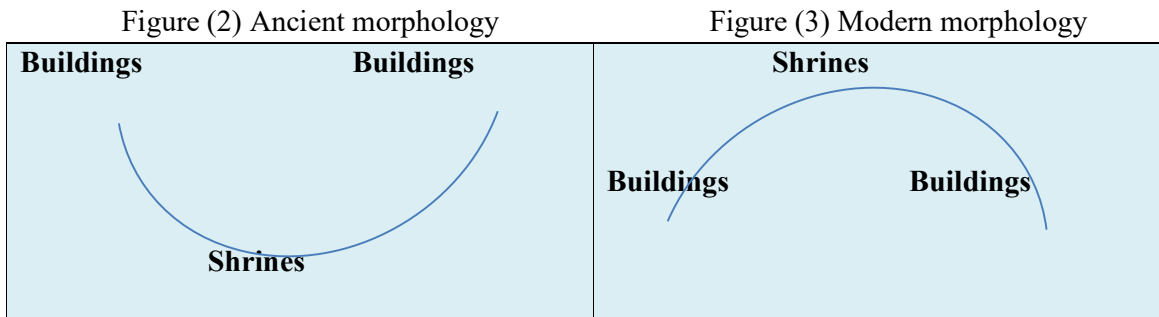
Table (3) Building Prices (Government Prices) by Type and Price per Square Meter for Commercial and Residential Land

Using type	Price m ² per land	At a price of 150.000 or less	150.000-250.000	250.000-500.000	More than 500.000
	Building price				

Commercial	Good Building *	400.000	500.000	600.000	750.000
	Medium Building**	250.000	350.000	450.000	600.000
	Normal Building***	200.000	250.000	300.000	350.000
Residential	Price m ² per land Building price	100.000 or less	100.000-175.000	175.000-250.000	More than 250.000
	Excellent class****	350.000	450.000	550.000	700.000
	First class musalah*****	300.000	350.000	400.000	450.000
	Ordinary musalah*****	200.000	250.000	300.000	350.000
	Akkada and Schillman	100.000	125.000	150.000	200.000
	Ginkgo wood	85.000	100.000	125.000	150.000

Source: Researcher based on: Republic of Iraq, Ministry of Finance, General Tax Authority (unpublished data), 2021.

What distinguishes the change resulting from the price of land in the Old City sector is the exploitation of every inch of land for business, whether hotels or shops, with heights of more than (16) floors, despite the height of the buildings, we notice that the buildings near the Two Holy Mosques are almost with the height of the courtyard, while they rise as we move away, the problem of a concave curve centered on the Two Holy Mosques and its upper edges at the end of the streets leading to the Two Holy Mosques, if we compare it with the shape of the ancient morphology, we find that it takes a curved convex shape in the middle of the shrines and its edges are the streets and the rest of the old city, see Figures (2) and (3).



Source: Researcher depending on the field study.

2-1 The reflection of the variation in land prices on the morphology of residential neighborhoods in the sectors of Al-Haidariya and Al-Jazeera:

If the neighborhoods of the city of Karbala have differed in their style, style of building and techniques used in them from the old city, each stage has its own features and advantages, thus,

the variation in land prices from one neighborhood to another and from one street to another in the same neighborhood, and the reasons for the change in its pattern and land values over time can be traced back to^{xv}:

Changing the degree of preference and desires of individuals, expanding the city in terms of area, increasing spatial population movement, and changes in the city's economies, thus, we can show that the reflection of the price of land on the morphology of neighborhoods in the sectors of Al-Haidariya and Al-Jazeera is through several axes, which are as follows:

2.1.1 The size of the functional change of land uses in the main streets of the neighborhoods of Al-Haidariya and Al-Jazeera sectors:

The revival of these sectors was distinguished in their inception from the old city, as most of them are planned, but lack services such as paving roads, laying water pipes, sewage and electricity, after paving some of the main streets in some neighborhoods, they quickly became dense in traffic, which made them turn into important streets, so shops began to appear here and there until commercial use became dominant over them, as is the case in the neighborhood of Al-Naqib, Al-Hussein, Al-Saadiya, Al-Jamaiya, Al-Iskan and other streets, and thus its gender turned into commercial, which was reflected in the price of land, which became high compared to the price of housing in the neighborhood itself, which was translated into high buildings reflected on the morphology of these streets due to their functional invasion^{xvi}, Table (4), Figure (4) and Figure (5) show the area of the functional change caused by the main streets in Al-Haidariya and Al-Jazeera sectors, as it reached in AL-Haidariya sector (69.709) hectares, the highest percentage of change was in Al-Hussein neighborhood (20%) of the volume of total change, this can be attributed to the location of the neighborhood and its large area, in addition to the wide and planned street network that it enjoys in a way that allows for future modernization, as is the case in (Al-Karrar Street), while the lowest was in Al-Islah neighborhood (0.38%), the other percentages are distributed between these two percentages, as for Al-Jazeera sector, most of the uses were essential in the street, meaning that they arose with the emergence of the neighborhood gradually, whether through the construction of part of the residential plot and not commercial purposes (commercial shop), or through the construction of independent shops from the first moment of construction, but some streets in the neighborhoods of this sector have had a functional change from residential to commercial, offices or industrial, such as the streets in Saif Saad and engineers Saif Saad and others, and all this can be traced back to the paving of the main streets that had an active role in bringing about these changes, as for Al-Jazeera sector, the commercial use area reached (24.329) hectares, the highest percentage was (16.43%) in Saif Saad, and the lowest (1.71%) in the cooperation annex.

Table (4) Functional Change at the Level of Al-Haydariya and Al-Jazeera Sectors

Sector	S.	Residential	Area of	The	S.	Residential	Area of	The
		Neighborhood	alternate use / hectare	% ratio		Neighborhood	alternate use / hectare	% ratio
Al-Haydariya Sectors	1	Captain	3.471	4.98	14	Al-Hurr	2.49	3.57
	2	Municipality	3.766	5.4	15	Al-Uroba	3.152	4.52
	3	Ramadan	4.51	6.47	16	Al-Rawdatain	1.219	1.75
	4	Al-Abbas	0.639	0.92	17	Al-Iskan	2.124	3.05
	5	Al- Zahra	0.467	0.67	18	Al-Hussain	14.22	20.4

	6	Al-Hiabi	3.33	4.78	19	Staff officers	1.443	2.07
	7	Al-Islah	0.265	0.38	20	Canning	0.418	0.6
	8	Al-Intisar	4.385	6.3	21	Staff	2.284	3.28
	9	Judges	0.761	1.09	22	Family	1.531	2.19
	10	Al-Jaier	1.3	1.86	23	Staff Martyrs	1.397	2
	11	Al-Ameen	0.374	0.54	24	Appendix	0.675	0.96
	12	Teachers	9.234	13.25	25	Appendix Martyrs	0.7	1
	13	Worker	5.554	7.97				
	Total						69.709	100
Al-Jazeera Sectors	1	Professors	0.427	1.75	8	Engineers Saif Saad	1.722	7.08
	2	Al-Tahadie	2.294	9.42	9	Saif Saad	3.997	16.43
	3	Al-Jahiz	2.364	9.72	10	Martyrs of Saif Saad	2.983	12.26
	4	Doctors	2.524	10.37	11	Knight	1.33	5.47
	5	Al-Nasar	1.561	6.42	12	Fulfillment	1.511	6.21
	6	Al-Salam	0.985	4.05	13	Birth	1.511	6.21
	7	Cooperation appendix	0.415	1.71	14	Steadfastness	0.705	2.9
	Total						24.329	100

Source: Researcher based on ArcGIS.10.7.1 and the baseline design update map for the holy city of Karbala and Al-Hurr for 2007-2030, at a scale of 25000:1

Figure (4) Functional change at the level of the neighborhoods of Al- Haidariya sector

Source: Researcher based on Table (4) data

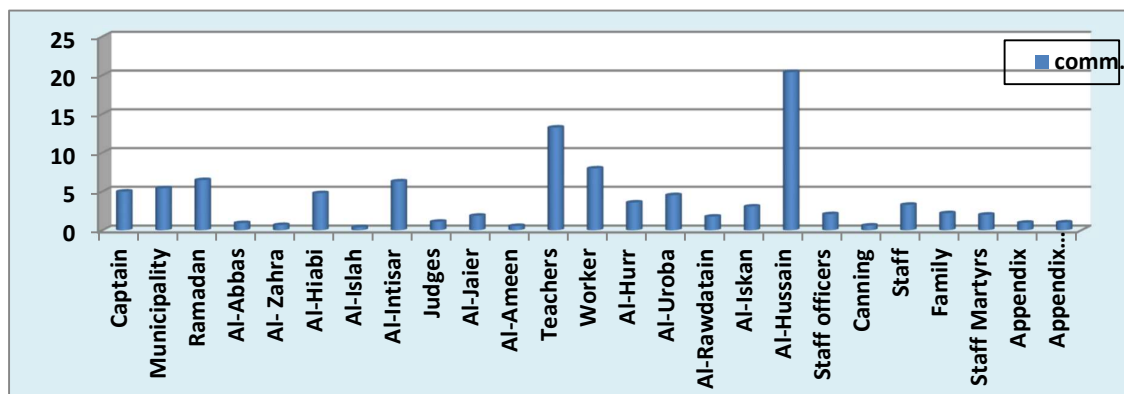
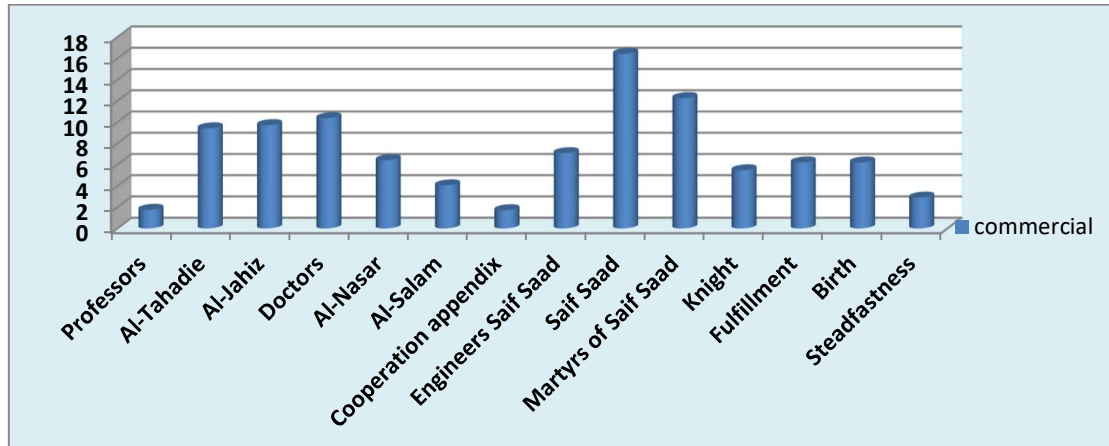


Figure (5) Functional change at the level of the neighborhoods of Al-Jazeera sector



Source: Researcher based on Table (4) data.

2.1.2 The effect of the functional change of the main streets on land prices in Al-Haidariya and Al-Jazeera sectors:

The main streets affect the prices of land in the neighborhoods in which they extend, as these streets contributed, after enjoying some services, to changing the uses of the land located on both sides of it from residential to commercial or other uses until the size of the functional change in the neighborhoods of AL-Haidariya sector reached (69.709) hectares, which represents (5.15%) of the area of the sector's neighborhoods, amounting to (1353.1) hectares, table (5) shows the most prominent streets in which the use of the land has changed, which resulted in an increase in the price in the part that turned into commercial compared to residential use in the same neighborhood, as we find that the most street that has made a functional change is the teachers strip street and by (16.08%) of the area of the neighborhood in which the street extends and the amount of (25.8) hectares, and this large percentage is due to the length of the façade of the neighborhood overlooking the street in which the functional change occurred compared to the size of the neighborhood, the rates of functional change for other streets in the neighborhoods are graded down until they show us the lowest percentages (0.40%) in the street separating the staff officers and the martyrs of the employees, and the percentages vary between the other neighborhoods between these two ratios, this change made the prices of commercial land double the residential in the same neighborhood, for example, we find the highest rates of change in prices between residential and commercial in Sanater Street in the area located within the municipal neighborhood and the lowest price for residential (2,000,000) million per (m²), as for the commercial (10,000,000) million, meaning that the commercial price has increased (80%) from the residential, as for the lowest rates of price change in Sayed Street prices, the lowest price for residential in the neighborhood of Ramadan (1,700,000) million per (m²) and commercial street Sayed prices (1,750,000) million, this means that commercial increased (2.9%) from the residential, and the decrease in this percentage is attributed to the fact that it is a secondary street that serves the same neighborhood, unlike other streets that provide services to customers of other neighborhoods they go to shop, as for the island sector, the area of use changed from residential to commercial or other uses is (24.329) hectares, which represents (2.26%) of the area of neighborhoods, which amounted to (1076.7) hectares, the highest rates of functional change in this sector appeared in the street between Saif Saad and Saif Saad engineers, with a percentage of (10.63%), this percentage is due to the length of the façade of the neighborhood in which the street extends, as it is one of the important streets for Saif Saad, engineers Saif Saad and martyrs

of Saif Saad, while the lowest percentages appear in the street extending to Al-Salam and doctors because it is a new street and in the process of emergence, and the change of employment has created a discrepancy in the price of land between residential and commercial, as the commercial price has become double the residential, for example, we find that the highest rates of price change appeared in the street between the challenge and the ready-made, specifically the ready-made hand, the price of housing in the ready (350.000) million (m2), as for the commercial (1,250,000) million, meaning that it doubled by (72%) from the price of housing within the same neighborhood, while the lowest percentages on the street were between teachers and challengers, as the price of housing in the professors and the challenge (1,000,000) million per (m2), while the commercial (1,250,000) million, meaning that the commercial doubled by (20%) from the commercial.

Table (5) Main streets where land uses have changed or replace

S.	Street Name	The name of the neighborhood where the street extends	Area of the neighborhood where the street spans/hectare	Area of the part changed to commercial/hectare	Ratio of the replacement to commercial	The lowest price of residential land in the neighborhood where the replacement occurred	The lowest price for commercial land overlooking the street in dinars	The price difference between residential and commercial at the level of one neighborhood in dinars	Price change %
1	Fire Street from the education circle to Fatima Al-Zahra bridge	Captain Municipality	41,8 21,7	1.047 1,007	2.5 4,64	1,500,0 0	5,000,0 00	3,500,0 000 3,000,0 000	70 60
2	Street of the municipality district from the Chamber of	Municipality	21,7	0,646	2,98	2,000,0 00	5,000,0 00	3,000,0 000	60

	Commer e to the municipali ty district.								
3	Indian River Street	Municipalit y	21,7	1,033	4,76	2,000,0 00	2,250,0 00	250,00 0	11,1
4	The street from the governor's house to the Sayed of prices	Ramadan Captain	95,8 37,8	0,707 1,324	0,74 3,17	1,700,0 00 1,500,0 00	6,000,0 00	2,250, 000 4,500, 000	70,8 75
5	Sayed of prices Street	Ramadan	95,8	0,756	0,79	1,700,0 00	1,750,0 00	50,000	2,9
6	Al-Abbas District Street (Baghdad)	Abbas	37,8	1,639	4,34	2,000,0 00	2,500,0 00	500,00 0	20
7	Al-Zahra District Street (Baghdad)	Al-Zahra	5,8	0,467	8,05	8,00,00 0	2,500,0 00	1,700, 000	68
8	The new street from the Husseiniy a River Bridge to Al-Abbas neighborh ood	Al-Hiabi	216.1	3,33	1,45	1,000,0 00	3,000,0 00	2,000, 000	66,7
9	Hameed Al Shakarji Street	Captain	41.8	1,1	2,63	1,500,0 00	3,000,0 00	1,500, 000	50
10	Hayy Al- Islah Street in front of the old cemetery	Al-Islah	9.8	0,265	2,70	2,000,0	2,250,0	250,00 0	11,1

11	Main Street Karbala-Hilla until Al-Salam Bridge	Al-Intisar	14,3	1,896	13,26	750,000	3,000,000	2,250,000	75
12	Hamza Al Zughayer Street (Old Cemetery) Judges	Judges Supplement	5,1	0,671	14,92	1,250,000		1,750,000	58,3
		Al-Intisar	14,3	0,766	5,36				
		Al-Intisar	14,3	1,137	7,95	750,000	3,000,000	2,250,000	75
13	Abbasi Hospital Street	Al-Jaier	108,3	1,300	1,20	650,000		2,350,000	
		Al-Ameen Supplement	6,6	0,374	5,67	0		2,250,000	
		Al-Intisar				750,000	3,000,000	2,250,000	
			14,3	0,586	4,09				
14	Teachers Bar Main Street	Teachers	25,8	4,149	16,08	1,200,000	2,000,000	800,000	40
15	The street between teachers and workers	Teachers	25,8	1,531	5,93	1,200,000	1,700,000	500,000	29,4
		Workers	198,3	1,553	0,78	400,000		1,300,000	76,5
16	Teachers Street	Teachers	25,8	1,525	5,91	1,200,000	1,250,000	50,000	4
17	The street between Al-Hurr and the worker	Workers	198,3	2,489	1,26	400,000	1,500,000	1,100,000	73,3
		Al-Hurr	42,3	2,490	5,89	450,000		1,050,000	70
18	The street between the worker and Arabism	Al-Uroba	72,9	1,417	1,94	500,000	1,500,000	1,000,000	66,7
		Worker	198,3	1,512	0,76	400,000		1,100,000	73,3
19	Street (60) Al-	Al-Uroba	72,9	1,735	2,38	500,000	1,500,000	1,000,000	66,7

	Ghadeer District								
20	Al Rawdatain Street - Al Bobiyat	Al Rawdatain	29,7	1,219	4,10	1,500,000	2,000,000	500,000	25
21	Housing Street (Doctors)	Housing Al hussein	30,1 69,8	2,124 2,206	7,06 3,16	1,500,000 2,500,000	2,000,000	500,000	
22	The street between canning and staff officers	Staff officers Canning	80,5 34,9	0,418 0,418	0,52 1,20	1,500,000 1,000,000	2,500,000	1,000,000 1,500,000	40 60
23	Street between employees and staff officers	Staff officers Employees	80,5 42,2	0,704 0,701	0,87 1,66	1,500,000 1,500,000	1,750,000	2,500,000 2,500,000	14,3 14,3
24	The middle street of Al-Hussein neighborhood	Al-Hussein	69,8	5,872	8,41	2,500,000	4,000,000	1,500,000	37,5
25	Hayy Ramadan Street – Service	Ramadan	42,8	3,047	7,12	1,700,000	2,000,000	300,000	15
26	Hay Al-Osra Street	Al-Osra	35,1	1,531	4,36	1,300,000	1,500,000	200,000	13,3
27	Sanater Street	Al-Hussein Municipality	69,8 21,7	1,081 1,80	1,55 4,98	2,500,000 2,000,000	10,000,000	7,500,000 8,000,000	75 80
28	The service street behind the center	Al-Hussein	69,8	2,384	3,42	2,500,000	3,000,000	500,000	16,6 7

29	The street between employees and employee martyrs	Employees Employee martyrs	42,2 9,3	1,169 1,076	2,77 2,74	1,500,0 00 750,00 0	2,500,0 00	1,000, 000 1,750, 000	40 70
30	The street between Al-Hussein neighborhood and the staff	Al-Hussein Neighborhood the Employee	42,2 69,8	0,414 0,668	0,98 0,96	1,500,0 00 2,500,0 00	2,500,0 00	1,000, 000	40
31	The street between the staff officers and the martyrs of the employees	Staff officers Martyrs of the employees	80,5 39,3	0,321 0,321	0,40 0,82	1,500,0 00 750,00 0	1,700,0 00	200,00 0 950,00 0	11,8 55,9
32	Annex Street	Annex Martyrs of the Annex	51,5 37,6	0,675 0,700	1,31 1,86	500,00 0 500,00 0	1,000, 000	500,00 0 500,00 0	50 50
33	The street between Hussein and ready	Al-Hussein	69,8	1,377	1,97	2,500,0 00	3,500,0 00	1,000, 000	28,6
34	Al-Tuff Club Street	Al-Hussein	69,8	0,632	0,91	2,500,0 00	3,000,0 00	500,00 0	16,7
35	Sector		1353,1	69,70 9	5,15				
36	Al-Jazeera Sector								
37	Challenge Street in front of the professors	Challenge Professors	6,6 69,8	0,427 1,430	6,47 2,05	1,000,0 00 1,000,0 00	1,250,0 00	250,00 0 250,00 0	20 20
38	The street between the ready	Challenge Ready	69,8 98,6	0,864 0,833	1,24 0,84	1,000,0 00 350,00 0	1,250,0 00	250,00 0 900,00 0	20 72

	and the challenge								
39	The street between Al-Naser and doctors	Doctor Al-Naser	20,3 58,4	0,655 0,671	3,23 1,15	350,00 0 400,00 0	1,000,0 00	650,00 0 600,00 0	65 60
40	Doctors Street	Doctors	20,3	0,908	4,47	350,00 0	1,000,0 00	650,00 0	65
41	The street between Al-Salam and doctors	Al-Salam Doctorrs	145,1 20,3	0,985 0,961	0,68 4,73	400,00 0 350,00 0	1,000,0 00	600,00 0 650,00 0	60 65
42	Al Nasr Street	Al-Taoun Al Nasr	30,4 58,4	0,415 0,424	1,37 0,73	1,000,0 00 400,00 0	2,000,0 00	1,000, 000 1,600, 000	50 50
43	The street between ready and Al Nasr	Al Nasr Ready	58,4 98,6	0,466 0,731	0,80 0,74	400,00 0 350,00 0	1,000,0 00	600,00 0 650,00 0	60 65
44	Saif Saad Street	Saif Saad	885	2,382	2,69	1,500,0 00	2,000,0 00	500,00 0	25
45	The street between Saif Saad and engineers Saif Saad	Engineers Saif Saad Saif Saad	16,2 88,5	1,722 1,615	10,63 1,82	800,00 0 1,500,0 00	2,000,0 00	1,200, 000 500,00 0	60 25
46	Martyrs Saif Saad Street	Martyrs Saif Saad	113,5	2,983	2,63	300,00 0	750,00 0	450,00 0	60
47	Al Fares Street	Al Fares	66,1	1,330	2,01	550,00 0	750,00 0	200,00 0	26,7
48	The street between loyalty and birth	Loyalty Birth	97,8 112,9	1,511 1,511	1,54 1,34	375,00 0 300,00 0	500,00 0	150,00 0 200,00 0	30 40
49	The street between ready and steadfastness	Steadfastness Ready	53,9 98,6	0,705 0,8	1,31 0,81	550,00 0 350,00 0	750,00 0	200,00 0 400,00 0	26,7 53,3

50			1076,7	24,32 9	2,26				
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Source researcher depending on:

- 1- The General Authority for Taxes in Karbala, controls the prices of commercial land for Al-Haidariya and Al-Jazeera.
- 2- ARC GIS 10.7.1 and satellite video program for the year 2020.
- 3- Field study to some streets in Al-Haidariya and Al-Jazeera sectors on 28-29/1/2023, corresponding to Saturday and Sunday.

4-1 The reflection of land prices on unplanned urban expansion (random):

The price of land is an important factor in urban expansion, as expansion needs land, and it is always directed towards lands whose prices are low, and the names given to this expansion or unplanned and unorganized residential growth may vary, for example, they are called (random) or (excesses), the term (random) may be defined according to the conditions of each region and the reasons for its appearance, as concepts may differ according to countries or international organizations, it does not differ much from the concept of abuse, which is called informal housing, which means encroachment on State property or public rights, or housing on agricultural or State land^{xvii}, we can call the unplanned construction in the city of Karbala excesses, as they are once seen in the planned neighborhoods and another in the planned green areas in the city, table (6) and Figure (5) show that the total number of random sites in the holy city of Karbala has reached (10) sites, comprising (6280) housing units, occupying a total area of (469.8) hectares, the geographical distribution of these random varied spatially at the level of the neighborhoods of the city of Karbala and its green areas, as well as the housing units that included them, as the green areas occupied the largest number of them, reaching (1174) housing units, constituting (18.7%) of the total random housing in the study area, and occupying an area of (359.7) hectares, i.e. (76.6%) of the total area exceeded, while the lowest number of exceeded units was in Al-Resala neighborhood, as it was (103) housing units, constituting (1.6%) of the total exceeded units, occupying an area of (10.6) hectares and achieving (2.3%) of the total area of random, while the percentages varied in other locations between these two values.

Table (6) Random, Housing Numbers and Overtaking Area in the Holy City of Karbala for the Year (2022)

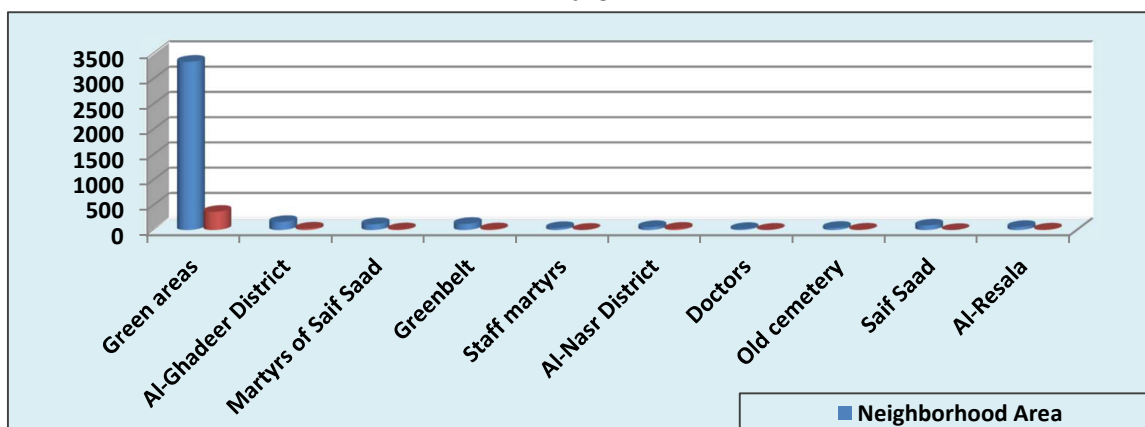
S.	Neighborhoods	Number of units in the neighborhood or overuse	Number of overtaking units	overtaking units in the neighborhood % od	Area of the neighborhood or use overtaking it/hectare	overtaking area/hectare	overtaking area %
1	Crossing the Green Belt	749	749	12	121.2	2.9	2.9
2	Overtaking green areas	1174	1174	18.7	3331	76.6	76.6
3	Overtaking the Old Cemetery	403	403	6.4	42.8	1.6	1.6
4	Overtaking	1711	537	8.6	58.4	5.2	5.2

	Al-Nasr neighborhood						
5	Overtaking Alghadeer	3066	1107	17.6	158.6	6.1	6.1
6	Overtaking the martyrs of employees	1799	579	9.2	39.3	0.8	0.8
7	Overtaking Saif Saad	1429	311	5	88.5	0.4	0.4
8	Overtaking the martyrs of Saif Saad	2213	844	13.4	113.5	2.9	2.9
9	Overtaking Doctors	1277	473	7.5	20.3	1.2	1.2
10	Overtaking Al-Resala	452	103	1.6	59.5	2.3	2.3
Total		14273	6280	100	4033.1	469.8	100

Source: Researcher depending on:

- Republic of Iraq, Ministry of Planning, Central Bureau of Statistics, Karbala Statistics Directorate, data (unpublished), 2022.
- ARC program. GIS.10.7.1 and the 2013 baseline design map for Karbala Governorate at scale 1:100,000
- Table (3).

Figure (5) Neighborhood area and overtaking area within the region for the year 2022-2023



Source: Researcher based on Table (7) data.

The above can be attributed to several reasons, including the large immigration to the city of Karbala and the consequent housing crisis, the increase in demand for land, and thus the rise in prices and rents, in addition to the absence of law, especially after (2003), this prompted the residents once to encroach on the empty spaces in the neighborhoods, whether it is for the state

or its ministry, and hoping for them to own it by the state or it was a public right, and again to encroach on agricultural land by fragmenting it into residential plots at low prices, the geographical distribution of these abuses shows that they have chosen locations on the outskirts of remote residential neighborhoods as well as agricultural land to be able to buy.

5.2.4 The reflection of land prices on architectural technology in the neighborhoods of the holy city of Karbala:

The architectural technique is the main components that enter the construction process, especially residential units, and greatly affect the cost of construction, as it is characterized by high prices, in addition to the high demand for it, which is the result of various population and construction activities, this can be seen in developing countries that suffer from persistently high prices, as we find that the cost of building materials is approximately (55-60%) of the total cost of one building^{xviii}, in the city of Karbala, we find that architectural techniques have begun to appear after 2003 at multiple levels and in different forms of modern housing patterns such as (separate units and residential complexes), especially in high-end neighborhoods with high prices, in addition, these technologies have been applied to commercial sites and we have evidence such as the commercial street (Al-Karrar Street) in Al-Hussein neighborhood, Al-Harhiya Commercial Mall in the carpet street leading to Al-Hurr, Saadiya, Housing Street, Employees and other streets.

5.2.6 The reflection of land prices on the housing deficit:

Housing deficit is the inequality of the number of families with the housing units they occupy during a certain period of time, whether due to immigration or natural increase, there is a direct relationship between the number of households and the demand for housing, as the increase in households is offset by an increase in demand for housing, regardless of whether the increase was natural or mechanical^{xix}, in the city of Karbala, the population increase led to the demand for land and housing, this was reflected in the rise in land prices, rents and building materials, resulting in a housing deficit that resulted in crowding out the number of families in one dwelling^{xx}, the housing deficit produced by rising prices can be divided into:

- 1- Quantitative housing deficit: represents the difference between the number of households and housing units that actually exist on the ground, including non-fixed housing in the city, as we find that the housing sector suffers from a deficit in housing units, until housing turned from being a need during the seventies to considering it a problem in the eighties and nineties of the last century^{xxi}, through Table (7) and Figure (6), it is clear that the city of Karbala has suffered over long periods of housing deficit, as the census (1977) shows a deficit in housing units by (3351) and by (16.1%), while the census of (1987) witnessed a deficit by (2051) and by (7.3%) and this decline is due to the renaissance witnessed by Iraq during that period, while the deficit returned to rise again in the census (1997) to (8662) and by (19.5%), this is due to the difficult conditions experienced by Iraq recession in various fields, and according to estimates (2009) the deficit appeared by (11925) and by (18.8%), this can also be attributed to the deterioration of the situation during this period, especially after the fall of the regime and the confusion of the situation inside Iraq in general.

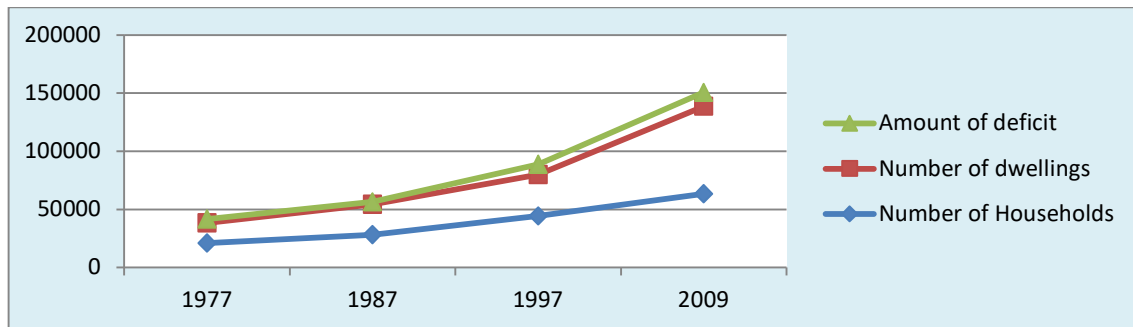
Table (7) Quantity of Quantitative Housing Deficit for the Holy City of Karbala for the Period 1977-2009

Year of census or estimate	Number of Households	Number of dwellings	Amount of deficit	Deficit rate
1977	20875	17524	3351	16.10%
1987	28256	26205	2051	7.30%
1997	44371	35709	8662	19.50%
2009	63365	75290	11925	18.80%

Source: Researcher depending on:

- Zuhair Abdul Wahab Muhammad Hassan Al-Jawahiri, The Effect of Residential Fission on the Efficiency of Infrastructure Services for the Holy City of Karbala for the year 2019, PhD thesis (unpublished), College of Education, University of Karbala, 2021, pp. 117-118.

Figure (6) Quantitative housing deficit of the holy city of Karbala for the period 1977-2009



Source: Researcher based on Table (7) data.

- 2- Specific housing deficit: It is represented by the presence of housing, but it is uninhabitable according to international standards (health and environmental), and these are unable to provide privacy, safety and sufficient space for the comfort of the family, these dwellings are usually built of different materials such as adobe and drains, roofed with sheets, wood, sandwich panels or any other poor materials, and their numbers were estimated according to the results of the inventory and numbering for the year (2009) at (12225) and in (2018) to (18765) housing units, while in (2022) it reached (26365) housing units of poor quality, Table (8) and Figure (7), this increase in the number of unhealthy housing units is the result of the high prices of land and construction, and thus the inability of these families to obtain an area of land commensurate with the size of the family, in addition to the inability to use good materials in construction.

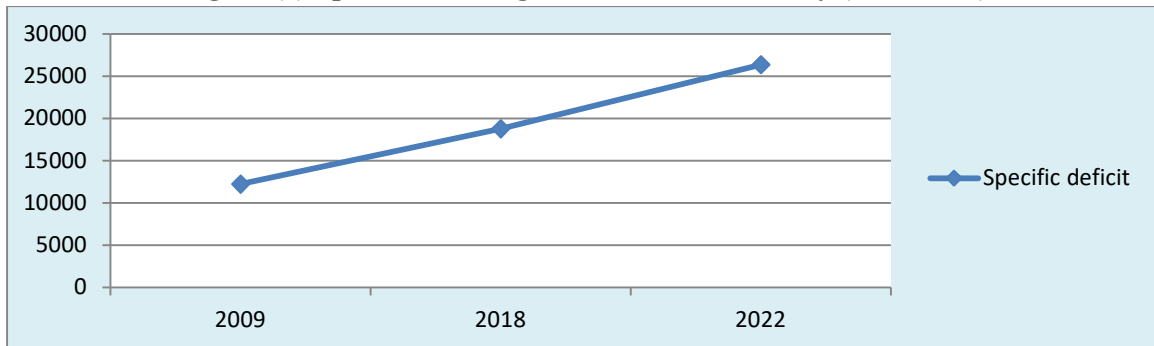
Table (8) Specific Housing Deficit of Karbala City for the Period (2009-2018)

Year	Number of dwellings
2009	12225
2018	18765
2022	26365

Source: Based on:

- Republic of Iraq, Ministry of Planning, Central Bureau of Statistics, Karbala Statistics Directorate, Studies and Planning Division Data (unpublished), 2022.

Figure (7) Specific Housing Deficit in Karbala City (2009-2018)



Source: Researcher based on Table (8) data.

Conclusions:

- 1- The research found that the total area of functional change in the old city has reached (14.601) hectares, at the neighborhood level, Bab al-Khan witnessed the highest percentage (19.9%), while the lowest percentage was in Bab Baghdad (7.7%).
- 2- The research showed that the change of use led to a change in the price, as the commercial price rose in the street surrounding the Two Holy Mosques (85%) for the residential behind it, while the price of commercial use in Maytham Al-Tammar Street increased (11.1%) for the residential that left it, this discrepancy in price change is due to the fact that the first is in the central area while the other is in the outskirts of the commercial area.
- 3- The research also found that the rise in prices resulted in a change in the morphology of the streets in particular and the city in general through the high buildings produced by high prices, as in Qibla Imam Hussein Street, Al-Alqami Street, Bab Baghdad area and others.
- 4- It was found through the research that the reflection of land prices on building and construction techniques was clear through the use of expensive building materials and modern style in the most expensive sites, especially markets such as the modern Hussein market, Al-Alqami Street and the entrance to the old city from the side of Bab Baghdad.
- 5- The research found that the change resulting from the price of land on the morphology in the old city sector has differed from the previous in terms of shape as it was previously represented by a convex curve centered on the shrines and the edges of the streets, while modern morphology took on a concave shape with the center of the shrines and its upper edges the main streets of the old city.
- 6- The area of functional change in Al-Haidariya sector amounted to (69.709) hectares, representing (5.15%) of the sector's area, while the area of change in Al-Jazeera sector amounted to (24.329) hectares, representing (2.26%) of the sector's area, this change imposed a spatial variation in the price of the land,
- 7- The research found that green areas were more vulnerable to random, as they constituted (18%) of the total random housing in the study area.
- 8- The research showed that the high prices of land led to a housing deficit, and if not quantitative, it is qualitative, that is, those built of poor materials such as milk and roofed with ginko or wood, as the number of housing of this type reached (12225) in 2009 and reached (26365) in 2022.

Proposal:

- 1- The government shall identify commercial areas and in specific places to prevent the conversion of neighborhoods into commercial areas that affect their residents, whether through their beneficiaries or through the pollutants it exports.
- 2- It is necessary to determine the prices by the state according to the laws guaranteed by the government in certain places intended to raise the efficiency architecturally and technically in an area such as the entrances to the governorate, as raising the price in a certain place results in high-end buildings and architectural style that may raise the status of the governorate such as Dubai in the UAE.
- 3- Building and paving roads and delivering them to all neighborhoods and related areas to reduce price differences.
- 4- Setting laws that prevent the fragmentation of land plots or residential units, as fragmentation would give an uncivilized image of the governorate and increase pressure on services.
- 5- Allocating land and distribution to low-income people and supporting them by the government to build it.
- 6- Activating laws that would preserve green areas and prevent encroachment on them.

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- * Good building: contains (electric elevators, secondary ceilings, steel doors, alabaster floors or alabaster restaurant)
- ** Medium building: does not contain the above specifications, roofed with ordinary reinforced concrete.
- *** Ordinary building: its ceilings shall be of bricks, shellman, sandwich panel or other materials).
- **** Excellent class: which meets the following specifications: (external walls (facades) are covered with alabaster or stone inlaid with alabaster, the presence of a swimming pool in the property or fountains with a design coated with ceramics or equivalent central cooling, doors of sheet and quarries for stairs of sheet also or aluminum, windows of aluminum and stained glass).
- ***** First Class: The following specifications are available (Kashi inlaid with alabaster, aluminum or iron windows with stained glass, steel doors, Moroccan inscriptions, covering the facades with stone inlaid with alabaster).
- ***** Ordinary musalah: It bears the following specifications (carries specifications below the specifications mentioned above).
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