Urban renewal for traditional commercial streets at the historical centers of cities

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Abstract The historical commercial areas at the historical centers of cities have many historical, urban, architectural, economic and social values. The commercial streets are among the most important components of a cities' urban heritage because of their continuing and their organic growth. In the light of recent rapid developments nowadays, however, many of them have lost their importance and become subject to many informal uses, losing their historic identity. The historical heart of cities, together with its economic and social role, should be preserved at all costs, whatever the effort. The aim of this research' is to reveal the importance of conserving the traditional commercial streets because the identity of communities depends on them. It is proposed to devise a methodology which promotes local culture by developing these streets; it will focus on the principles and criteria of heritage preservation, protecting historical areas and ensuring their continuity and benefit, not only to their users but to all citizens. A number of steps are suggested to deal with the traditional commercial streets at cities' historical centers; besides a set of reliable criteria that preserve the historical identity of these streets through helping to determine the type and pattern of movement in them.

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1. Introduction

The cities' historic centers play a vital role in affirming the cultural and historical dimensions of these areas where the roots of the city take shape, and also the clarity of thought and the shape of the urban fabric and their implications for the social,

cultural and economic structure of communities. It is a vibrant urban center life at the urban center has historical value and continue to the present. Also, it is the structure of the urban composition that represents the urban integration of civil society, with its religious, political, economic and social affiliations. These areas have been subjected to many political, economic and physical variables in order to meet the requirements of contemporary urban development, which have negatively affected their physical structure, social composition, and economic structure.

The historic commercial areas and their streets are among the most important elements of historical city centers which puts them at the forefront of areas needing appropriate poli-

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cies to deal with their problems so that they can survive for future generations. They don't only represent a mean of communication and access between parts of the city, but also the expression of the economic and social zones. For these reasons, the research studies historical commercial areas and ways in which to conserve them within an integrated framework.

1.1. Objective

The research target is proposing a methodology for the urban renewal of historic commercial areas, making them more effective and more responsive to the requirements of future developments. In securing the comfort and safety of users, it seeks to revitalize the effective role of these areas in the commercial activities of the city, while preserving their historical value and distinctive urban character.

1.2. Methodology

The research takes a deductive approach whereby a set of criteria were reached to determine the possibility of turning historical commercial streets into commercial pedestrian streets (Full Malls). Through studying the historical centers of cities and their commercial areas, the different methods to deal with them, and the types of commercial streets and their components. Then, select one of the commercial streets at the historic center of the city of Tanta, and apply the proposed methodology for urban renewal of traditional commercial streets at historical centers of cities on it.

2. Historical city centers and various methods of dealing with them

2.1. Historical city centers

The International Council on Monuments and Sites (ICOMOS) has defined historical city centers as the content of the cities′ historical characteristics represented in the set of physical and spiritual elements that form the image and urban pattern, which consists of the street network and zoning and associated relationships [1].

The historical centers have many spiritual, symbolic and aesthetic dimensions, while also representing the areas that contain evidence of urban civilization [2], since they reflect the identity of the city. In addition, they are the core that hosts many residential, economic and cultural activities. These centers should include settlements of two kinds: those that has adapted to the rest of the cities, and those which, due to the growth of the city, are now part of a larger structure [3]. They contain the cultural heritage of the cities and all the social aspects of life. Therefore, these areas are part of a total response to the nature of the built environment and are rich in past values added to the daily experience of the citizens [2].

The foregoing may sum up the nature of the most important characteristics of historic city centers, where the original urban structure indicates the architectural importance of the center in its unique architectural features. In addition, it illustrates the clarity of thought in the forms of the urban fabric and the aspects of life embodied in its planning, streets, and buildings. Social life needs to continue in them because they are urban nodes which despite consecutive transformations and many problems, have continued to prove their authenticity to the present day.

2.2. Methods of dealing with historical centers

The city′s urban center, its historic heart, began to lose its value as a memory of the city′s history, when the historical centers became exposed to the pressure of contemporary urban development, which has caused many changes in the physical structure of these centers, as well as changes in their social composition and their economic structure. These changes have not been merged with the historical structure in either form or substance [4]. Some urban development projects have changed the land use, but such a change in function also changes the fabric of the urban structure wherever the historic traditional fabric cannot accommodate modern movement patterns. The appearance also changes in those areas where developments have ignored the historical content and replaced large parts of the urban fabric by structural patterns and styles of architecture that are not compatible with the value of the place and its history.

Urban renewal operations have included redevelopment, rehabilitation, conservation, and urban infill as the most important procedures. Often, however, the physical environment of the historical center is considered, ignoring the social and economic situation which negatively affected these centers [4]. Thus, urban development processes in historical centers must be geared to preserving the urban character of the region, protecting the existing heritage and its originality, with a focus on human beings; they should focus on buildings of heritage value in order to balance social and economic concerns by environmental concerns, both urban and natural [5].

The most important methods and policies for dealing with historical city centers can be summarized as follows:

- Urban renewal policies change the urban structure of a city or a town by improving or rebuilding it. They also improve the conditions in which people live, conserving and renewing historical values and the cultural heritage in order to withstand the pressure of economic and social variables. Urban renewal activities in 1958 were classified in the discussions of the World Housing and Planning federation into three main policies: redevelopment, conservation and rehabilitation [6], together with the methods of urban infill and revitalization.
- Redevelopment includes the reorganization of the urban, functional and population structure of an existing urban area through the removal of the dilapidated buildings and neighborhoods that occupy the largest proportion of the existing urban fabric, with the exception of buildings of historical value, and then rebuilding them according to a new plan which shows the use of the land and the pattern of population distribution [7].
- Conservation refers to procedures taken to extend the lives of historic buildings by preventing damage and erosion. It includes all the work done to prolong the evidence of natural processes and human civilization, and allows changes and addition to be made without changing character. Conservation also refers to the urban, social and economic envi-

ronment in preserving buildings, the urban fabric, and character. Thus, it concerns the integration between maintenance and protection by controlling the dynamic changes associated with the processes of urban and social development [8].

- Rehabilitation has as its main goal not only to conserve old buildings, but also to revive the internal strength of a community to renew itself by reconnecting with the past in its unique way, which is an essential result of such renewal. This policy concerns with improving a whole area and raising its economic and social level through bringing historic buildings back into use and with integrating historic areas of the urban environment with modern areas [8].
- Urban Infill aims to achieve visual integration, filling the existing gaps in a historic urban fabric which have unique urban characteristics, and which are united and connected visually by the addition of new buildings to form a functional and visually coherent fabric. This addition should be harmonious in terms of altitude, skyline, mass′ size, scale, dimensions, treatment of facades, colors, building materials and revitalization [9].
- Revitalization deals with damaged urban areas by reviving them in a style that preserves their urban character. It balances urban renewal policies and methods, dividing the treatment of the urban fabric into three parts. The first considers what must be maintained and adapts or restores it to perform its function, the second requires the complete rebuilding of something that has lost its economic and historical value, and the third requires comprehensive revitalization [10].

3. Markets and traditional commercial streets

Heritage markets in the historic centers of cities are among the

includes the movement of the goods together with the supply of commodities [13].

There is no difference between the Commercial Street of any city and the old market-place, since the commercial kasbah in an Arab city often take linear form and was also called the market [14]. The Commercial Street is a road or corridor lined with shops providing a range of options and business, shopping and services [15], which attract tourists and offer entertainment by the vitality of its commercial activities [16].

The commercial streets in the city are, for a viewer, among the most important visual elements in the urban environment. The elements of the urban environment are integrated around and across them to create a body filled with activity [17]. Traditional markets may be divided by time, by function, and by the urban form [12] as below:

- Time classification means classifying by the time when the market is held. It may be seasonal or at regular intervals (monthly, weekly) or daily throughout the year.
- Function classification is based on whether it is intended as a commercial function or specializes in a particular or non-specialized commodity.
- Urban form classification depends on its being linear, ramified or aggregated.

3.1. Urban formation of traditional markets

The general composition of the market or Commercial street is the final result of a simplified aggregation method for adjacent module cells in a parallel assembly that generates a middle void in which the visitor reveals its specific trajectory on the market, and through parallel assembly and network aggregation produces bar and open spaces on the outside and central [14]. The most important patterns of urban market formation can be summarized as follows (Fig. 1):
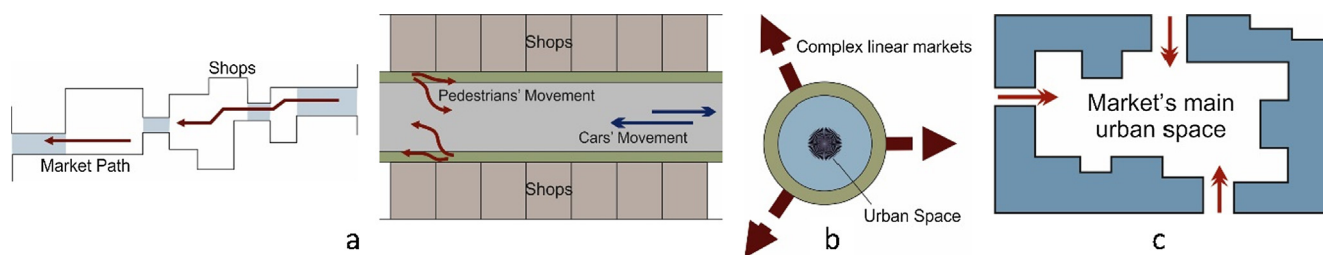

Fig. 1 Patterns of markets: (a) linear markets; (b) ramified markets; (c) aggregated markets [18].

most prominent urban elements for conservation and should have an integrated policy to preserve historical sites and incorporate them into the contemporary planning of Islamic Arab cities [11].

The traditional markets are the first places in the city to be economically active. They are places for citizens to obtain their needs by buying and selling [12]. The overall concept of the commercial market is a public gathering hold at regular intervals, which may be in a permanent place for the trading of goods or an open place or a building. The meaning also

- Linear markets are located on the main traffic axes of the city and take the shape of the street. This pattern, in turn, is divided into the following patterns: [18]
- Pedestrian commercial streets (full malls) have paths for pedestrians only because pedestrians are safest when all vehicles are blocked except in certain circumstances; this provision of urban design elements is necessary for pedestrians [15]. Such streets are usually in a historic city center and tend to be shaded by trees or other elements; the

streets form a public pedestrian area where it is safe to shop [13].

- Pedestrian and automated traffic streets (Semi Malls) have pathways in which motorized and pedestrian traffic intersect either at restricted times or all the time. These pathways should be designed to give priority to pedestrian movement by increasing the pedestrian space, and should calm the movement of cars by allowing wide pedestrian pathways next to the movement of cars and reducing or preventing car parking on both sides of the road [19]. This is considered the pattern which offers pedestrians the least safety [15].

- Commercial streets for pedestrians and transport (Transit Mall) [19] are intended for pedestrians and public transport (buses, Metro, etc.) and are closed to private vehicles. Parking is not allowed on such streets but provided at a distance. The width of the pavements should be increased and complementary elements should be added to the commercial market and pedestrian traffic. This type appears in city centers and may use pedestrian bridges and tunnels for cars.

- Ramified markets [18] are ramified linear markets in some trading point or urban space characterize by a particular activity, such as the space before a mosque from which linear markets are ramified, ensuring that the important pathways leading to this point are the commercial routes that make up the market.

- Aggregated markets [18] are commercial markets grouped around an urban space. Things are bought and sold in these markets, which provide a safe pedestrian movement as well as space in which to make transactions.

3.2. Historic commercial areas

The historic commercial areas are the structural evidence of the city's heritage, possessing historical value and an architectural and urban character, compatible with all the environmental features that people require. Commercial activity is a major part of a range of activities that constitute the basic life of societies and reflect their culture and values [20]. The importance of historical markets as an urban heritage depends on their [21]:

- Aesthetic value, in the simplicity of their form, the richness of their goods, the diversity of their crafts, the human scale, the harmony of colors, openings and proportions, the variety of their facades and their unique architectural character.
- The value of their Eco diversity by using of traditional construction and finishing materials, ventilation systems, shading, thermal insulation, and natural lighting.
- The value of architectural diversity and its contribution to the urban context, stemming from a strong visual image that combines individual and personal in a unity of harmonious interior spaces.
- The value of functional diversity as illustrated by the compatibility between different uses of the market and diversity in the placing and ages of buildings.
- The value of a continuous cultural memory, providing the main context in which to understand history as part of a community's life.

- The economic and commercial value, representing the fundamental policies of preservation and rehabilitation, where the preservation of architectural character, traditional crafts, and products embodies significant economic and commercial value for local communities and governments at the same time.

Markets in Arab and Islamic cities took very heterogeneous forms. In many cases, the market was only a group of adjacent shops along a street or at a crossroads which then spontaneously turned into a commercial street by gradually shifting away residential areas [14].

The commercial activities in Islamic cities arose in a traditional sequence around the religious center of the mosque featuring markets for spices, incense, books, leather, and fabrics. Meanwhile, the markets for vegetables and cereals were held outside the gates, while the tanners, dyers and pottery those on the outskirts of the city [18].

3.3. Types of historical markets of Arab and Islamic cities

The varied historical markets of Arab and Islamic cities include craft markets, food markets, commercial streets, and public wholesale markets. Each type have its own personality and identity [21].

- Historical Craft Markets: Their main value has been the strengthening of the industrial and economic role of Islamic civilization. This type illustrates several patterns of open courtyards (agencies), linear patterns (Kasbahs) and Caesarean section [22]. Such markets have a strongly urban character, the most important feature being the sense of continuity, the recalling of the Islamic civilization; they provide a harmonious visual personality. The urban and individual style derives from the culture and needs of society, and the physical fabric reflects the social, cultural and environmental dimensions of the urban context.
- Historic commercial markets: Its patterns vary from commercial area to commercial street. They characterize by the existence of wide continuous streets connected with each other and their commercial use occupies much of the area. They too have a strong urban and architectural personality.
- General Wholesale Markets: They are the open or covered local markets in city centers or on the outskirts where goods, heritage products, crafts, aromatic plants and so on are traded. That pattern is based on heritage activities and traditional products. Also, it has a strong potential for being socially and economically valuable through its fundamental association with the needs of the community [23]. This type includes both an extended bazaar pattern and a square and ruler pattern.

4. Development of commercial streets

Since the 1950s there have been many calls for the development of commercial streets by converting them to what are known as malls, specific areas with trees used for shade and pedestrian walkways dedicated to business in the heart of the city. The slowness of walking is the most appropriate speed

to navigating in downtown areas because it is not linked to any particular path, and walkers can quickly and easily change direction according to what seems interesting [24]. It helps to revive commercial and economic activity, and malls create an urban attraction in a city center.

The best streets for pedestrians are located in a city's central shopping area, which is often the historic center that best suits the movement of pedestrians, but it is not easy to choose which streets in these areas to pedestrianize. Pedestrian streets in the historical heart of a city attract people and can create attractive surroundings, but at the same time entail problems [25]. Some of the factors that clearly affect the development of commercial streets are listed below [14]:

1. Functional factors include:
   - Traffic movement: The ways of coping with the expected increase of traffic in the surrounding streets should be considered as a result of reducing the number of cars in the commercial street or preventing traffic altogether. Parking should be provided near the commercial area and the service needs in the street should not be neglected.
   - Pedestrian movement: The purpose of walking along the commercial street and pedestrian activities within it should be studied, taking into account a walk of no more than 1.5 km, lasting 20 min. Moreover, the distance between a parking space and a destination should be limited to about 800 m (10 min' walking). The relationship should be studied between pedestrians and traffic movement in the street and how the latter should be organized in order to ensure a sense of safety and comfort.
   - Infrastructure: The location of infrastructure lines in the commercial street should be considered, to assess whether they can accommodate development or need to be adjusted for this purpose.
   - Existing buildings: Their status, architectural character, and historical value should be borne in mind, as well as the study of heights and skyline, facades and details, finishing materials and texture, construction methods, and so on, in order to make decisions that will develop these buildings thoughtfully.
   - Maintenance: The repair of damage should not be forgotten, as well as cleaning, the disposal of rainwater, alteration of lighting units, attention to landscape elements, etc.

2. Natural factors include:
   - Climate: Planners need to control the protection of commercial spaces through the reduction of direct or reflected sunlight and balancing the humidity of the atmosphere, by influencing people to become more sensitive and aware of the commercial street.
   - Soil and groundwater: The ability of the soils for agriculture should be determined, meanwhile identifying activities that can be practiced in a commercial street.
   - The topography of the Earth: Different levels can be exploited in so far as they affect the activities in a commercial street.

3. Social and Economic factors:
   - It is useful to know how successful a street has become after development, and to find a balance between the costs of developing a commercial street and the returns from doing so. This involves a study and analysis of the markets, together with studies of economic feasibility.

4. Political and legal factors:
   - Politicians are interested in deciding whether or not to close a commercial street to cars, and whether to offer peddlers fixed places in a market, while the law concerns the penalties imposed for irregularities in the street.

4.1. Elements and requirements of commercial pedestrian streets (malls) [24]

There are several elements and requirements to make commercial street more suitable for pedestrian such as:

1. Climate: Providing thermal comfort in such streets.
2. Physical and structural requirements:
   - Narrow streets are more suitable for pedestrians than for cars, and the length of most pedestrian routes is less than 1.5 km.
   - The width of a street often allows it to be divided into three lanes at least, two (one on each side used by the shops) and the remaining one for pedestrian movement. Wider street may carry more than three lanes.
   - The commercial nature of the street creates a desire to wander along it and make the experience of walking enjoyable.

3. Traffic movement and parking spaces requirements:
   - Redirecting cars outside the pedestrian area is obligatory, to preserve ease of access to the area for public transport, cars, and pedestrians. It should take into account the need to bring public transportation to the edge of the pedestrian area without using the streets themselves and should provide sufficient parking spaces.
   - Being serviced through the side streets. In cases where it is not possible, service vehicles are allowed a certain time through the day to enter the street.

4. Commercial structure for pedestrian streets:
   - One such structure is a diverse and efficient commercial arrangement of many small niche stores, with commercial activities concentrated in the street and adjacent areas.
   - Shops offering daily consumer goods, especially supermarkets, are often unsuitable for pedestrian streets because of the difficulty of supplying them. The most important commercial activities that are preferred in pedestrian streets can be summarized as clothing stores, restaurants, shops selling watches and jewelry, eyewear, photographic stores, book shops, shoe and bag shops,

cafés, textile shops, shops for gifts and cosmetics, sweet shops, ice cream parlors, toyshops, patisseries, etc.

4.2. Pedestrian paths quality standards

Lynch indicates that the basic requirements for a successful pedestrian path are being continuous, having beginning and end points, where everything is easy to see, being well divided by intersections and squares that make a pleasant rhythm, and having landmarks that help focus pedestrians on things other than the path itself [26]. The most important criteria for the quality of pedestrian paths can be identified as follows [27].

1. Functional criteria should measure how ready the path is for exercising its function. They are:
- Connectivity meaning the accessibility and use of the path and its potential for serving all age groups.
- Diversity in terms of users and activities, as well as visual variation.
- Safety from physical and sensory hazards and also from traffic.
- Functional continuity through the absence of any impediment to the continuation of pedestrian traffic on the path.
2. Visual criteria, which are important for attracting pedestrians, include a defined path through its horizontal and vertical dimensions; length; spacing; transparency as a result of the interaction and interrelationships between the path and the ground floor of the specific building of the path; integration of the elements of the built environment on either side of the path, in terms of character and height; homogeneity and compatibility of the materials, colors and details of facades; and the confirmation of identity.
3. Environmental standards represented by respect for topography and thermal comfort.
4. Social standards, providing a climate encouraging all activities and meeting the requirements of all ages.
5. Economic criteria in which pedestrian attractions increase economic mobility through shops, and attention is paid to maintenance.

5. Methodology for dealing with traditional commercial streets in historical city centers

Traditional commercial streets represent the local urban culture reflecting the community's cultural and social values. It is in many cities a mean to restore the historic urban fabric. Therefore, a comprehensive framework must be found in these streets that seeks to preserve the urban heritage in historical city centers, thus making a balance between the old and modern, with respect for the inherent historical environment that is being renewed.

Appropriate mechanisms and solutions must be found to develop and revitalize the effective role of traditional commercial streets and reduce their deterioration. This can be achieved in two successive ways: first, by preserving all the valuable environmental and structural elements of the traditional commercial street space through a system of actions and procedures that prevent damage and degradation, eliminating failure and preserving the heritage of humane values for future generations. For this, it is necessary to use comprehensive development, which aims to achieve a balance between the heritage value of the traditional commercial street and the urban environment with all its resources and the potential. Various methods are used to deal with historical city centers according to the conditions of the region.

Second: by creating a safe environment for the convenience of users and their sense of control through having freedom to use it with no psychological pressure on movement or the choice of route and direction. Having the fewest intersections with the automatic movement is conducive to shopping and returns the maximum economic benefit on the commercial street. This can be done in three ways: turning the commercial street into a commercial pedestrian street; fixing certain times each day when cars can enter, or mixing pedestrian and automotive traffic while providing a safe environment for pedestrians and shoppers by reducing the space for cars, which reduces their speed and the traffic in the street, thus increasing the safety of pedestrians, while preventing permanent parking on the street. Also, increasing the width of the pavements in front of the shops, facilitating the movement of pedestrians if shops are forbidden to encroach on these pavements. Besides, creating a central island and adds the elements of bushes and shaded seating areas to encourage social activities.

Since most commercial street development tends to create pedestrianized streets, this decision, in accordance with the city's policy, is based only on a political decision. Hence, a set of principles has been developed to guide decision-makers in dealing with traditional commercial streets; they can adopt a points-based system to determine what should take priority in converting traditional commercial streets to pedestrianized streets and either encourage this or prevent it, depending on a set of essential elements for identifying the ability of the street for this purpose. These elements include factors affecting the development of commercial streets, requirements for commercial pedestrian streets and quality standards for pedestrian routes.

The proposed system is based on a set of criteria which are deduced from the literature study. There are five main criteria (street characteristics, traffic, commercial structure, environmental factors, and community participation), and about 21 sub-criteria. This system gives a grade for each element; according to its power to affect the transformation of a commercial Street to pedestrian commercial street, which is convenient for all the users of the street. It corresponds to the adjacent area and the street network as described in the following matrix. (Table 1)

So, every sub-criterion divides into three categories, and each one has several points:

- The first category contains the set of elements which have the priority to transfer the commercial street to only pedestrian; it takes six points for each element.
- The second category which has the elements that Allow cars' movement in the commercial street at a certain time of a day to prevent the conflict between cars and pedestrians; it takes four points for each element.
- The third one represents the elements that clarify the necessity of car traffic existence inside the commercial street; it takes two points for each element.

Table 1 The proposed matrix for guiding the decision-making process (source: authors).

Criteria		Number of points per item		
		6	4	2
Street characteristics	Location	Historic center	City center	outskirts of the city
	Street width	≤10 m	Between 10 m and 15 m	≥15 m
	Street length	≤1.5 km	Between 1.5 km & 3 km	≥3 km
	Street-scale	Friendly	Human	Memorial
	accessibility	High	Average	Low
	functional continuity	Good	Acceptable	Low
Traffic	Intensity of cars	High ratio	Average ratio	Low ratio
	Intensity of pedestrians	High ratio More than 3persons/m^2	Average ratio 3persons/m^2	Normal ratio Less than 3persons/m^2
	Parking	about 800 m away	about 1000 m away	More than 1000 m away
	Serving	Side streets	with certain times of service specified	no scope for servicing except car entry
	Easy access	Easy	Average	Hard
	The relationship between cars and pedestrians	Conflicted	balanced	No conflict
	Absorption of parallel streets for car movement	High ratio	Average ratio	Low ratio
Commercial structure	Types of shop	Suitable for pedestrian streets	Correspond to some pedestrian requirements	Compatible with mixed traffic streets
	Diversity of activities	High (More than 10 activities)	Average (between 4 and 10)	Low (Fewer than 4 activities)
Environmental factors	Street orientation	Good parallel to the direction of the favorable wind or tilted on a north-south axis at an angle of 20:30° east or west	Average tilting on a north-south axis at an angle greater than 30° East or west	Bad Perpendicular to the direction of the favorable wind
	Street Shading	Available	Can be solved	Not available
	Street ventilation	Good	Average	Bad
	Land topography	Different levels	Low slope	Flat
Community participation	The opinion of users about turning the street into a pedestrianized street	An approval rate of 60:100%	An approval rate of 50:59%	Less than a 50% approval rate
	The opinion of shop- owners about turning the street into a pedestrianized street	An approval rate of 60:100%	An approval rate of 50:59%	Less than a 50% approval rate
Total points of the street		More than 84 points	84 points	Less than 84 points

To validate the distribution of the categories' elements in the system of points for identifying the movement inside commercial streets; A questionnaire survey was carried out, where architects and urban designers were asked to provide their level of agreement with the suggested system. The results revealed that, on average, 94% agreed with the whole system. As the percentage of agreement with the street characteristics criterion was (location of the commercial street 97.8%, street width 95.5%, street length 95.5%, street-scale 100%, accessibility 95.5%, and functional continuity 97.8%). However, the result in traffic section was (intensity of cars 91.1%, intensity of pedestrians 95.6%, parking 93.4%, serving 100%, easy access 88.9%, the relationship between cars and pedestrians inside the commercial street 100%, and the absorption of parallel streets for car movement also 100%). While, commercial structure recorded (types of shop 100%, and diversity of activities 82.2%). Finally, the criteria of environmental factors which included (street orientation 84.4%, street Shading 93.3%, street ventilation 84.4%, and land topography 95.5%).

Thus, using the above matrix and summing the weights and differentiation points to make the appropriate decision on the Commercial Street, where the overall result of the assessment of the street is more than 84 points, the decision to turn the street into a pedestrian-only. If the overall result is less than 84 points, the street's potential does not qualify as a pedestrian-only commercial street (Fig. 2).

6. Case study (the historical center of Tanta city)

The research concerns the central historical district of Tanta city (the heart of Tanta). With its architectural and planning values that must be preserved and developed, the historical center of Tanta City has a distinctive urban fabric with a special character shown in its mosques, alsabil and old houses [28]. Despite its small size, it represents an area of activity and movement, containing the greatest density of small commercial and industrial enterprises; it helps large-scale transport
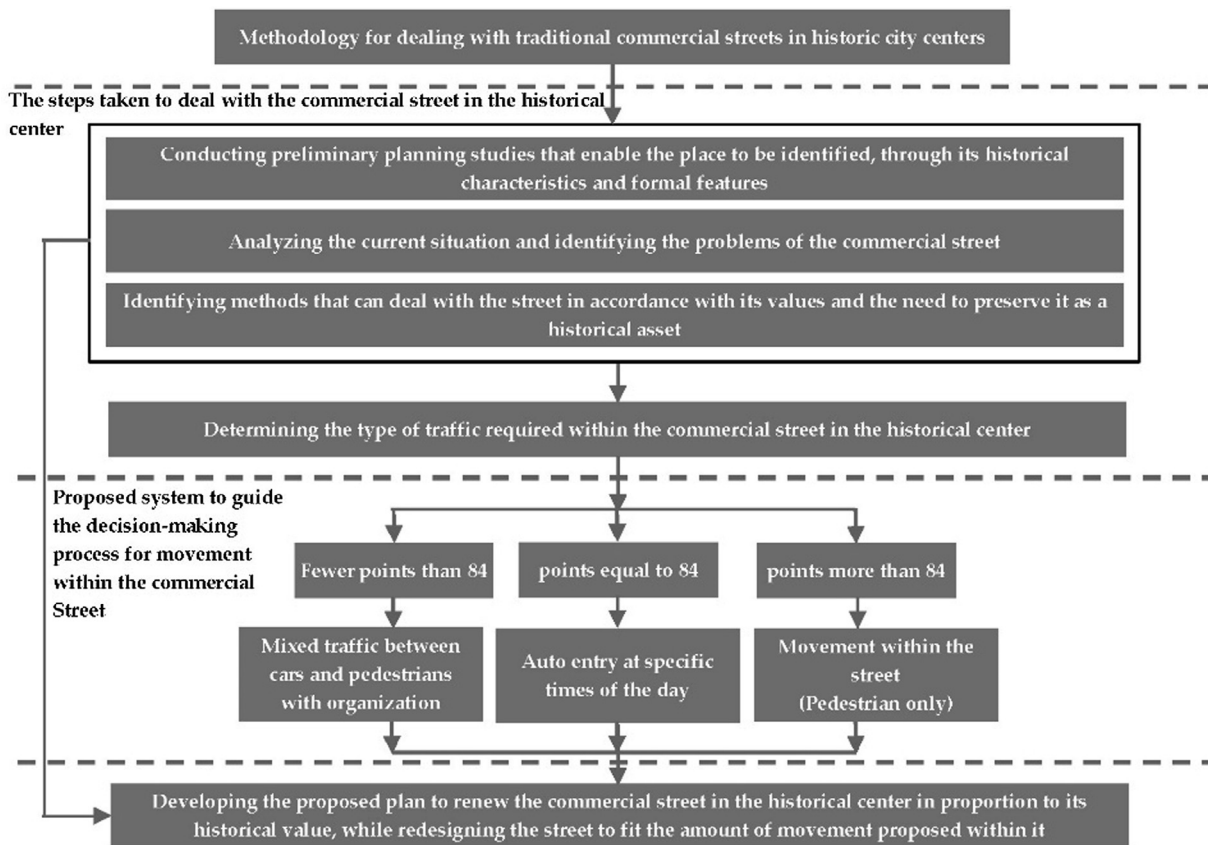
Fig. 2 Proposed methodology for dealing with traditional commercial streets in historic city centers (source: authors).

to move over the region, and it can serve not only the city but also the areas around and in the middle delta.

However, the lack of interest from the region, whether from the city, state or internationally, as well as the implementation of Law 106 restricting building in it, has created conflict in the historic district between the old and the modern, in addition to the loss of a very large part of its cultural heritage by failing to safeguard it.

The district in question is located at the heart of the historical center of Tanta around Al-Sayed Badawy mosque, which was the nucleus of the city, built before 1818. The book "The description of Egypt" tells us that the houses were in a street around the old city, which was built above the ruins on the roof of the first floor. The city was built to suit the purposes of trade because the ground floors of its buildings in many neighborhoods were dedicated to small shops rented to foreign traders on market days [8]. The commercial activities enjoy distinct locations due to the regional centrality and general reputation in the region of the city of Tanta, and these activities benefit from the low monthly rents and the centrality of sources of materials for trade and industry (Fig. 3).

The area of the historic heart of Tanta has many values, the most important being religious and spiritual, but it also has architectural and urban value, as well as high economic value; it is economically balanced, and can be restored to what it once was. The urban agglomeration of the district was a commercial market based on the existence of Al-Sayed Badawy mosque, but many agencies disappeared. The remainder were used as stores for the wholesale trade and for crafts. What remains of it can still be seen where they sell spices, fabric, and clothing, brass goods and jewelry [28]. To sum up, the main function is the religious function conferred by the presence of the Mosque of Al-Sayed Badawy, followed by the commercial function that appears in the specialized markets such as the goldsmiths′, the spice shops in Darb Al-Ather street, the textile markets behind Al-Sayed Badawy and the workshops for shoes and saddles, as well as complementary workshops [28]. The commercial stores is located at ground floor in the external axes while the workshops and agencies are located in the inner alleys.

6.1. Al-Khan street in the historical center of Tanta city

6.1.1. General description of Al-Khan street and its location

Al-Khan Street is located within the historical and commercial district in Tanta city. It is considered an extension of one of the main axes of the city (Al-Gaish street) and the link between that axis and the node behind Al-Sayed Badawy mosque. It is connected to one of the most collective roads aggregates in the city (ring road) which surrounds the old city. Also, it represents the barrier between two administrative districts (Al-Borssa and Sabri). It is characterized by the high intensity of its commercial use and traffic density (Fig. 4).

The length of Al-Khan Street is approximately 210 m, its width is irregular, diverse between wideness at its beginning from Al-Gish Street (about 21 m), and narrowness at its end behind Al-Sayed Badawy mosque (about 7 m). Therefore,

Fig. 3 Locational map of the historical center of Tanta city, Egypt (source: authors).

Fig. 4 Location of Al-Khan Street in the Historical center of Tanta city, Egypt (source: authors).

the street average width is 8: 10 m. It is also characterized by changing visual ends as a result of its breakage, which helps to get rid of boredom during the experience of walking inside it. The first half of the street from the direction of Al-Gomhoria square is tilted 10° from the north-south axis to the east, while the second half ending at the mosque follows the north-south axis. This encourages the favorable air-currents in the street, moderating the temperature.

Al-Khan Street can be reached from different destinations by people in all age groups and has services available to communicate easily in many directions. It also has an acceptable functional continuity, as there is already some obstruction of pedestrian movement along the street due to the cars and street vendors, especially at peak times.

6.1.2. Entrances of Al-Khan street

There are two main entrances to Al-Khan Street, one from Al-Gomhoria square and the other behind the mosque, along with a number of sub-entrances through side streets. The street is serviced by side streets such as Darb Alghelal and Al-Shorafaa streets, as well as its main entrances (Fig. 5).

6.1.3. Traffic in Al-Khan street

It is observed that although the cars' density on the street is low, there are many problems occur because of the narrowness of the street and the presence of peddlers on both sides as well as the increase in the intensity of pedestrian traffic, which has reached about 4 persons/m². On the sidewalk pedestrian traffic is very difficult, forcing pedestrians to go down to the street basin, thus confusing drivers. Hence, the presence of motorized traffic in the street leads to many crises, whether for the movement of cars or of pedestrians (Fig. 6).

6.1.4. Urban studies of Al-Khan street

1. Urban structure:
   A study of the land use of the street indicates that at ground level is completely commercial use. As regards the height of the buildings, the predominant structure is ground and one, or two floors (43%), followed by ground floor only (41%), while the buildings overlooking the street are mostly found to be poor (about 53%) which illustrates the lack of interest in maintenance. This shows how bad the condition of buildings on the street and its need for development. As for the structural situation, most of the buildings are skeleton, and it is clear that most buildings are not influenced by the character of the area (Fig. 7).

   As for the commercial nature of the street, the commercial activities within the scope of the study take place in shops selling fabrics, clothing, and household appliances, etc. (Fig. 8) shows the Commercial activities in Al-Khan Street & their percentage, Tanta city, Egypt. It is noted that these activities are in line with the appropriate use of pedestrian streets.

2. Visual Composition:
   - The shape of the space: It is a linear space defined by buildings. There are a number of nodes in the street, one of them at the entrance of the street from Al-Gomhoria square, another in the middle of the street
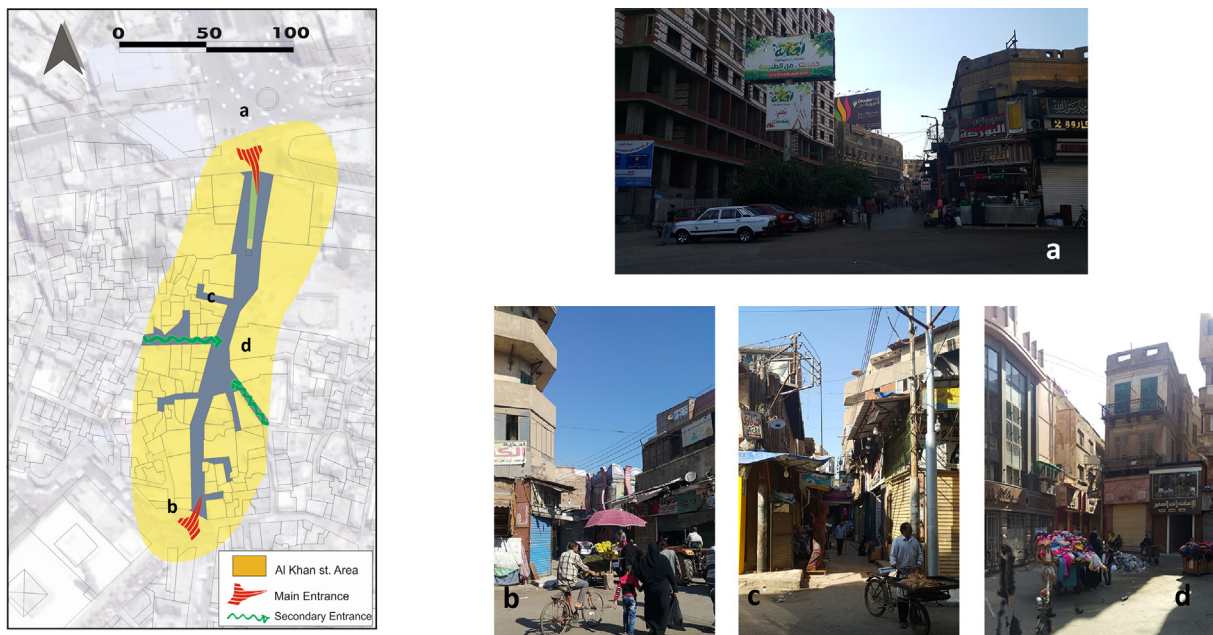
Fig. 5   Entrances of Al-Khan Street: (a and b) main entrance; (c and d) Secondary entrance (source: authors).

Fig. 6   Pictures show the conflict between cars and pedestrian in Al-Khan Street, Tanta city, Egypt (source: authors).

where it changes direction and the last at the end of the street behind al-Sayed Badawy mosque.

The street is also characterized by its human scale. The ratio of the street sector varies according to the different heights of the buildings along the path, as illustrated in (Fig. 9), between 1:1 and 1:2.3. The landmarks are found in the entrance leading to the mosque of Ezzalregal, and in the minaret of the mosque of al-Sayed Badawy, which can be seen from the middle of the street, and at the mosque of al-Sayed Badawy at the end. In general, the street lacks unity and coordination. (Fig. 10)

The shape of the street and its section ratio helps to transmit ventilation, and the proportion of the street sector provides shade in some parts of the street. The line of the high buildings follows the movement of the sun, which helps to protect against direct solar radiation.

- Space pattern: It is a dynamic linear space that inspires movement and continuity and allows many activities to be engaged in.
- Furniture elements: There are no places to sit or wait anywhere along the street. Its lighting comes only from the shops on both sides of the street. There are a few trees at

the entrance to the street from Al-Gomhoria square but there are no shaded areas along it. Parking spaces are located 10 m away in the direction of Al-Gomhoria square and 100 m away in the direction of Al-Sayed Badawy mosque.

6.2. Analysis of problems in Al-Khan street

Through a field survey of the study area, in addition to observation, the main problems of the study area seemed to be the following:

- Problems of functional composition: represented in the scattering of activities with the absence of laws to determine use, as well as interference in pedestrian and automobile traffic with the lack of continuity in the pavement and the different levels of the rise and fall of the path (Fig. 11).
- Urban structure problems: the degradation of the urban environment, where most of the commercial establishments are deteriorating. The high proportion of buildings of moderate or poor status, as well as of low buildings, clarify the importance of the trend to replace them in the next few years. This is in addition to the lack of the character and spirit of the region in its modern buildings. Besides, the
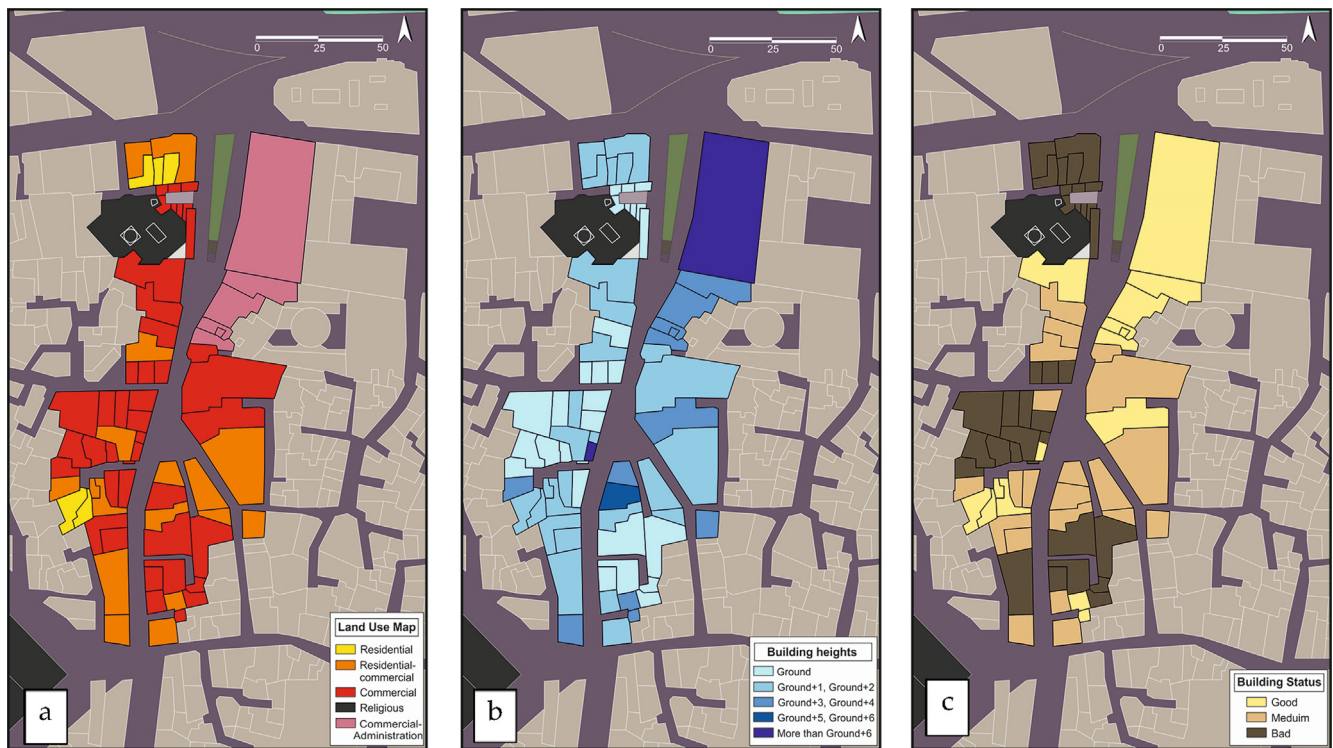
Fig. 7 Urban structure of Al-Khan Street, Tanta city, Egypt: (a) land use map; (b) building heights map; (c) building status map (source: authors).
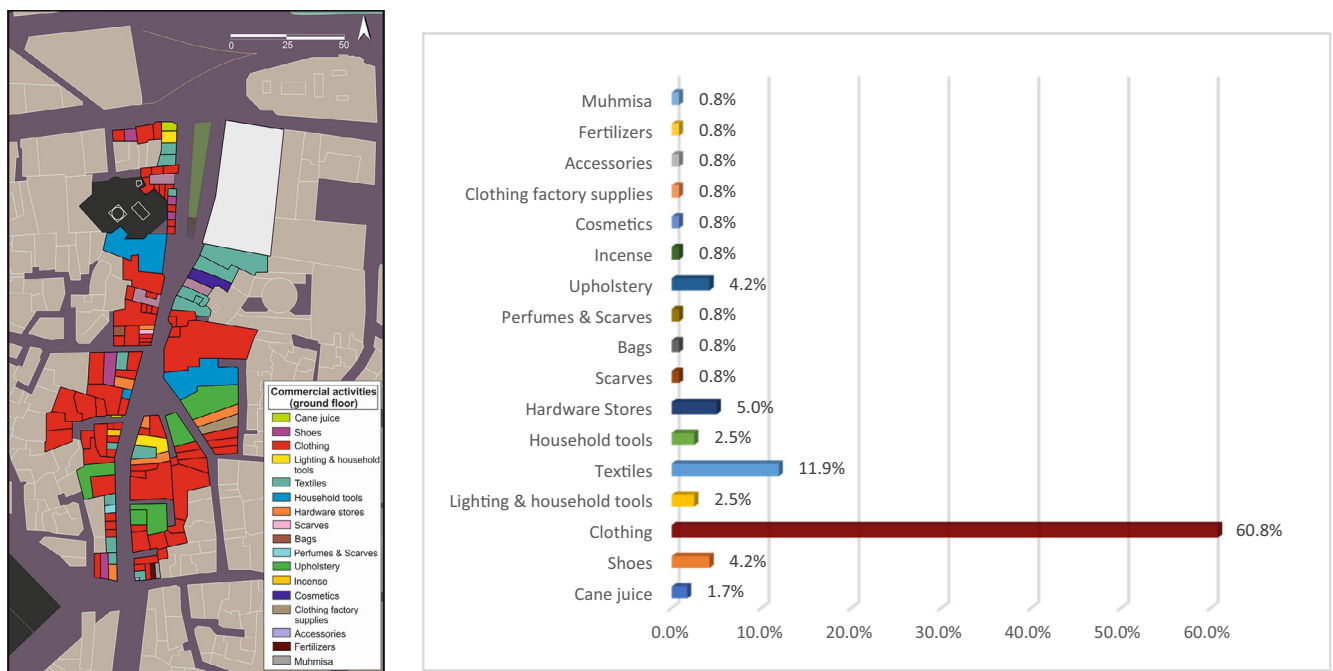

Fig. 8 The commercial activities in Al-Khan Street & their percentage, Tanta city, Egypt (source: authors).

street's appearance suffers from unclear details of the elements of the street, especially the floors, furniture and natural elements, and the exploitation by shop-owners of their section of sidewalk as an extension for their shops which is a hindrance to pedestrians, forcing them to walk in the road. In addition, the entrances to the side streets are narrow and hard to find because of this extension of the shops' facades, and the presence of numerous booths. Finally, there is no system on the street for draining rainwater (Fig. 12).
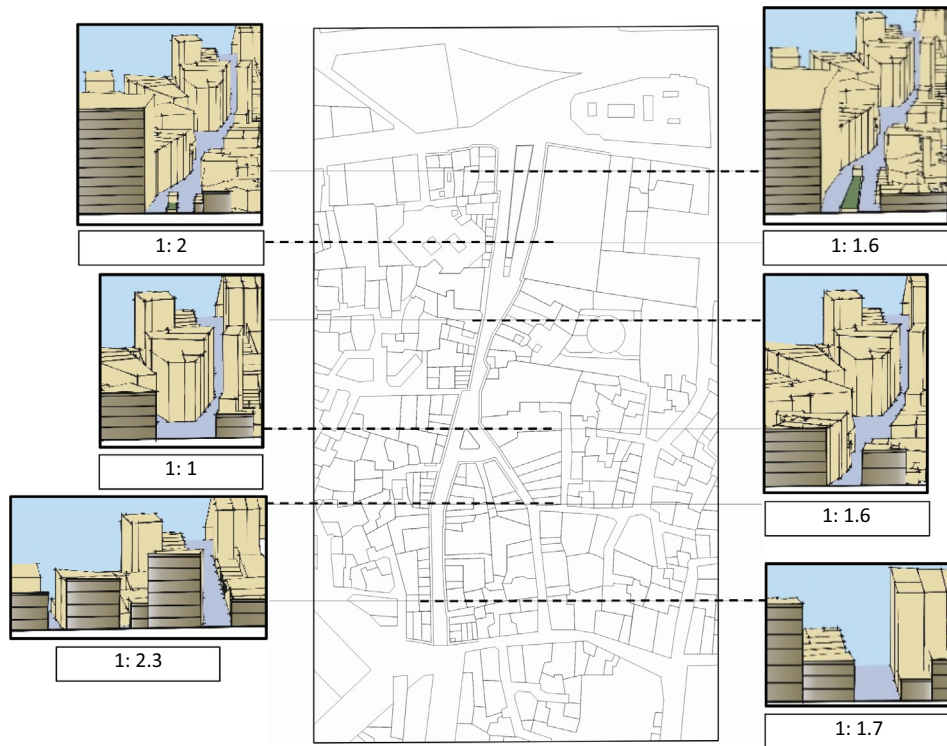
Fig. 9   The ratio of the street sector along Al-Khan street, Tanta city, Egypt (source: authors).

Fig. 10   Landmarks along Al-Khan Street, Tanta city, Egypt (source: authors).

Fig. 11   Problems of functional composition, Al-Khan Street, Tanta city, Egypt (source: authors).

• Visual pollution problems: the undesirable change in elements of the urban environment that conflict with the values of the region, such as booths, informal shops and the spread of street vendors, as well as the lack of general taste and consistency in the colors of some of the buildings, the commercial billboards and shades that distract attention (Fig. 13).

Fig. 12   Problems of Urban structure, Al-Khan street, Tanta city, Egypt (source: authors).

Fig. 13   Visual pollution problems, Al-Khan Street, Tanta city, Egypt (source: authors).

• Environmental pollution problems: which resulted from traffic problems and the scattering of garbage in the street (waste from commercial shops) (Fig. 14).

First: preserve all the value of the environmental and structural elements in the space of Al-Khan Street in the historical center of Tanta City.

Fig. 14   Environmental pollution problems, Al-Khan Street, Tanta city, Egypt (source: authors).

6.3. Urban renewal of Al-Khan street in the historic center of Tanta city

Through studying and analyzing the current situation of Al-Khan Street in the historic center of Tanta, the above problems facing the street and its users were identified. However, in accordance with the proposed methodology for dealing with traditional commercial streets in historical city centers, proposals for renewing the street can be made, as follows:

Conserve and restore the historical buildings, while respecting and improving their historical characteristics in the heart of the ancient city and recovering the spirit of the past.

Rehabilitate and upgrade the buildings with all the necessary reconstruction and the remove the buildings that are badly deteriorated.

Giving the distinctive architectural character of the historic buildings on the facade of buildings and shops on the street (Fig. 15).

Keep the present economic activities in the district. Raise the level of its social, health and commercial aspects, contributing to the revitalization of the place.

Fig. 15   Samples of the distinctive architectural character of buildings in the historic center of Tanta city (source: authors).

Take the necessary legal, financial and administrative procedures to preserve and conserve the district in question, such as declaring the rules and requirements for dealing with the heritage areas and their urban surroundings, enacting laws which fine violators, and establishing rules to govern the form and colors to be used for shops signs in general.

Eliminate the problem of street vendors and remove booths, encroachments and occupations with the provision of alternative places for them.

Enhance the visual image of the street in the following ways:

- Use structural units to give a uniform appearance by keeping the same units in every process. This will generate a feeling that everything is composed within a single frame and set up a visual rhythm.

Table 2   Matrix proposed for making a decision about the ability to pedestrianize Al-Khan Street, Tanta city, Egypt.

Criteria		Number of points per item		
		6	4	2
Street characteristics	Location	Historic center ✓	City center	Outskirts of the city
	Street width	≤10 m ✓	Between 10 m and 15 m	≥15 m
	Street length	≤1.5 km ✓	Between 1.5 km and 3 km	≥3 km
	Street-scale	Friendly	Human ✓	Memorial
	Accessibility	High ✓	Average	Low
	Functional continuity	Good	Acceptable ✓	Low
Traffic	Intensity of cars	High ratio	Average ratio	Low ratio ✓
	Intensity of pedestrians	High ratio More than 3persons/m² ✓	Average ratio 3persons/m²	Normal ratio Less than 3persons/m²
	Parking	about 800 m away ✓	about 1000 m away	More than 1000 m away
	Serving	Side streets ✓	with certain times of service specified	no scope for servicing except car entry
	Easy access	Easy ✓	Average	Hard
	The relationship between cars and pedestrians	Conflicted ✓	balanced	No conflict
	Absorption of parallel streets for car movement	High ratio	Average ratio ✓	Low ratio
Commercial structure	Types of shop	Suitable for pedestrian streets ✓	Correspond to some pedestrian requirements	Compatible with mixed traffic streets
	Diversity of activities	High (More than 10 activities) ✓	Average (between 4 and 10)	Low (Fewer than 4 activities)
Environmental factors	Street orientation	Good ✓	Average	Bad
	Street Shading	Available	Can be solved ✓	Not available
	Street ventilation	Good ✓	Average	Bad
	Land topography	Different levels	Low slope	Flat ✓
Community participation	The opinion of users about turning the street into a pedestrianized street	An approval rate of 60:100% ✓	An approval rate of 50:59%	Less than a 50% approval rate
	The opinion of shop- owners about turning the street into a pedestrianized street	An approval rate of 60:100%	An approval rate of 50:59% ✓	Less than a 50% approval rate
Total points of the street		Total points = 108		

- Show the identity of the historical area to deepen the citizens' sense of belonging and also emphasize the character and personality of the place.

- To confirm the identity of the place, emphasize urban diversity and harmony at the same time through the organization of banners and advertisements that preserves decorum in its design, reflecting its social values and spatial characteristics.
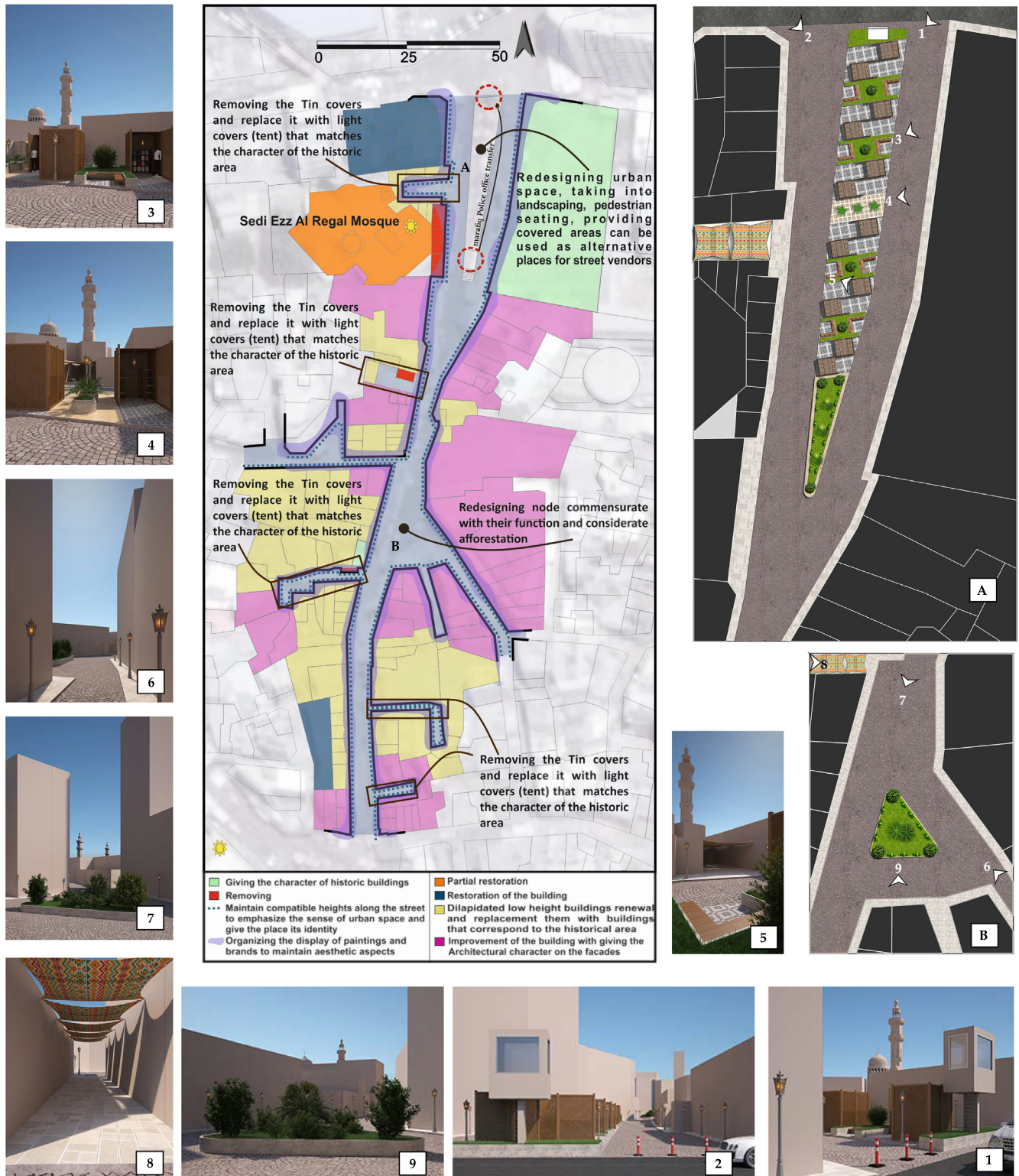

Fig. 16 The proposed renewal of Al-Khan street at the historical center of Tanta city (source: authors).

- Provide green areas in urban spaces in the commercial district in order to minimize the environmental pollution which resulted by gathering a lot of activities and people.
- Establish a touristic commercial path that offers arrange of activities and helps to create points of attraction.

Second: Create a safe environment for the comfort of users of Al-Khan Street in the historical center of Tanta:

Analysis of the current status of Al-Khan street, in addition to meetings with 90 of its users and shop-owners, shows that about 76% of the users would rather cars were forbidden on the street because they cause traffic jams and make them feel unsafe. However, the owners of shops are afraid that limiting the street to pedestrians could harm their trade. When the opinions were counted, the ratio of pro- to anti-pedestrianization was about 55% of a sample of 60.

The next table shows the matrix proposed in this research for making a decision about the ability to pedestrianize the street entirely and forbid cars (Table 2).

By grouping the weighting points to make the appropriate decision on Al-Khan Street, the overall result of assessing the street was 108 points in favor, which is greater than 84 points; thus, the decision was to transform the street into a pedestrian walkway.

It is therefore suggested that it should be turned into a road for pedestrian use only, with the aim of reviving the district commercially so that it becomes a tourist attraction. This decision also emphasizes the role of pedestrian paths in old cities and conveys the importance of historical paths and public spaces for those engaged in social, economic and recreational activities. In addition, it is suggested that a pavement not less than 1.5 m wide taking into account the need to keep the spaces between shops clear, should be laid down in front of the shops for the sake of customers after pedestrianization.

Elements such as street and landscape furniture for shading, lighting and other needs of pedestrians should be provided. They should be connected to local traditions and visually and functionally appropriate to their setting. A system of garbage collection from shop-owners should also be provided and a system of rainwater drainage on the street should be designed and constructed.

All the legislation that obliges users to maintain the distinctive architectural character of the region should be activated and enforced.

(Fig. 16) shows the proposed renewal of Al-Khan street at the historical center of Tanta city.

7. Conclusion

Traditional commercial streets in cities' historical centers didn't take sufficient attention in the conservation processes of historic city centers until now. Therefore, it suffers from neglect, deterioration and many problems. Hence, appeared the need to develop a strategy to deal with these streets to stop that deterioration.

The study clarifies the important to conduct initial studies before renewing the commercial streets at the historical center of many cities to know the reasons for their deterioration and then propose the most suitable method of dealing with it, in accordance with its historical value. It was also found that

determining the type of movement in commercial streets is related to political decisions which sometimes prevent commercial streets from performing their function properly. Thus, Criteria should be agreed for determining the traffic allowed in traditional commercial streets to help in identifying its type (full malls, Semi Malls, Transit Mall).

Overall, the authors suggest a methodology to the urban renewal for traditional commercial streets at the historical centers of cities, which is applicable and serves as a guide to help decision making. That methodology includes many procedures which can summarize in two sections, the first concern about preserving the traditional commercial street's values, the second deal with the issue of the type of movement within the street.

Al-Khan street in Tanta's historical center (in the El-Gharbia governorate) represents one of the most important streets to have been affected by the failure to enact enough planning and buildings laws to control development. Neglect, too, has led to the loss of the street's character and identity as part of the city's historical center, and to many of its functional, urban, visual, and environmental problems, among others.

Studying and analyzing the street according to the proposed methodology clarified:

- The need to set up procedures to deal with the dilapidated buildings such as restoration, replacement, and renewal, with an emphasis on restoring the historic character of the street's facades.
- The need to transform the street into a full mall, in order to let it attain its economic and social role in the Tanta's historic center.

8. Recommendations

This paper recommends that the suggested methodology shall be followed to the renewal of the traditional commercial streets in the historical center of cities. In addition to using the proposed methodology to determine the type of commercial streets in cities generally and in the historical center of cities in particular.

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