

Spatial Organization of Commercial Streets and Its Impact on the Urban Scene - A Case Study of Al-Jawahiri Street in Al-Najaf, Iraq

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Abstract:- Most commercial streets, especially those in the Arab countries, suffer from many problems as they lack the organization to meet the requirements of users, and do not reflect the identity of the city. Hence, this research hypothesizes that the weaknesses in the application of planning and design standards for urban elements in commercial streets cause an imbalance in the spatial organization and hurts the urban scene. This research aims to examine the extent of the impact of the elements of the spatial organization of Al-Jawahiri Street on the urban scene via studying the reality of the study area and analyzing its elements for onward comparison with the planning and design criteria. This will aid in determining the associated problems, proposing the organizational scenarios, and choosing the most appropriate scenario to reach a real, organized, coordinated, and reflective identity of the city. A descriptive-analytical method was employed in this study as it relies on the collection of the available information in the relevant government institutions, followed by a comprehensive field survey and analysis of the study data. The outcome of this study showed that the spatial organization of the material elements in commercial streets has a significant positive impact on the urban scene; thus, the study area suffers from planning and design problems that negatively reflect on the street scene and the urban city scene.

Keywords:- Spatial organization; Commercial street; Urban scene; Al-Jawahiri street; Al-Najaf; Iraq.

1. INTRODUCTION

People live their lives intending to achieve certain goals and the process of achieving such goals demands some aspects of planning (one of the life processes that combine science and art) (Birch 1980, Ruhe and Saliu 2005). Planning puts an end to the chaos resulting from the abuse of individual freedom and through planning, we can maintain a decent life through organization, especially spatial organization, which is one of the concepts put forward by the concept of urban planning. Urban planning involves lawful organization and arrangement of a given space (Cai, Wang et al. 2009) in a manner that achieves an integrated (Handler 2014), interconnected, and harmonious unit that meets the human requirements while reflecting the local and cultural identity of the area (Assmann and Czaplicka 1995).

This article is aimed at providing answers to the following questions:

- i. Have planning and design standards been applied to commercial streets to achieve spatial organization?
- ii. Does the spatial organization of commercial streets affect the organization and coherence of the image formed of the street scene in a way that reflects positively on the urban scene of the city?

The research contribution is as follows:

- i. Enriching the scientific content concerning the spatial organization of commercial streets and how it affects the urban scene; this is achieved by identifying the most important problems experienced by commercial streets, knowing the positive impact of the selected elements of spatial organization, identifying how they act against meeting the needs of users, as well as knowing how these elements can influence the organization of the street scene and the urban scene of the city.
- ii. The research will also help researchers and workers in the field of urban and regional planning in the state's departments in identifying the most important factors that negatively affect the street scene and the imbalance in the urban scene of the city. It will help them come up with a possible solution to the educational cases similar to the existing streets (such as the study area); it will also guide studies for future development plans.

2. THE CONCEPT OF SPATIAL ORGANIZATION

Spatial organization is one of the goals put forward by the concept of urban planning that includes a plan that runs according to criteria to achieve its success (Mahmoud 2013). The levels of the concept of spatial organization varied in two ways; the first direction is considered a spatial distribution of a group of elements within a space and this direction is based on architects and city planners. Regarding the second direction, it is the distribution and arrangement of settlements at the broadest urban level. Spatial organization means the spatial distribution of a group of elements, activities, and activities in a manner that suits the conditions, natural, economic, social, and demographic resources and in a manner that meets the needs of the human species towards achieving a better standard of living. The largest possible economic and social benefits associated with planning

principles depend on the spatial and temporal conditions (Rapoport and life 1994). As for planning, it is defined as the interference of a person in a place towards preparing the place and seeking to exploit the characteristics of the place to the mutual benefit of the species within the same spatial space (Hamid 2005).

3. COMMERCIAL STREET COMPONENTS

Human activities and physical elements are the two main components of the commercial streets. The physical components give the commercial street its shape and special nature while human activities confer vitality to commercial streets (Farhat 2003).

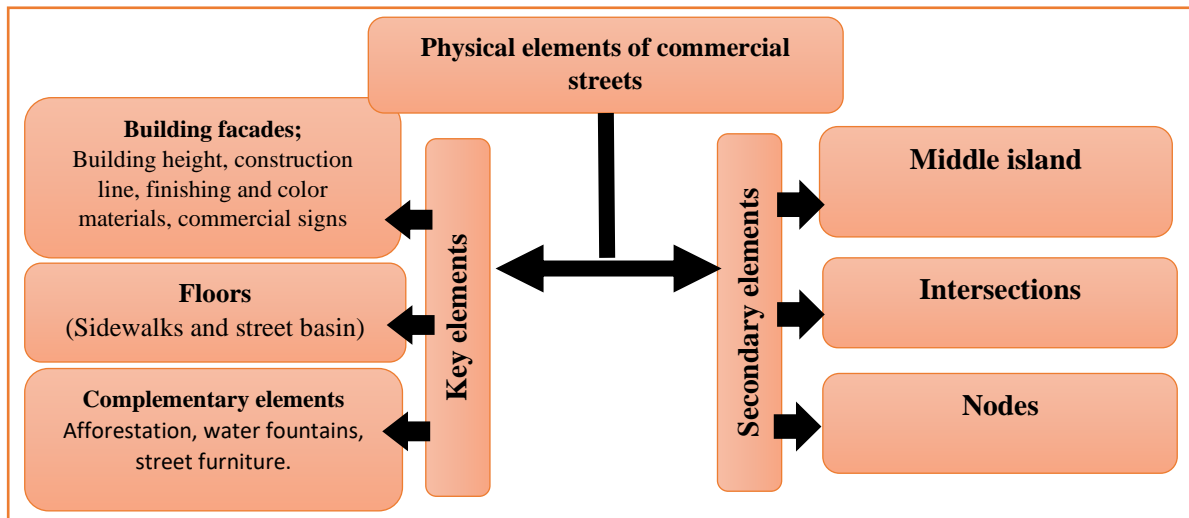


Figure (1): The physical elements of commercial streets

Being that the physical elements give the street its shape and character (Carmona, Heath et al. 2010) (jamil 2015), each of these elements has characteristics and details that affect the street in a specific manner, and the city in general. Researchers have argued that the physical elements of commercial streets can be classified into blocks, streets, kinematic space, and complementary elements such as afforestation and street furniture (jawad 2013). However, some researchers have classified it as sidewalks, lanes, intersections, nodes, and pedestals (Al-Khafaji 2017, Ghazi and Abaas 2019). The extraction of the elements was based on the previous scientific proposals on the streets, in addition to the classification observed by the researcher upon the review of the existing literature. figure(1)

4. LITERATURE REVIEW

A study by Talal [15] examined visual pollution in the commercial streets and the levels of aesthetic experience; the study summarized these levels to the level of sensual aesthetics that is related to sensations (i.e., the response of sensory systems due to the effects of the surrounding environment), the symbolic level of aesthetics stemming from the association with meanings and connotations of the surrounding environment for achieving human pleasure and aesthetic satisfaction, as well as the level of aesthetics stemming from the interest of urban and architectural designers on the visible urban structure based on the form, organization, proportionality, scale, degree of complexity, and the influence of colors and lighting. The study showed that the lack of attention to these three levels together leads to a defect in the image that people hold about their environment; the study also highlighted that one of the reasons for the defect in the general context of the commercial street scene is the architects' keenness to show their buildings individually, as well as the lack of restrictions and limitations that are placed in front of the designer. One of the reasons for the failure of laws was given as ignoring the cultural heritage and making laws far away from it, leading to a shift from the local identity. The study emphasized the importance of the street as it provides the possibility of movement and mobility and embraces human activities and that through its structural importance, it is possible to build and organize the whole because it is the main axis that the city's elements entail; it is also one of the most important urban features that fall within the image that each individual holds about his city. The study concluded that the problem of visual pollution results from the physical and moral elements of the urban scene in general, such as lighting, street furniture, and billboards.

Xiao & Yong (Zhu and Wu 2009) examined the role of legislation and laws at the functional, administrative, and design levels in shaping the street scene. The study observed that the history of the development of a street scene in China came through many movements and activists in the field of shaping the modern street scene. They examined the levels of street space scene tests through urban knot space, building roof, and street details (street, street front, viewing distance, design details, street furniture). The study concluded that legislation and laws have an important role in gradually forming the street scene to reach its integrated scene; the research gave a special classification for public activities in the streets and the most important elements of

their achievement, such as advertising posters, road signs, waste containers, lighting poles, and fountains. The study further suggested that the organizational process of the street scene is characterized by containing three genotypes- the type that includes a functional and behavioral identity (thus, the street function is defined as commercial streets), the type that is based on the network of pedestrian streets, as well as the type that depends on the arrangement of the entrance to the street.

Yasser (Al-Kaflawy 2009) studied the planning and design dimensions of the pedestrian paths in the commercial areas of the city of Baghdad. A comparative study was made between two types of commercial streets in Baghdad, one within the CBD, and the other outside the central area. The comparison covered the importance of traffic trips and the purpose of these trips as they determine the services of that path. The study touched on the classification of pedestrian paths to levels according to the services available in such paths. The aspects related to the planning indicators for the pedestrian paths, such as safety, ease of access, continuity, and clarity were also indicated. The study concluded that the lowest width of the pedestrian path in commercial streets is 3.9 m when the street is outside the central area, but the lowest width of the path in commercial streets within the central area is 4.8 m. As the width of the pedestrian paths has exceeded the minimum, the path can be elevated and redesigned to the optimum such that the width of the confirmed street path will be 4.7 m outside the CBD while the width of the path of the Republic Street will be 5.4 m within the CBD.

Ahmad Al-Baghdadi (Al-Baghdadi 2009) studied **land use and the urban scene of commercial streets in Baghdad**, as well as the urban landscape and its deformation due to the sharp traffic momentum and excesses on sidewalks resulting from street vendors in most commercial streets. The study touched on some planning and design criteria and the structural controls for commercial streets in Baghdad. The façades of buildings overlooking the commercial street were also determined to be Arab-Islamic after six months of changing the land uses in most of the streets (from residential to commercial use) because the sidewalks of those streets are narrow and their buildings are adjacent to sidewalks and impede pedestrian movement; the number of cars attracted to the commercial street was also insufficient. The study stressed the need to adhere to the planning and design standards and building controls for commercial streets because of its great importance in organizing the movement of pedestrians, vehicles, and storefronts.

Shu & Ruiwen (Qi 2010) focused on commercial street furniture as components of the city scene, and as an essential part of the planning and designing of its commercial streets. The researchers pointed out how these elements affect the user's behavior, in addition to improving the aesthetic image by adopting the city's features. The study emphasized that the behavior of people depends not only on those elements, but on the user's understanding of the environment through color, symbols, and design, and that color is an important element because it raises the attention of users or recipients, as well as the distances between one component and another which is an important aspect in the organization and coordination of street furniture. The study found the importance of the elements of street furniture and other elements in the urban space of commercial streets for the recipient and his response to movement, especially in straight streets, in addition to improving the aesthetic image.

5. URBAN PLANNING STANDARDS IN THE COMMERCIAL STREETS OF NAJAF CITY

The urban planning regulations for the commercial streets of the city of Najaf indicate that the commercial buildings are subject to a set of controls that include qualitative and quantitative planning and design criteria (depending on the official reports of the Najaf municipality directorate). The controls that pertain to the study area are as follows:

- The ratio of the space containment (the ratio of the street width to the height of the buildings on both sides) should be (1 :1)
- The height of the buildings on both sides of the street ranges between 4-8 floors, including the ground floor, meaning that a four-story building is divided into the ground floor (3 m) and half floors (2.5 m), the first floor (3 m), the second floor (3 m), and the roof curtain (1 m); therefore the sum must be 12.5 m. As for buildings with eight floors, they must be divided into a ground floor of two halves each (3 m and 2.5 m respectively); the first, second, third, fourth, fifth, and sixth floors must be 3 m each and the curtain must be 1 m.
- Provide a front bounce of 2.5 m from the commercial street and 5 m from the side or back street as parking lots for vehicles and pedestrian traffic in all parts on the commercial streets.
- One car park per 75 square meters for commercial buildings (25 square meters for each car in the rear parking and an area of 12.5 square meters per vehicle in front and side parking).
- It is required to use a slip-resistant finish material in an appropriate color.
- The sidewalks must be established with a simple cross-slope of 1:100 for the rainwater to drain alongside the drains along the street; the transverse inclination must not exceed (1:200) provided that a sudden change in slope and its graduation are minimized before reaching slopes with a distance of not less than 1 m.
- The building line for commercial building facades shall be recessed by 2.5 m from the boundary of the pavement adjacent to the building façades, and half of the recoil should be constructed for the floors except the ground floor by 1.25 m.
- The facades of the buildings should be of Arab and Islamic nature, and local packaging materials like bricks, stone, and ceramics, should be used to encapsulate the facades of the buildings, leaving the packaging with modern finishing materials.

- Special needs control: The sidewalks should be free of obstacles at one level and the width of the net path for pedestrians should not be less than 1.8 m, taking into account that the floor is covered with anti-slip materials and includes special slopes at the entrances of commercial buildings with a width of 1.2 m and the rest areas shaded. At intersections and crossing areas, the height of pedestrian walkways and sidewalks should not exceed 3 cm above the street level, and ramps are made to connect the sidewalk level with the street level.

Based on the foregoing, no standards are governing the division of the sidewalk area; thus, the planning and design standards adopted by the Abu Dhabi Directory (Vision 2030) will be relied upon as an appropriate international specification for this research in the practical side as its climate and traditions are almost identical to the climate and traditions of the city of Najaf.

The Abu Dhabi Directory, as in Figure (2-a), shows the width of the pavement area on a standard commercial street, while Figure (2-b) shows the division of the pavement area as follows:

- Facade area: 0.5 m. The width of this area is not less than 1.8 m, which is the sufficient distance for the rotating wheelchair of people with disabilities.
- Equipment area: 1.2 – 1.5 m
- The terminal area: 0.5 m.
- Bicycle path: In the case of a bicycle path, the width must be 1.5 -2.5 m (Arabia 2009, Council 2012)

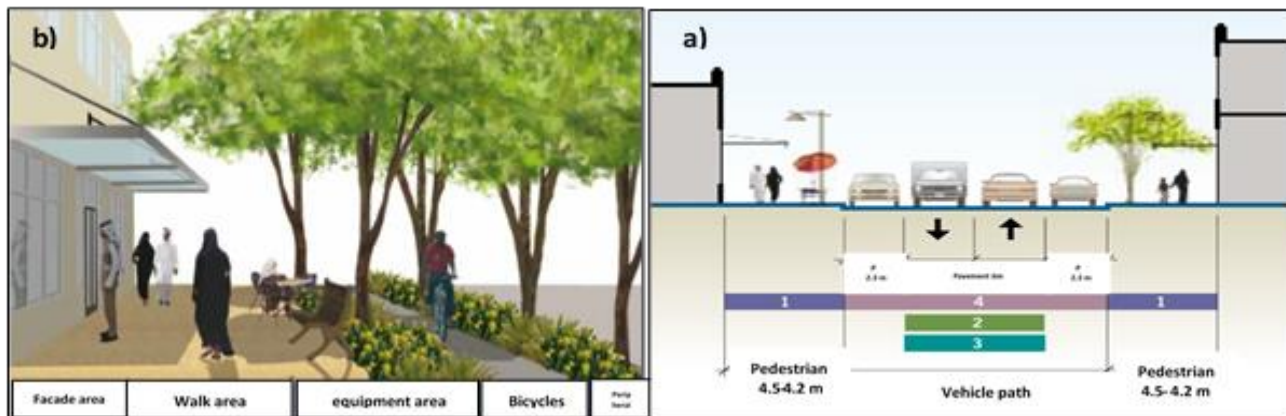


Figure (2)-b. the division of the pavement area Figure (2)-a. the width of the pavement area on a standard of commercial street

6. GENERAL DESCRIPTION OF THE STUDY AREA (AL-JAWAHIRI STREET)

Al-Jawahiri Street is one of the most important commercial streets in the city of Najaf at present; it was named after the well-known Najafi poet, Muhammad Mahdi Al-Jawahiri. According to the morphological streets' classification, Al-Jawahery Street is a synthetic street. As for the functional classification, it is a commercial street dedicated to pedestrians and automobile traffic. Al-Jawaheri Street, in the master plan of the city of Najaf, was a street with residential use, and after the modernization of the city's master plan, the use of the street became commercial as a result of demographic, economic, and social factors. The name of the street circulating among people is Al-Rawan Street due to the establishment of the Al-Rawan Tourist Restaurant on the street; hence, this street contributes much to the development of the study area.

The street is straight, with a maximum length of 1500 m and a width of 25 m (street basin = 15 m). The space containment ratio of the street is 1: 1, which is not narrow for achieving containment during a special lane to the right within the intersection of Sadrin Square to the intersection of Al-Rawan Annex. Figure (3) shows the relative location of Al-Jawaheri Street (study area); the study area separates the Prince neighborhood on the one hand and the Socialist neighborhood on the other side. Figure (4) shows the ratio of each land use on both sides of the street. Figure (5) shows the land uses on both sides; commercial use in the study area includes several commercial malls, restaurants, hotels, cafes, stores for popular and fast food, and multiple commercial stores for selling women's and men's supplies, children, and jewelry stores, and shops for banking, beauty centers, and pharmacies.

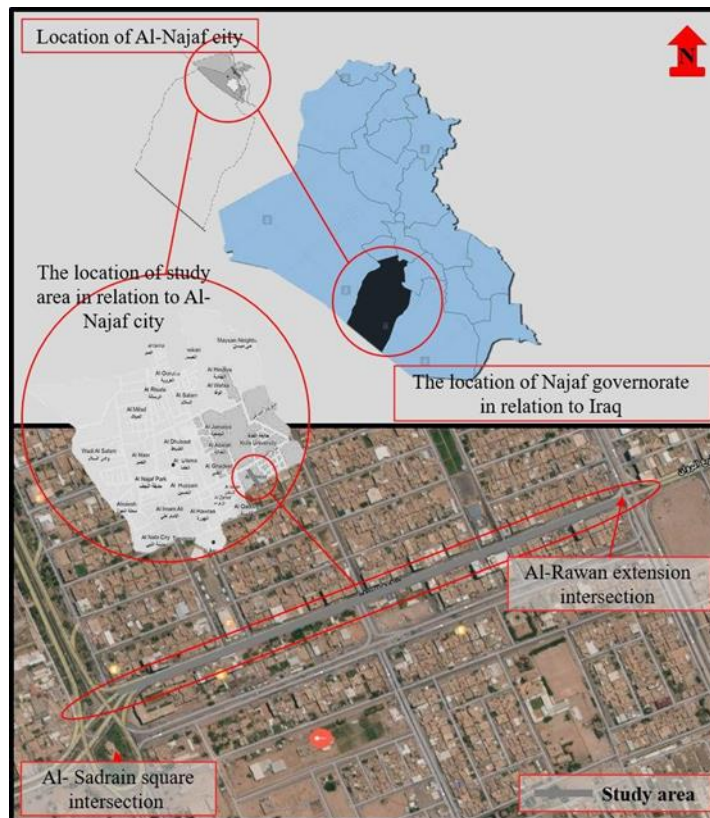


Figure (3): The location of Al-Jawahiri Street, Al-Najaf
(Source: Google earth).

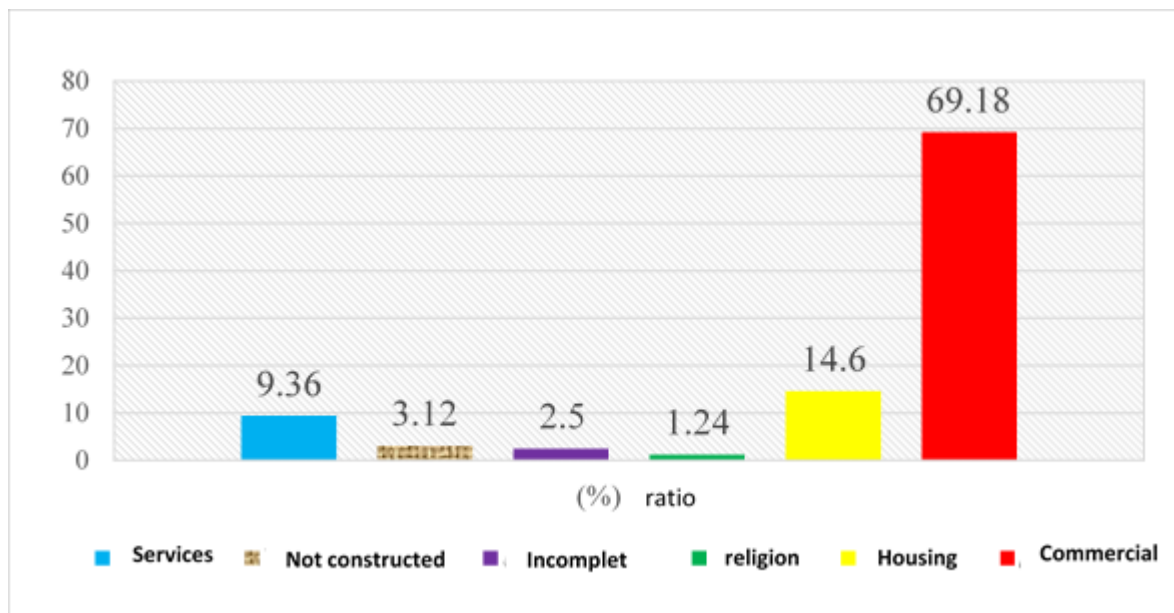


Figure (4): The percentage of land use on both sides of the street.
(Source: Field survey).

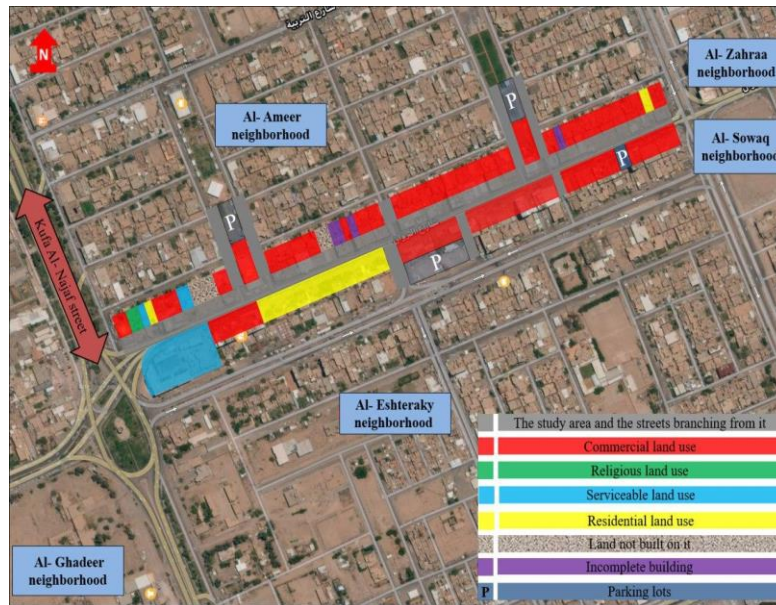


Figure (5): Land uses on both sides of the street
(Source: Field survey).

7- ANALYZING THE ELEMENTS OF SPATIAL ORGANIZATION IN THE STUDY AREA AND IDENTIFYING PROBLEMS

The elements of spatial organization and its characteristics directly affect the fulfillment of the user requirements and achievement of the requirements of the street scene; hence, it affects the urban scene of the city. These elements will be analyzed according to the field survey of the reality of the state of the study area, as follows:

7-1 The main elements

1- Building facades: The analysis of building facades includes the construction line, skyline, finishing materials, color, and commercial signs; they are as follows:

Construction line: The width of the street pavement, according to the plans, is 5 m, and according to the urban planning guidelines in the city and for the study area, the building must be bounced off the pavement by 2.5 m. This study noted that in the study area, the buildings overlooking the sides of the street bounced off the sidewalk with an irregular distance (ranging between 0.5 - 1.5 m) in most areas. Figure (6) shows the proportion of buildings with regular recoil that correspond to the standard and buildings with irregular recoil that is outside the standard. Figure 7-a shows buildings with regular bounce while Figure 7-b shows buildings with irregular setback distances.

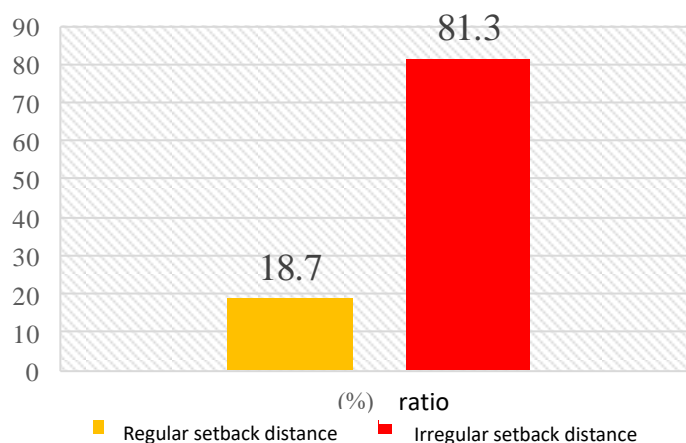




Figure (7-b): The regular setback of the buildings.



Figure 7-a: The irregular setback distance of buildings

Additionally, some shops operate entrances or stairs to enter within the bounce distance and with various designs and different shapes, making the construction line, not uniform and not organized along the street as shown in Figure (8)



Figure (8): The diversity in the designs of the entrances to the buildings.
(Source: Field survey)

2- Skyline: The height of the buildings on both sides of the street, according to the urban planning guidelines, is to have the lowest height of 4 floors and the maximum height of 8 floors. IT was noted that in the study area, the height of the buildings on both sides of the street ranges between 1-9 floors, in addition to the presence of un-built plots or structures that have not been completed. Thus, buildings with less than 4 floors and more than 8 floors are out of the standard and those ranging between 4-8 floors are within the standard. Figure (9) shows the ratio of the number of floors to the buildings on both sides of the street, while Figure (10) shows the skyline of the buildings with overflow at the specified height .

Figure (9): Buildings' setback on both sides of the street

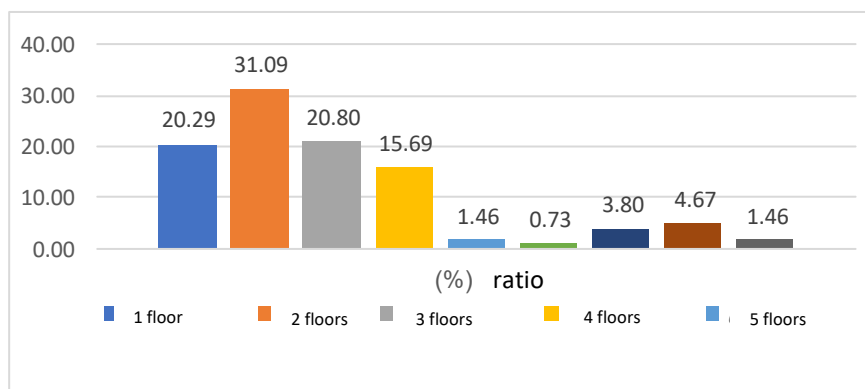
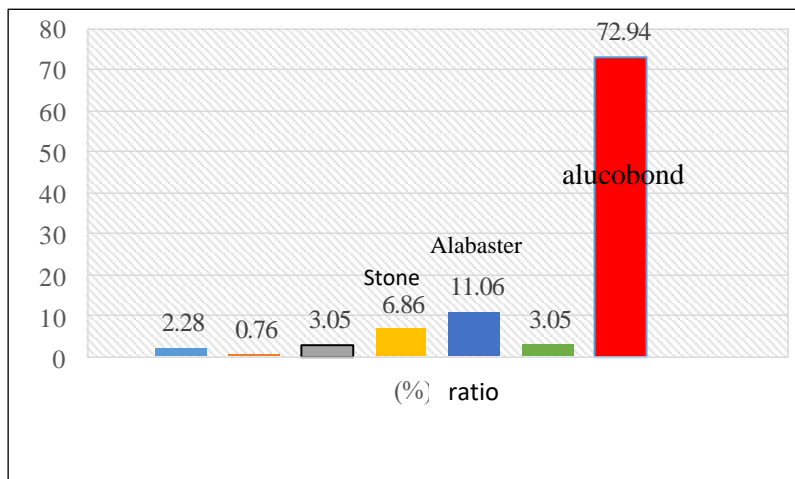


Figure (10): The heights of the buildings for the second half of the street from the direction of Al-Eshteraki neighborhood when entering from the side of Sadrin Square.



3- Finishing materials and color: The packaging for building facades, according to the criteria of urban planning, is with local finishing materials, such as lavishness, brick, stone, alabaster, and ceramics, and avoiding the use of modern packaging materials, such as glass and alucobond that do not reflect the identity of the religious city and does not fit with the nature of the city's climate. In this study, it was noted that the building facades on both sides of the studied street were covered with different types of local finishing materials that are within the standard; however, there were numerous packaging with alucobond materials which is against the standard Figure (11). Figure (12) shows the modern finishing materials used in building facades while Figure (13) shows the local finishing materials used in building facades.

Figure (11): The percentage of packaging with finishing materials on both sides of the street.



(Source: Field survey)



Figure (13): The use of local finishing materials.



Figure (12): The use of modern finishing materials.



Figure (14): Shop signs



Figure (15): The bright colors in the packaging of the facades.

4- Commercial signs: The commercial signs that are used on the facades of buildings, according to the urban planning controls, are required to be along the storefront and at a height of 1 m. The controls did not specify the font size, type, and color. We note in the study area that it contains commercial signs of different dimensions, shapes, and colors, which are not organized and are not compatible with the building facades and street space in most cases; however, they are characterized by clarity because they are different from the neighboring signs in terms of size and color figure (15). Thus, the signs that are, as mentioned above, are within the standard, while the other signs are outside the standard. Figure (14) shows some of the commercial signage in the study area.

5-MOVEMENT PATHS (SIDEWALK AND STREET)

Sidewalk: The standard width of the sidewalk on each side is 5 m; this width includes the service tunnel (the total width of the service tunnel is 70 cm), and the sidewalk is separated from the street basin by a vertical isolation method. The height of this insulation with the height of the blocks at the edge of the street is 18 cm and is within the standard. Figure (16) shows vertical insulation on both sides of the street. The width of the sidewalk varies along the street and on both sides depending on the recoil of buildings; so, it narrows in some areas and expands in other areas, and its minimum width (4.5 m with the recoil distance) is outside the standard, while the maximum width (7.5 m with the recoil distance) is within the standard.

As for the inclination of the transverse sidewalk (1: 100) in most areas, it is within the standard, and it is toward the peripheral area so that water is drained into the drainage networks in the street basin. The sidewalk area consists of one area, that is, it is not divided. A clear division defines the area of the storefront, the pedestrian belt, and the equipment area. The building material used to finish the sidewalk floor is the interlock or what is called locally (muqarnas) with a rough texture; it is one of the types of chemically-treated concrete finishing materials as shown in Figure (17). Muqarnas is distinguished by its heavyweight and its ability to withstand high loads, as well as its anti-slip property; it can be taken off and installed when needed to drill under it without being damaged or broken and has different shapes and colors. This means that the finishing material for the pavement floor is within the standard. However, it was noticed in some places that the sidewalk floor was damaged due to repeated excavation work or lack of interest by shop owners, leaving building materials and debris on the sidewalks due to construction and restoration operations, as shown in Figures (18) and (19), respectively.



Figure (17): The material for finishing the pavement floor.



Figure (16) Vertical insulation.



Figure (18) The exploitation of illegal pier due to construction and restoration.



Figure (19) The damaged sidewalk floor.

It was also noted that the sidewalk is used by shop owners to display their goods or by street vendors and owners of mobile kiosks or as parking lots as shown in Figures 20.



Figure (20) sidewalk is used by shop owners

Street Basin: The street is straight and is directly linked to services sites; access to the study area is through public transport cars in the main street (Kufa – Najaf Street) or through subsidiary streets. The length of the street is 885 m and the width of a basin street is 15 m. The floor of the street is not divided into lanes, as in Figure (21) Moreover, the street does not contain special and organized areas for pedestrian crossing. The street basin consists of four lanes, two lanes for the side parking of vehicles on either side of the street, two lanes for vehicular traffic, and one each for one-way movement.



figure (21): street lane not being planned. Source: field survey.

Vehicle parking: According to the criteria, there must be side parking for vehicles on both sides of the commercial street and parallel to the street basin. However, it was noticed through the field survey of the study area that the parking space provided amounted to approximately 244 parking, given that the area of one parking is 18 square meters. Due to the lack of street planning and the determination of the side parking areas, it was observed that the vehicles are parked randomly, either perpendicular to the street basin or at a certain angle. Figure (22) shows that the available parking spaces have two parking lots for vehicles belonging to the municipality and another for one for the investors, as shown in Figure 2-8; each position accommodates approximately 144, 48, and 24 vehicles, respectively, given that the area of one parking space, including the space required for the movement of the vehicle, is 25 m². It was also noticed through the field survey that there is a deficiency in providing parking lots for vehicles due to the parking of vehicles on both sides of the sub-streets on the sides of the Prince neighborhood and the Ishtiraki district and on the parallel street to the study area from the side of the Ishtiraki district. The maximum number of parked vehicles is 288, 80, and 488 vehicles, respectively, as shown in Figure (23) Being a residential area, long-standing in these streets is illegal as it will obstruct the movement of those passing-by or living in such areas. Figure (24) shows the random parking of bicycles in the sub-street.

Sub-streets connected to the study area: The street basin is connected to sub-streets on both sides, and these streets have an important role as they are used as an alternative way to reach Al-Jawahiri Street when the main street is closed on holidays and occasions, or through which large trucks are entered to unload and load goods to avoid entry from the main street and confuse the traffic.

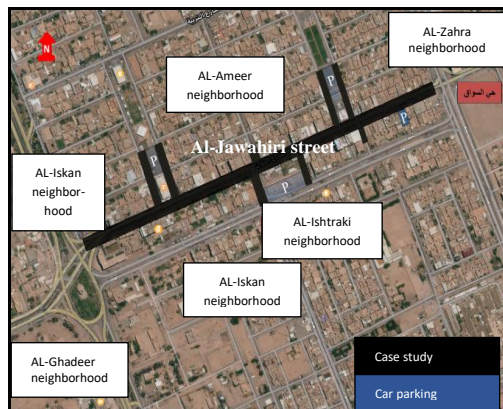


Figure (23) The available vehicle parking lots



Figure (22) The vertical parking of vehicles on the street



Figure (24) The random parking of motorcycles.

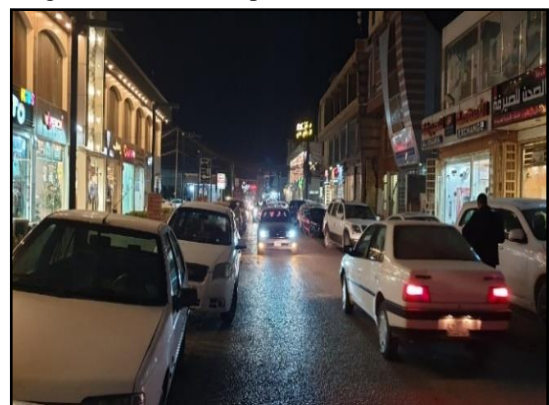


Figure (25) Vehicles parked in the streets

The complementary elements include afforestation and street furniture; the street contains: **Afforestation:** According to the planning criteria, afforestation is required on both sides of the commercial streets with equal distances. It was noted in the study area that the street contains on its sides several trees and flower beds distributed randomly and in inappropriate locations, which made it to exhibit extreme heat in the summer, especially during the night. Figures (26) illustrate the severe shortage of afforestation and the absence of afforestation on the street, respectively.



Figure (26) no trees on the street. Source: Field survey.

Custom billboards for advertisements: The street have dedicated billboards for advertisement distributed equally on both sides of the street; the distance between each one to the other is 50 m. These advertisement panels at the bottom contain a waste container that is not often used by users; Figure (27) shows these paintings.

Waste containers: The street contains waste containers individually in significant numbers, but they are distributed in a disorganized manner; they have different shapes and colors and are inconsistent with the street context. Figure (28) shows these single containers on the street.



Figure (28) shows waste containers on the street.
Source: Field survey.



Figure (27) shows the advertisement boards.
Source: Field survey.

Lighting: The controls of commercial street lighting are that the lighting is on both sides of the street at an appropriate height and using lamps with good lighting and does not negatively affect vision; it was noted that the street contains two sides of lighting poles

distributed evenly along the street. One column contains two lamps for lighting, a lamp for lighting the pedestrian path, which is at a height of 7 m from the pavement surface, and the second lamp to illuminate the path of vehicles from a height of 9 m from the pavement surface. The distance between the lighting poles is 35 m as shown in Figure (29)

Seating: The street does not have any seating areas or any waiting umbrellas as shown in Figure (30)

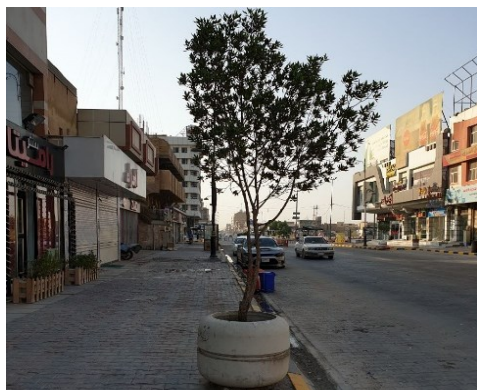


Figure (30) explains that the street does not contain seating areas. Source: Field survey.



Figure (29) shows the lighting poles on the street. Source: Field survey.

7-2 Secondary elements:

1. Median Island: The street does not contain a median island.
2. Intersections: The end of the street has an intersection in the form of (+), and it is called the intersection of Al-Rawan extension. This intersection does not contain special areas for a pedestrian crossing or afforestation area and most of the time, it

is converted into a (T) intersection to control the movement of vehicles. Figure 2-17 shows the intersection of the Al-Rawan extension.

3. Contract: There is a rotating node or intersection at the entrance to the street, and this node is a very important intersection in the city of Najaf; its area is 7275.5 m² and contains green areas and afforestation. It consists of the intersection of the main street (Najaf Street – Kufa) with Al-Ghadeer Street on the one hand, and Al-Ishtakari and Al-Jawahiri on the other hand; entry to the study area is through a transfer, not directly. This knot is called Sadir Square as it contains a landmark, and its height is 11 m. It is made of concrete coated with ceramic material topped with an iron structure encrusted with a picture of a well-known Muslim cleric. The knot does not contain special areas for pedestrian crossing, rather, they are crossed through time control, meaning that there is a specific time for vehicles to pass, and time for pedestrian crossing. Figure (31,32) shows the intersection of Sadrin Square and the surrounding streets.

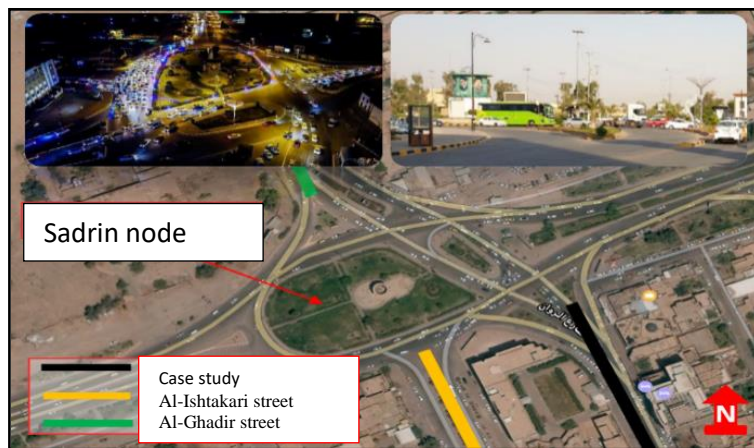


Figure (31) Al-Sadrin Square and the surrounding streets.



Figure (32): The intersection of the Al-Rawan extension. Source: Field survey

8-SPATIAL ORGANIZATION PROPOSALS FOR THE STUDY AREA (ORGANIZATIONAL SCENARIOS)

A questionnaire was developed for the study community and after analyzing its results and knowing what it desires and aspires by the study community, the researcher reached three organizational scenarios that were presented to a group of experts in the field of Planning and Design in the Faculty of Urban Planning, the College of Engineering, the municipality, and the reconstruction authority). Each expert was expected to select one scenario deemed appropriate for users and meet their requirements. To reach the best scenarios, the Delphi method was adopted; it is an organized communication channel between a selected group of experts and specialists in a specific field through cooperative work and multiple rounds to suggest appropriate solutions to a specific problem without the need to meet or confront with each other. It is based on an independent strategy of expert opinions that hides their identities of each expert from the other to raise the degree of impartiality and objectivity; if a group of experts meets in one place face to face, the basic idea is that the group's thinking is much better than the thinking of any individual in that group. The preference is for a consensus percentage of no less than 68%; if this percentage is not achieved from the first round, the round will be repeated. Considering the amendments to be made by the experts regarding finding the appropriate scenario (feedback), the tours will continue until the consensus rate stated above is reached (Dalkey and Helmer 1963, Linstone and Turoff 1975, Landeta and change 2006). The main goal of these regulatory and development

proposals (scenarios) is to provide organized commercial streets with a strong and sustainable identity, i.e. taking into consideration the economic, social, environmental, and aesthetic goals and objectives related to transport and traffic planning and their indicators as shown in Table (1)

Table (1): The objectives and indicators

Objectives	Indicators
Transportation and traffic planning goals	Ease of access – pedestrian path – vehicle parking – emergency path – pedestrian crossing places
Environmental goals	Atmospheric heat reduction – pollution treatment
Social goals	Social networking – preserving traditions
Optical targets	Optical continuity – street furniture – optical unit
Economic goals	Increased economic activity – economic attraction

Each scenario will be discussed and the scheme for these scenarios are as follows:

The first scenario (converting the street into a pedestrian street). This proposal includes permanently closing the street entrance and exit from the passage of vehicles. The appropriate organization is made, providing all the pedestrians need from the necessary afforestation and seating areas, and providing a special emergency path and parking for vehicles in suitable locations. Figure (33) shows the cross-section of the first scenario.

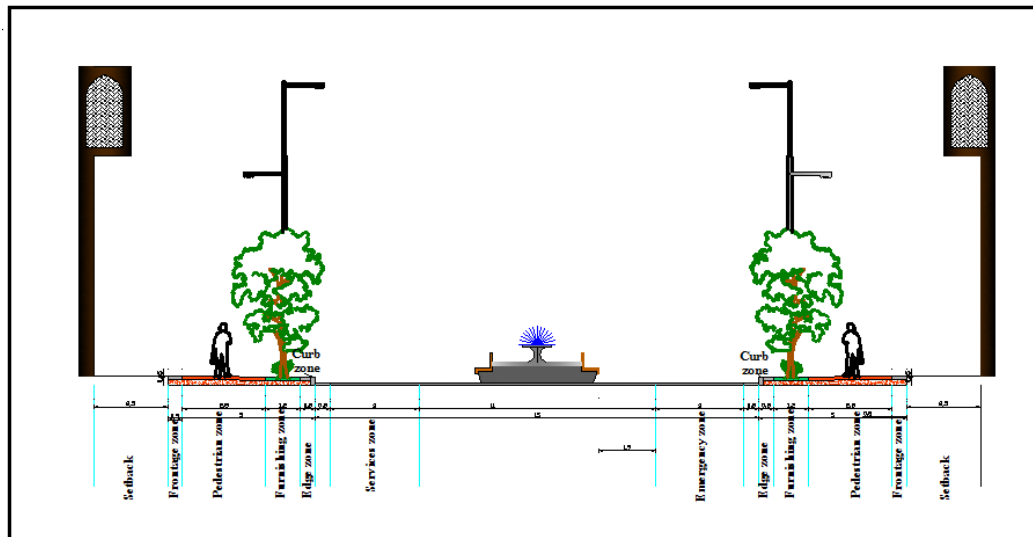


Figure (33): The cross-section of the first scenario (the street is for pedestrians only)

Source: The researcher relying on using the AutoCAD

The second scenario: The street remains for pedestrians and vehicles, and proper planning is done. The pavement area is divided into an area (facade of buildings – pedestrian belt – equipment – periphery), planning street lanes are divided into two lanes for side parking spaces, one lane for going and the other lane for return, thereby providing the necessary afforestation and parking for vehicles within the street. Figure (34) shows the cross-section of the second scenario.

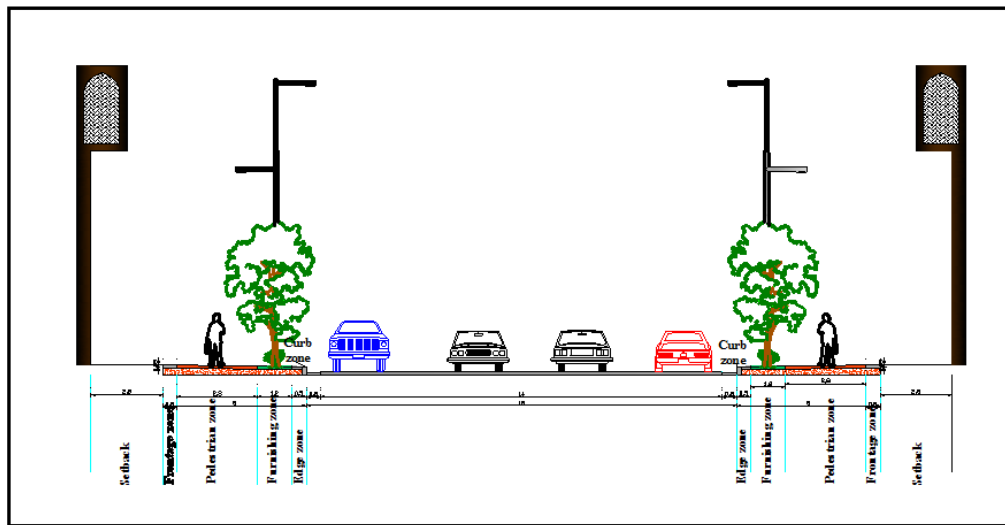
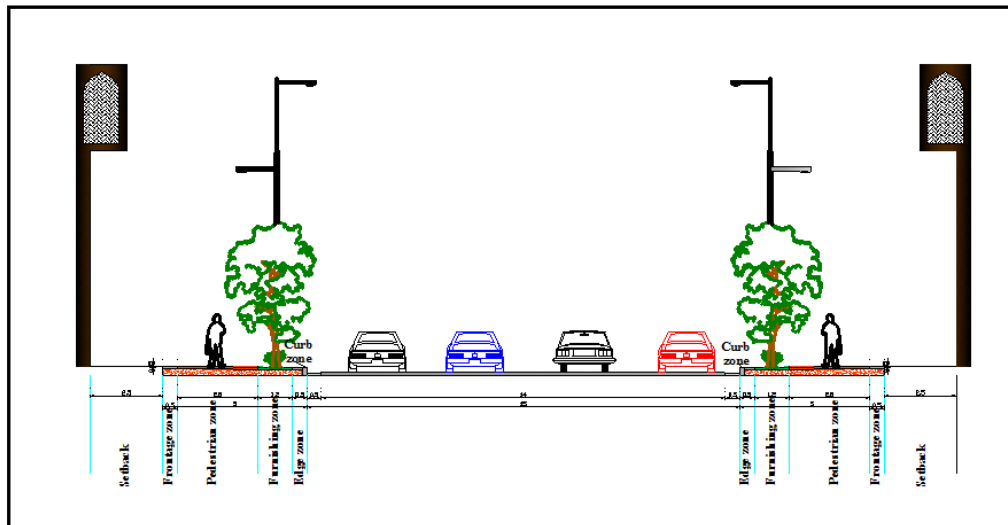


Figure (34): The cross-section of the second scenario (the street is for pedestrians and two-way vehicles).

Source: The researchers relying on using the AutoCAD program.

The third scenario: The street remains for pedestrians and vehicles but making the vehicles pass in only one direction; proper planning is made for the street by dividing the pavement area into an area (building front – pedestrian walk – equipment – peripherals) and planning street lanes into one lane for parking the side corner of vehicles entering the street on one hand, and two lanes to enter the street from the Sadrin Square towards the intersection of Al-Rawan extension. The other side corner lane is used for onward vehicular movement or to open the pedestrian path in case of crowds. Figure (35) shows the cross-section of the third scenario.

Figure (35): The cross-section of the third scenario (the street is for pedestrians and vehicles in one direction only).



Source: The researchers relying on using the AutoCAD program

After presenting these three scenarios to the Committee of Experts, a consensus percentage of **83%** was obtained for the second scenario (the street remains dedicated to vehicles and pedestrians with the work of organizing the street lanes and the sidewalk, as well as planning and dividing it into an area (facade – pedestrian walk – equipment – terminal); hence, the second scenario was considered the most appropriate organizational proposal to be adopted in this research.

9-Organizational proposals for the study area according to the second scenario

The second scenario was studied in detail by considering the environmental, social and economic goals, and the goals related to transport and traffic; so, the regulatory proposals for the study area will be as follows:

- i. Divide the sidewalk area into four areas (the façade of buildings, the pedestrian belt area, the supply area, and the terminal area) as shown in Figure (36). Street basin planning to locate the side parking lots and to separate the going lane from the return lane and shown in Figure (37).



Figure (37): The planning and organization of commercial street lanes.

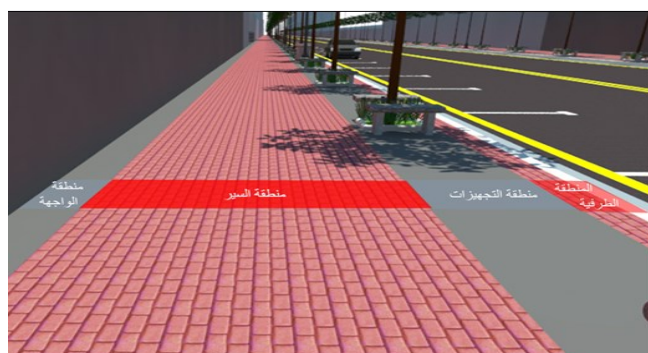


Figure (36): The proposed sidewalk divisions on both sides of the street.

Source: Researchers depending on the Sketch-up 2016

- ii. Plan pedestrian crossing areas and suggest that their locations be as shown in Figure (38). Providing multi-story car parks in the existing parking lots in the study area and providing other new places

for vehicle parking to bridge the shortage; it is suggested that their locations be as shown in Figure (39)

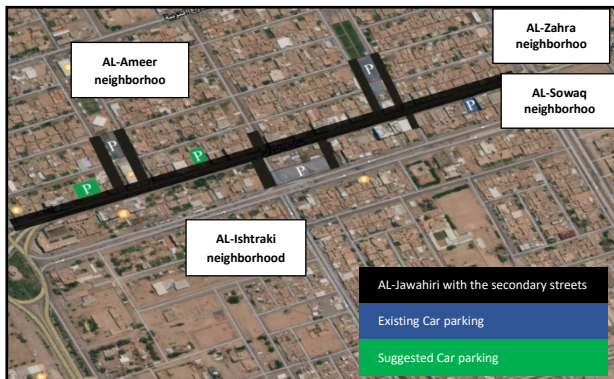


Figure (39): Suggested vertical parking sites on both sides of the street



Figure (38): The locations of the proposed crossing areas.

Source: Sketch-up 2016-Google earth

- iii. Providing temporary parking lots with electronic meters in the car parks on the sides of the street, as shown in Figure (40).
- iv. Providing the area with afforestation on both sides of the street with equal distances and within the equipment area, as shown in Figure (41).



Figure (41): The supply of the area with afforestation on both sides of the street



Figure (40): The suggested temporary parking on both sides of the street.

- v. Providing the area with appropriate furniture as seating places used when necessary to preserve the traditions of the city and be within the area of supplies, as shown in Figure (42), as well as providing them with waste containers in appropriate forms and locations, as shown in Figure (43)



Figure (42): Provision of seating areas.



Figure (43): Provision of waste containers

Source: Depending on the Sketch-up 2016

10-Discussion and recommendations:

From the previous studies, it was noted that the effect of organizing and coordinating the physical elements in commercial streets (sidewalk area, street basin, and building facades) on the urban landscape is yet to be addressed; therefore, the scientific contribution of this study is the organization of these physical elements that have a great role in achieving the requirements of users street scene. Thus, they are required to be organized favorably on the commercial street scene and generally on the urban landscape of the city. The researcher recommends future studies on the status of the commercial street after the regulation, and its impact on the number of visitors or tourists, as well as on the economic improvement of the shop owners after improving the traffic along the street.

Based on the findings of this study, the following conclusions and recommendations are made:

- There is a weakness in the implementation of planning and design standards, and this defect has manifestations that are negatively reflected in the street scene and the urban landscape of the city as represented by an imbalance in the urban context, poor organization of movement paths, and the lack or randomness of the organization and coordination of complementary elements.
- Al-Jawahiri Street is one of the most important commercial streets in the city of Najaf, and it is originally a residential street but has been changed into commercial use. The length of the street is 885 m and its width is 25 m, divided into 5 m sidewalk, 15 m street basin, and 5 m sidewalk.
- The percentage of commercial use in Al-Jawahiri Street reached 69.18% which is the largest percentage, followed by residential use (14.6%), service use (9.36%), and religious use (1.24%). The non-built land area is 3.12% and the percentage of unfinished structures is 2.5%
- The percentage of buildings with an irregular setback is 81.3%, while the percentage of buildings with a regular setback is 18.7%; this means that the building line for building facades is irregular due to non-compliance with the setback distance specified in the standard, and due to the numerous entry stairs (different designs) implemented by the shop owners.
- The difference in the height of the buildings on both sides of the street, as well as the presence of unused plots of land or unfinished structures, caused the continuity of the skyline; the number of floors within the standard was 26.35% (heights ranging between 4-8 floors), while buildings that are outside the standard were 73.65% (height ranging between 1-3 floors or more than 8 floors). The percentage of unused plots was 6%, and the percentage of unfinished structures was 3%
- The percentage of packing for the facades of buildings on both sides of the street with modern finishing materials (alucobond) amounted to 72.94%, and the rate of packing with alabaster was 11.05%. Modern finishing accounted for 72.94% (which is outside the standard), while the rate of packaging with other finishing materials was 24.39% (which is within the standard).
- Most of the commercial signs varied in terms of shape, design, font size and color due to the lack of commitment by some to the standards that determine the size of these signs; the difference in font size and colors for these signs is due to the lack of controls and standards that explain the details of commercial signs in detail.
- The pavement floor was observed to suffer from multiple problems due to the material used for finishing the pavement floor. The pavement floor on both sides of the street may be corroded, broken, swollen, or descending, especially in places that are exposed to excavation or construction of structures. There is diversity in the materials for the sidewalk floor due to the covering of the floor corresponding to the facades of some buildings with a finishing material that differs from the old finish material.
- The inclination of the pavement floor should be within the standard (1: 100), but some places do not achieve this tendency due to the damage of the surface layer. Its maximum width is 7.5 m and is within the standard.

- The sidewalk area is not divided into building facade areas (the pedestrian walk, equipment area, and peripheral area) due to the lack of local standards on the organization of the sidewalk area. The sidewalk is isolated from the street basin in a vertical isolation method and the isolation height reached 18 cm which is within the standard for achieving pedestrian safety. However, the sidewalk is being exploited by the shop owners to display their goods, thereby bringing many pedestrians to the street basin.
- The street is not divided into lanes that define the side parking places, the going lane, and the return lane; additionally, the street does not contain special areas for pedestrian crossing.
- Sub-streets are used as an alternative way to reach Al-Jawahiri Street when the main street (Kufa – Najaf Street) is closed, and for the entry and exit of cargo vehicles; it is also used as parking for vehicles and motorcycles because of the shortfall in providing parking lots because only side parking and three official parking spaces are available in the area which is not sufficient for parking vehicles. Hence, there is an urgent need to provide 854 additional parking lots for vehicles, as well as parking spaces for bicycles.
- The study area lacks the necessary complementary elements and services that must be provided in and from the commercial streets. The absence of any type of water element (fountains) and afforestation on both sides of the street made the study area to be hot during the daytime; it was noticed that there were some simple flower beds distributed in some places on both sides of the street and in long distances.
- Lighting poles are available on both sides of the street and distributed equally (every 35 m), and one column consists of two lights, one of which is to illuminate the pedestrian path at a height of 7 m and the second to illuminate the path of vehicles at a height of 9 m (this is within the standard and is complemented by the lightings from the shops and buildings).
- The study area has no sitting places, waiting for umbrellas, sculptural or memorial pieces, taps for drinking water, telephone booths, or fire extinguishers; it also lacks waste containers. Also, there are various billboards distributed on both sides of the street which despite having waste containers attached to them, are not used.

Recommendations:

- 1- Strengthening the control over investors and urging them to adhere to the implementation of the planning and design standards approved by the Municipalities Licenses Department. Investors should be held accountable in cases of alterations to the approved plans only after reviewing the municipality's approval for making such changes with respect to reducing the negative effects and enhancing the economic values and aesthetic of the commercial streets.
- 2- The street should be divided into four areas (the area of building facades, the pedestrian walk, street furniture, and the peripheral area) according to international standards.
- 3- The necessity of working on planning the street basin, determining the parking places on the side of the street, and separating the going lane from the return lane with no middle island is recommended.
- 4- The planning pedestrian crossing areas at the intersections of roads and along the street every 120 m or at crowded places in the street is necessary to ensure the safety of the users.
- 5- Multi-story car parks and private parking lots should be provided at reasonable costs to encourage patronage in areas that have not yet been constructed. Such parking areas should be equipped with electronic meters that allow free stopping for 5 minutes and then deducts money based on parking time as is the case in most countries of the world. This will help in meeting some of the urgent needs of citizens without the need to go to the main parking; it will also provide parking for bicycles and motorcycles on sites occasion.
- 6- Regulating the building line for the building façades and abiding by the width of the specified sidewalk and the setback and working to follow up on that by the responsible authorities. As for the current buildings that are not subject to the controls of the setback from the street, you need to obtain controls to deal with this within a specific time and if the property owner is unable to do so, the local administration implements the controls and bears the implementation costs provided that the amounts spent annually are deducted from the property owner.

- 7- The use of local finishing materials when wrapping the facades of buildings to preserve the identity of the city and the safety and convenience it provides to the nature of the climate.
- 8- The necessity of providing appropriate afforestation with equal distances along the street and on its sides to achieve visual continuity and to provide suitable shade spots provided that adequate visibility of the facades of buildings is taken into account by street users. Appropriate seating places (in shapes and colors) should also be provided consistent with the street context and identity and culture of the city. Waste containers should be distributed in an organized manner and in the appropriate places; they must be of designs and colors consistent with the street context, as well as providing sculptures that fit the identity and culture of the city and with the necessary indicative signs. The waste bins on the advertising boards on the street should be utilized properly.
- 9- The necessity of investing plots of land not yet built and buildings less than four floors high in constructing buildings with multiple activities, such as cultural, recreational, and service as well as activities that enhance the religious identity of the city.
- 10- The need to pay attention to the nodes and intersections because of their great importance in the shape of the streets in the city and in highlighting its identity; this can be done by defining pedestrian crossing areas and providing them with afforestation and fountains, provided that they are constantly monitored and maintained.
- 11- The spatial organization of commercial streets must be seen as consisting of individual elements first, and then, be viewed with a broad and comprehensive view of the composition as a whole so that each element cannot be replaced as it creates with its location, a coherent structure whose parts cannot be separated.
- 12- Spreading cultural awareness among members of the society through the media and institutions related to the issue of city planning (such as a municipality, governorate, other government institutions, and civil society institutions) to emphasize respect and promotion of the city's identity, customs, and traditions, as well as awareness of the negative effects that may arise from poor organization and lack of commitment, structural controls, and standards.
- 13- Promote and activate the role of community participation because of its important role in ensuring that users' needs are met when planning and designing commercial streets.

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